IETC*2017

INTERNATIONAL EDUCATIONAL TECHNOLOGY CONFERENCE

AUGUST 16-18, 2017

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ITEC2017

INTERNATIONAL TEACHER EDUCATION CONFERENCE

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International Educational Technology Conference (IETC) and International Teacher Education Conference (ITEC) are international academic conferences for academics, teachers and educators. They promote the development and dissemination of theoretical knowledge, conceptual research, and professional knowledge through conferences activities, the conference proceedings books and TOJET and TOJNED Journals. Their focus is to create and disseminate knowledge about new developments in these academic fields.

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We would like to thank Prof. Dr. Muzaffer ELMAS, Rector of Sakarya University for his support of organizing these conferences.

We also would like to thank Prof. Dr. Robert DOYLE from Harvard University for his collabration and support. Without his efforts and help, this conference would not be possible at Harvard University. We would also like to thank to Harvard University for hosting us here during three days.

Also, we would like to thank to our distinguished guests, keynote speakers for their collaborations and contributions to the success of these conferences.

And we would like to thank all of you for coming, presenting, and joining in these academic activities.

Finally, we would like to wish you all a successful conference, pleasant stay in this historically prestigious university and good time in beautiful city of Boston.

Thank you...

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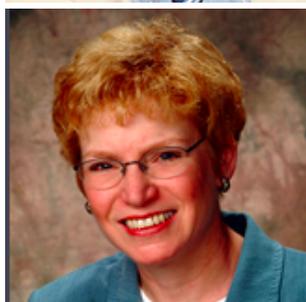
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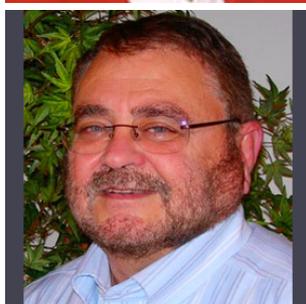
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LANGUAGE EDUCATION AND NATIONAL IDENTITY: LANGUAGE REFORM MOVEMENTS FOR STRENGTHENING NATIONAL IDENTITY IN HUNGARY

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ABSTRACT

Introducing the modern concept of nation for the first time in the 18th century, a German Philosopher J. G. Herder argued that "the Hungarian language will perish in the waves of the German and Slavic languages." This indicates that language education is closely related to national identity in a nation. Stimulated by his warning, the Hungarian people conducted language reform movements under the leadership of Kazincy Ferenc from the late 18th century through the 19th century. In this regard, they focused on the reform and education of the Hungarian language. Accordingly, this presentation will address the development, process and results of the Hungarians' language reform and education to boost
their national identity.

INTRODUCTION

Language is an important medium for humans to lead a collective life. First, "nation" could be referred to as a representative language-using group (Doo-bin Im, 2011, p.231). The group is generally characterized by sharing language and history together. This makes the members of a nation form their own identity. As a result, the language and identity of a nation are closely related to one another. As seen in the world history, a ruling nation has often forbidden its subject people from using their own language. Japan prohibited Korean people from using Korean language in 1937. Joseph II, a Hapsburg emperor, banned the Hungarians from using Hungarian in 1784. Such policy was caused by the recognition that mother tongue is closely associated with national identity. Accordingly, the ban was considered to be an effective tool for collapsing national identity. In return, a subjugated people have striven to protect their mother tongue for the purpose of maintaining their identity. This is true of the Hungarian nation as well. Introducing the modern concept of nation for the first time, a German Philosopher J.G.Herder argued that "Hungarian might be swept away by the waves of German and Slavic languages"(Sang-hyup Lee, 1996, p.183). This indicates that language education and national identity have a close relation to one another. Warned by Herder, the Hungarians conducted language reform movements under the leadership of Kazincy Ferenc from the late 18th century through the 19th century. The movements focused on the reform and education of the Hungarian language. This presentation will look into the language reform for the reinforcement of Hungarian national identity.

BACKGROUND AND BEGINNING OF LANGUAGE REFORM MOVEMENTS IN HUNGARY

In Hungary. a language reform campaign was carried out by Kazincy Ferenc systematically and in earnest, but could date back to Bessenyei György. In 1784, Emperor Joseph II ordered that German should be used officially in Hungary as well. Against the policy, Bessenyei György joined the magyar jakobinus mozgalom, an independence movement group in Hungary. In a propaganda "magyarság", he maintained that "everyone can be an intellectual by mother tongue only". In an open letter in 1781, he argued that "learning is the most important tool for national prosperity and its key is language"(Kyung-min Han, 2004, pp.131-132). He saw through the Hapsburgs' intention to dilute Hungarian identity and incorporate the Hungarians into the Hapsburg Empire by prohibiting them from using Hungarian, and made efforts to protect and develop his mother tongue. Herder also said, "The characteristics of every nation date back to prehistoric times and national spirit is included in language, fork tales, folk songs and custom. Hungarian might be swept away by the waves of German and Slavic languages". This provoked the Hungarian people to protect and develop Hungarian on a full scale. This movement was initiated by a reformist Kazincy Ferenc (Sang-hyup Lee, 1996, p.184). In the process of language reform, there were intense clashes between ortológusoks and neológusoks, but the latter won the victory in the end, causing a great change in Hungarian (Péter László, 1994, p.1497). The reform of neológusoks is rooted in the sense of crisis that the then Hungarian seriously lacks not only common vocabulary but also learning-related vocabulary and may be absorbed into German and Slavic languages.

Department of Hungarian Language and Literature was opened at the University of Budapest in 1792; most academic papers were written in Hungarian. In 1844, the Parliament enacted a law that made it obligatory to write all official documents in Hungarian, and Hungarian was recognized as an official language (Sang-hyup Lee, 1996, p.184).

DIRECTIONS OF LANGUAGE REFORM AND EDUCATION IN HUNGARY

In Hungary, language reform was directed toward the recovery of lost vocabulary, the reception of foreign language vocabulary, and the expansion of the then vocabulary. The reform was to make Hungarian the official language by expanding and educating Hungarian vocabulary among the people in three ways (Minya Károly, 2003, P.11).

The Hungarian nation is very peculiar in that its origin and history are defined by language. Calling themselves magyar, they have lived in a blood mixture with other peoples, while migrating from the western part of the Ural Mountains to Europe for thousands of years. This makes only Hungarian an element of defining the Hungarian people. In other words, the Hungarian nation is closely related to linguistic hypothesis in origin and history. Hungarian ancestors lived among the Finn-Ugric primitive language community to the west of the Ural Mountains, but were separated from the peoples of Finn languages who moved to the northwest. The magyar people moved to the southwest, lived with peoples in Central Asia, Turkey etc to the south of Siberia, and then moved to the center of Europe. They settled down in the current region of the Carpathians and lived as Europeans (Soo-young Park, 2016, p.22). While migrating thousands of years, they borrowed vocabulary from neighboring peoples, while losing a large number of Finn-Ugric primitive language vocabulary. Paying attention to the problem, language reformists did their best to their national identity derived from Asia and recover the primitive vocabulary of the Hungarian people. In the 19th century when language reform movements began in earnest, it was one of important duties for the Hungarian nation under the Hapsburgs to find their roots and establish their national identity. Specifically, primitive words, such as aggastyán (old person), alak (form), év (year), fegyelem (training), hölgy (lady), lomb (leaf), rege (story), szobor (sculpture), terem (hall, room), vihar (storm), verseny (contest, game), were brought to light again. In addition to these common nouns, proper nouns were also found again. Of them, human names, Árpád, Ákos, Béla, Gyula, Zoltán etc. are often used as human names. Besides. several words, which remained dialects, were incorporated into standard language. Their examples are barangol (wander), betyár (bandit, bucka (low hill), burgonya (potato), csökönyös (obstinate), csuk (close), érdes (coarse), falánk (greedy), góc (integration, center), hanyag (lazy), hullám (wave), hűs (cool), idom (diagram), inda (vine), kamat (interest), kandalló (fire pot), kelegye (marriage expenses), laza (loose), lenge (very light), modor (attitude, behavior), pogyász (luggage), rimánkodik (implore, entreat), róna (plain), szikár (haggard), etc. (Bárczi Géza-Benkő Loránd-Berrár Jolán, 1967, pp.551-552).

The Hungarian language has been culturally influenced by the settlement in the Karpaten Basin after long migration, the establishment of the Hungarian Kingdom, and the subsequent contact with various nations, which is represented by the borrowed words in Hungarian. Accordingly, the loanwords show how the Hungarians were influenced economically and culturally during the ethnic movement (Soo-young Park, 2016: 32). Even before the language reform, the Hungarian people borrowed many foreign words, while moving from Asia to Europe. For example, they adopted words, such as tej (milk) and tehén (ox, cow), while keeping in contact with ancient Iranians after separation form the Ugric community. Besides, they got in touch with the Turkish people most among the peoples from their early migration through the settlement in the current territory. The contact led to the reception of Turkish words, such as alma (apple) and kapu (gate). Reaching the Karpaten Basin, the Hungarians encountered the Slavic peoples for the first time, which led to the borrowing of more than 500 words, including görög (Greece) and lengyel (Poland). As the Mongolians invaded Europe in the 13th century, the Germans moved into Hungary. More than 2000 words, including orbély (barber), cukor (sugar) and marha (ox, cow), were adopted from then through the times of the Hapsburgs. In the Middle Ages, Latin was the official language, which led to the adoption of many Latin words, including angyal (angel) and iskola (school), in the areas of school, learning and religion. In the Renaissance Age, the Renaissance culture was introduced from Italy and King Mátyás married a lady from Italy, which led to the borrowing of many Italian words, including mazsola (dry grape), forint (Hungarian currency) and narancs (orange)(for further information, see Soo-young Park, 2016: 32-41). Noting that many foreign words were received during migration and settlement in Europe, language reformists increased Hungarian vocabulary by adopting foreign vocabulary intentionally. For example, they adopted pillér (pier) from French and bálna (whale) from Latin. In Hungarian style, they also translated the foreign words not found in

Hungarian. For example, anyag (material) and pincér (waiter) were derived form materia and keller, respectively. This adoption made Hungarian rich in vocabulary.

Language reformists intentionally expansively reproduced Hungarian vocabulary by restoring vanished Finn-Ugric vocabulary, borrowing foreign vocabulary, and composing, abbreviating and deriving the existing Hungarian vocabulary. In terms of composition, they composed nő (woman) and vér (blood) into a new word nővér (sister); szem (eye) and üveg (glass) into szemüveg (spectacles); folyó (flow) and irat (writing) into folyóirat (magazine); rend (order) and őr (guard) into rendőr (police); vér (blood) and szegény (lack) into vérszegény (anemia). In terms of abbreviation, they created árny (spirit) by contracting árnyék (shade), and kapa (pickax) by contracting kapál (to pickax). In terms of derivation, they created many new words by adding derivative endings, such as ász/ész, z, kodik/kedik/ködik, ít, alom/elem, mány/mény, vány/vény, and da/de to the existing Hungarian words.

CONCLUSIONS

Performed from the 18th century through the 19th century in Hungary, language reform and education were revolutionary measures for national survival in the sense of crisis that Hungarian, enclaved in Europe, might be expelled by neighboring Germanic and Slavic languages. Being intentional and revolutionary, the language reform also sparked formidable resistance from opposite groups. Nonetheless, language reformists recognized that if mother tongue disappears, it is difficult to keep national identity, since mother tongue shows national identity best. Therefore, they believed that they had to pretend Hungarian, above all, by expansively reproducing its vocabulary. At that time, Latin and German were official languages in Hungary. Disregarded by intellectuals, Hungarian was poor in vocabulary. The Hungarian people could begin to innovate their mother tongue thanks to Herder who reminded them of the close relations between language and national identity.

In Hungary, language reform focused on the expansion of vocabulary in three ways. In terms of national identity, primitive Finno-Ugric words were restored to reconfirm and strengthen the Asian identity that gradually disappeared in oblivion. As hundreds of years passed after the settlement in Europe, the Hungarians were Europeanized in terms of material culture, but their self-portrait and portrait were still based on Asia. Hence, Asian elements were the most striking features that differentiate the Hungarians from the Europeans. Lost primitive Finno-Ugric vocabulary were restored to strengthen such distinctive features. Second, the adoption of foreign vocabulary could be understood in terms of reconciliation for coexistence with neighboring nations. However, it could be understood seen in terms of the reception of part of European culture rather than the reinforcement of identity as Europeans. Lastly, the expansive reproduction of Hungarian own vocabulary could be seen in terms of both the reinforcement of Asian identity and the reception of European culture. Specifically, the expansive reproduction of words from Finno-Ugric languages was to solidify Asian identity, and that of loanwords after the settlement in Europe was to strengthen European culture. Therefore, language reform movements in Hungary were implemented both to strengthen Asian identity and to seek harmony with Europe by the expansion of vocabulary.

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MEDIA-TEXT - AS POWERFULL MEANS OF MASS MEDIA

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Abstract
Media-text is a pragmalinguistic term, which is considered as a compound term. It is not only a linguistic unit, but also general knowledge in the communication sphere. Therefore, in recent years, the study of media texts within cognitive linguistics has become of great importance. Here, language is considered as a presenter of external information, as well as cognitive tools to be used for disclosing the meaning encoded in the information. It is also important to determine what the language means within the ideological orientation of media texts. Consideration of information with socially relevant content transmitted through verbal means, in a broad sense with extralinguistic factors, namely, the human factors is also important. In connection with the society, in social linguistic environment, there is a requirement for the fundamental branches of science. Today it has been developing in the anthropocentric direction. Since, the focus of our research is on human being, who is the creator of media texts (journalist), and the recipient (the reader), the object, as well as due to the fact that the subject matter covered and the value of human problems. Therefore, relevance of this research work is that it is necessary to study the main factors affecting human beings from psycho-social and pragmalinguistic aspects.

Keywords. Mass Media Texts, Reciepent, Manipulation, Metaphors, Linguistic Alterations.

Introduction

Unofficially, mass media is found as the fourth power of the authority in the society. The mass media plays a critical role in the current information century. Professor R. Syzdykova states that the fiction style has a dominating role in developing the Kazakh national written literary language: "No doubt, nowadays, we can recognize the state from what role publicity plays. Mass media – the press, radio and television has strengthened practicing languages. In spite of everything, Kazakh fiction, especially its prose, is still not going to yield its leading and exemplary position" [Syzdykova R 1986]. Nevertheless, the publicistic style of fiction is called functional item. It has become one of the main functional styles, especially, during the last decades of this century with the increase of social consciousness as well as legal and political consciousness, and rapid development of technical and electronic devices [Zhumagulova M 2005]. People use mass media first to pursue their interests. After getting rid of the Soviet censorship, the mass media sometimes seems to be turned into the privacy of specific organizations or celebrities. On the other hand, it is thought that the mass media is broadcasting different problems in all spheres of the society. Nowadays, it is not a secret that the mass media is concentrated on those social issues that it finds to be important by itself. Particularly, during the pre-election campaign, it is considered to be of state importance for the introduction of the real purposes and objectives of the legal personalities by the mass media. It is well known that there are three types of means of mass media: television, radio, and periodical press.

The broadcasted text on radio is accompanied by soundtracks, while the periodical press text (newspaper and journals) is particular to its graphic designs. The perception of texts mentioned above is realized by three channels: television text is perceived with the help of audio and video tracks, radio text is understood only in audial way (by hearing) and periodical press materials (in spoken language "dead text") is perceived only by visualization (it is read). Despite such a precise distinction between all the messages disseminated by the mass media, there are compiled a set of verbal and medial symbols, which all together provide a meaning to the term media text. In Russian -Kazakh dictionary, the term „media" is defined as the means of mass media [Russian-Kazakh dictionary 2005]. The contextual composition of the press, radio and television programmes, information consists of two principal parts: factual and influential. The national mass media programmes attach great importance to information content and information influence. In many cases, too much importance is attached to influencing and convincing means of the information. This approach has been still kept in modern periodical press.

The mass media text should be considered as a linguistic unit, as well as a communicative presage in the content of general education. In recent years, the media text is found significantly in the content of cognitive linguistics. Language is used as cognitive instrument to recast outside information and decode the enciphered message of the text, as it is essential for the cognitive linguistics specialists. Information space established by the mass media is created on subject principle, because of the specific peculiarities of the media courses that are reflected in that space. In researching media text, it is significant to define what linguistic approaches should be used to express ideological orientation. Contemporary mass media researchers, to be more exact media communication researchers, still cannot give the definite answer to the question - what the stylistic status of the language is, because the functional and stylistic distinctions of the media language have not been clearly defined yet. For instance, designations appropriate to general publicistic style cannot be obligatory and commonly referred to all types of mass media.

The printed materials of a periodical press have passed several stages of stylistic editing. But, it is impossible to control the information disseminated by television or radio

constantly. For instance, it is difficult to evaluate language style of the reporter during the on-the-spot report from different sports competitions, cultural events and political affairs of broadcasted life.

Thus, it is clear that the complexity of the media language and its stylistic diversification complicate the research on media language. Professor Yu.V. Rozhdestvesky stated: "Difficulty in researching the media caused not only by the fact that there is no tradition of a special study of mass media, but also by the special complexity of the subject, that is, mass media. The complexity of the media involves: firstly, the media information text is created collectively and collegially, and secondly, the media information encompasses and embraces its content of all other forms and varieties of a spoken and written word. The characteristics of the spoken word, literature and writings are included in the media. Thus, the media is an integrated text in its way of creating and comprehensive oral and written sources [Rozhdestvesky Yu 1997].

Actually, the reason for this difficulty is the classification of a language for functional and stylistic distinctions has not been given yet. It is reasonable to say that this problem is caused by the researchers" need to follow different concepts, refer to different criteria in classifying functional styles and their subgroups. So, each researcher chooses the concept according to his research purposes regarding the use of language in grouping reasonable facts. D.N. Shmeleyev writes: "There is no reason to think that using a particular criteria; therefore,

we are in conflict with all other concepts of styles and other principles of grouping functional varieties of language. Apparently, we can properly assess the relevant proportion of different criteria fairly by illuminating diverse aspects of this multifaceted problem in various ways"

[Shmeleyev D 1977].General media communication is considered to be an important field of social activity in public practice. Due to this importance, the typical distinctions of media communication can be the basis for the word usage peculiarities in the above-mentioned sphere. This is primarily because media texts are collegial, cohesive and focused on scattered located extensive audience [Dobrosklonckaya T 2000].

However, from one side the integrity and unity are inherent to the media language and its thematic composition is also stable. From another side, functional and stylistic diversification demonstrates thematic universalism of the mass media. The difference of the word usage in the media text is that it is open to the amendments and adjustments, unlike other industries.

The researchers draw their attention to two problems in determining the status of the media communication language: 1) the recognition of the media language as a developed, independent stylistic composition with its place in different functional stylistic systems; and 2) determining the internal functional and stylistic ranging of the mass media language [Dobrosklonckaya T 2000].

It is natural that the mass media concentrates on newspaper language, mainly because of two reasons: first, the newspaper is the oldest form of the mass media. Therefore, the principle stylistic approaches and methods unique to the media communication had already been worked out. Second, the newspaper language is very convenient for linguistic research, and necessary materials are available at any time. Hence, they are not required to be recorded in advance and broadcasted, like radio and television materials. Unlike other mass media recourses, the newspaper text is voluminous and large-scaled. In summary, the mass media consists of the *journal, radio, television, movies* and the most effective means of communication with the mass population – a *newspaper*. Mainly because the newspaper is acceptable at any time, the information is voluminous, topics are diverse, all newspaper series are convenient for the reference and its format is comfortable. Despite the television and the internet have conquered the whole globe, the newspaper still remains important.

As for the mass media, it is a renewed form of the media communication, which plays an important role in intercultural communication. Mass media becomes an integral part of the

life for the mass population that disseminates different types of information. So, the mass media is the forth form of the authority informally. With the help of the mass media, different influences are made on the society. It imposes some perceptions about policy, economy, and culture and makes superiority. Therefore, the mass media acts as a mediator between the information sender and receiver. Despite there is an official state language, the media language possesses some distinctions. It provides the mass media with necessary tools to realize its main functions. It also increases the linguistic scientists" interest to the problem. Kazakh as the state language is rich for its content and format for the Kazakh media language. The researcher A. Aldasheva explained while making the decision in her work about the contemporary media language genre and stylistic distinctions: "In general today old newspaper language, clichés, the majority of terminology, special vocabulary specific to the media language are not used in the contemporary media language. Instead of those, the expressive and emotive vocabulary, proverbs and sayings, stable word combinations and popular expressions, as well as simple language and language personalities typical to spoken language are often used. Other stylistic language elements are frequently used in newspaper language. The change and influence of stylistic elements to another style is called interstylistic diffusion. This sort of interstylistic diffusion takes place in Kazakh publications [Aldasheva A 1999].

Discussion

There are different viewpoints in understanding the notion "text meaning" among researchers. One group of researchers relates to the meaning of the text to its main idea [Luriya A 1975], while another group of researchers mainly draw their attention to two elements of the text: meaning and situation [Kolshansky G 1978]. Also, there is another group of researchers who define two types of the meaning: an abstract meaning and a general meaning. Now, it is worthy to consider the notion of *"personal meaning"* by A.N. Leyontyev [Leyontyev A 1977].

An addresser expresses his viewpoint about the natural existence in the text step by step, and an addressee perceives and considers the autho's idea through his inner world creating his own "personal meaning" about the text content.

Basically, the personal meaning, not the general meaning helps the addressee to understand the content of a world. It helps the person to realize the real importance of everything in this world. Consequently, the interrelation between the person and existence takes place due to interaction of the meaning and the recipient and the "meaning" acts as a mediator. Furthermore, the existence is formed in person's mind as a media shape

of the universe.

This formation of the text represents the content in person's mind: the meaning of the media-text appears between the link of recipient's imagination and the reality. Communication between the mental representations of recipient's mind and symbolic components of the media-text, its occurrences and situations help to improve the meaning of the text. That is why we can make a conclusion that without a connection to the text and recipient's imagination, the meaning of the text is lost [Peeschalnikova V 1991].

Mostly, the media-description of the world which represents people's informational actions is full of dynamism, and is very changeable. Presently, personal, informational actions are divided from other activities, and are being developed. Informational service, including natural truth, can make an extraordinary media-truth. Media-truth is made from media-texts, which are published and circulated by different types of mass-media. Media-texts make the truth like a thing, for this matter they need a space. It is called a *"media-space"* in a scientific literature. While perceiving the media-texts, the media-truth is changed into one part of a person"s truth, leading to the appearance of a variety of changes in a society.

Furthermore, it depends on the following two systems – the connection of symbolic and mental systems, which helps to make different variants of interpretations of truth. So, the media-text maker can choose any variants of representations, and the recipient also has a chance to make different interpretations of the text. Generally, it is known that person's mind perceives the world not as a whole thing, but like the little parts of pictures; therefore, the fantasy of the person is free. This freedom gives a big opportunity to manipulative communication. In other words, the meaning of manipulation is a change. At present, there is no stable conception that can explain the mechanism of manipulation. In order to achieve this manipulation, researchers explain its mechanism as follows:

Illusions, which are created by the laws of perception (i.e., the distance between a person and a white thing will seem close to each other, but the black thing will seem far away. And the thing which is situated on the left side of the person will also seem bigger than the thing on his right side). These kinds of illusions are used to place the information on the perceptive space.

The effect of unconsciousness to the person's character. Here, manipulation is achieved with the usage of national, religious, and political symbols.

Manipulative technologies at the personal level: managing information, giving effects of manipulation in a hidden way, using force, manipulating to interest somebody, etc.

To consider person"s brain as a computer that has its own special programme [Akhatova B 2000].

Generally, the main function of the mass media is to report or broadcast variety of information to the audience influence people using this information. Moreover, in order to achieve this kind of effect, the authors of media-texts use different language methods. According to traditional value system and using its right, good and bad rules, authors educate people as readers.

We can observe that in the aim of achieving pragmatic aim, the authors of newspaper texts do not often use good or right methods while writing. In order to persuade his audience that the idea is right, an addressee can make changes upon the world' language picture, which is fixed in the reader's cognitive mind. Language methods that used for the sake of the author are divided into two groups:

1 Language methods;

2 Language approaches.

The first group includes language units that are well known and used by authors actively. The second group includes the methods that are directly used by the recipient in a hidden way, and they are also used to realize incorrect actions of some individual groups. All th methods that belong to the second group are called *"language manipulation"*. But, in the research that are written in Kazakh language, we have never met such kind of methods. Hence, when we use this occurrence according to the materials of media, they are called

"language means". The meaning of the notion "language means" relates to the meaning "ruse". These language units are used in giving bad meanings of the text. Nevertheless, we cannot see such kind of bad meaning in the context and semantics of the notion "approach".

Language manipulation, at first, is directed to make changes to the linguistic picture of the world, which is fixed in the recipient's cognitive mind and its elements. In our society, reader's mind is manipulated verbally and non-verbally by different means of mass media. In politics, manipulation is aimed and used to make an ideological fight against people [Sabato and Simpson 1996]. According to an explanatory dictionary of literature, manipulation is an ideological, social and psychological system which can change person's point of view and observe person's actions [Short dictionary on sociology 1988]. Webster's dictionary explains that manipulation is a tool which gives people wrong information and exerts pressure on them [Webster's New Encyclopedic Dictionary 1993]. Manipulative language appears as a new

notion in mass media, which has its own system and structure. We can see all phonetic peculiarities and symbolic levels of a language, from morphemes to the text in manipulative language. In order to understand

texts correctly which are used in mass media and to make their interpretation, the recipient should deeply understand not only the linguistic aspects, but also the extra-linguistic realities of the text. If the recipient does not understand the text, he can be an object of a manipulative effect. A.A.Lyubimova explains that language manipulation occurs in all its levels, for example, in phonetics (sound symbolism, the usage of prosodic means: the rhythm of the text, intonation structure); in lexis (the change or the spoil of reference, the usage of euphemisms and dysphemisms, the change in an associative line, lexical groups under the pragmatic weight, the usage of the texts in mass media which do not have any meaning); in grammar (the usage of a model category with the purpose of pragmatic aim, i.e., showing the true case as it does not happen in reality) [Lyubimova A 2005]

Results

The main *aim* of our article is to determine the spoiling of the world's language picture and value system because of the language rules in present day, especially in Kazakh newspapers. In defining the ways of linguistic manipulation of the mind the following criteria must be used:

I. The first criterion - the principle of reference, it means the connection with the truth. Manipulating the mind can lead to change the true, real facts. Sometimes it is difficult to define manipulation because the facts are determined by the addresser's and the addressee's point of view. That is why in order to evaluate and interpret the material about the important historical or political occasions in mass media; we should take texts from international, official and state documents as an objective direction.

II. The second criterion – linguistic alterations have meaning of the usage of not correct structures in text writing. Linguistic alterations also include the change of lexical and syntactical meaning of the word from the standard. That is why such kind of structures might have a manipulative meaning.

III. The third criterion – the frequency of usage, i.e., if one journalist uses just only one method of manipulation, there will not be any sign of manipulation. This author's usage should be called stylistic peculiarity. But the usage of the word expressions which are not directed straight to the language or exact case in few articles of journalists of different informational newspapers are considered methods of manipulation. One manipulative method can be used several times without any change, or it is repeated in exact variants.

In determining the methods of manipulation of the mind, we should take into consideration these three criteria: reference, linguistic alterations and frequency of usage.

The meaning of the media-text is more significant than the media-text on the newspaper itself, and the meaning can influence the mind of the recipient. Also, the meaning can change recipient's conceptual world picture which is fixed in his mind, and it influences on the opinion of the recipient correctly or incorrectly.

From this we can make two inferences about a regulative (regulative, influential) meaning of means of mass media:

With the help of mass media, the symbolic space of the meaning of the media-text is broadcasted from the press (i.e., from exact things which we can see - from newspapers or on TV) to the second mental recipient of the text. It means that symbolic space (media-text) is transformed to meaningful space, i.e., to the recipient's mind.

With the help of mass media, media-text is manipulated, and then the meaning of the text is transformed to millions of recipients" mind. And hundreds of recipients" mind is also informed about the meaning of the media-text.

Now we would like to write about the problem which is occurred by the influence of the mass media on the people's mind, exactly, the usage of the media-text as means of social regulation. R. Jacobson divides six functions of the language according to its directions while communicating: addresser-addressee-referent - information-communication-code [Yakobson R 1975]. Communicative (referentive, denotative) function is close to referent, emotive/expressive function is realized by the author of the information; phatic function is used to make communication, professional language function is used to open and explain the code, poetic function makes information work it [Sheyigal 2000].

R.Jacobson gives the name to the function that is directed to the addressee like connotative or appellative. Also, we come across with the terms as "voluntarily", "vocative" function in a scientific literature, and these terms mean the aims of the addresser, his intentions and his influence upon the addressee. From these terms that are mentioned above we can use the most important function as a suitable variant for writing the media-text. It is a regulative function that is created by Mechkovskaya. Because this feature means the role of language which is used in regulating (forming) addresser's character. The influence on addressee"s character can be realized in different ways: to make actions, to answer questions, to prohibit doing some activities/actions or with the purpose of changing addressee's intentions by giving different information and etc. And media-texts use this regulative function of language in the means of mass media.

All over the world the appearance and results of the informational technologies and their quick

developments are influenced by the processes which are related to the life of the world association, and these processes are also developing quickly. These kind of processes are seen like the media-picture of the world's huge picture which is made by the means of mass media [Rogozina 2001a].

The notion "social interrelation" can be defined as a text exchange that represents the existence in different ways. The mass media is the system that provides the interexchange within the text to diversify the individuals" universe shape. Differently expressed extracts of the existence that influenced the person and improved his individual universe shape that represents the positive results of the communication. The representation in either oral or written text form sent to the mass media. The impact is increased for several times with the help of technical devices. It is well known today all human being turned into the impact entity of soft mass media. The media text as the universal instrument of any types of mass media acts as a social regulator. Different mass media uses a particular media text, but the general characteristics remain unchangeable. In general the notion "text" can be interpreted in various ways. Because, the size of the text is changeable, unstable. Second, forms and ways of using and distributing are also different.

The changeability of the text size depends on the presence of several sentences, newspaper articles, or voluminous novels. The television interview is an oral form of the text, and the newspaper text is printed (written) one, the soft mass media text is called virtual [Rogozina 2001b].

The media text interprets internal policy, external political, custom and other social circumstances. Probably that's why the ideological content of the media text is written representing one's interests. So if representation of natural existence text effects social regulation, the media text plays a significant role in creating the universe shape in many people's consciousness.

Now, let's consider the issues of presenting and discovering the meaning of the media text. It is reasonable to say that the socio morphic characteristic of the universe media shape

is obvious because it is basically concentrated on the community and all social changes that take place in that community. It is natural that it might be a specific structure of the commonwealth as one type of multitude. The socio morphic characteristics of the universe media shape are demonstrated by the connection of its structure with social models.

The composition that orders the community individuals' social life interrelations properly creates particular social space. There are socio morphic parallels which are typical of information or media space created as the result of mass media activities. Those individuals that directly participate in community events create the social existence due to his actions. The introduction of the individual onto the social existence demonstrates the anthropomorphic description of the universe media shape. So there are two parameters typical of the universe media shape. It is reasonable to call them as socio morphic and anthropomorphic. Also, it is worthy to consider these two phenomena as the creator of universe shape composition that constructed opposite to each other. These two main factors form the universe media shape as the result of their interactions.

The demonstration of private and public interaction as one of the principal peculiarity of the community should be mentioned otherwise individuals create unity by gathering). The existence of individuals in the community, acting due to individuality are responsible for the composition of the universe shape in the individual's consciousness in two controversial directions, from socio and anthropomorphic media shape due to their interrelation as a result of individuals" interrelation [Rogozina 2001b].

Individual's consciousness is one of the systems to represent the existence. Here the universe shape is kept in the conceptual system. The presence of the conceptual system in individuals" consciousness assists to understand the differences of other subjects of the universe. So the conceptual system is responsible for the adaptation of the individual to the society as well as for the existence of the universe in individuals consciousness (individual shape of the universe).

The person addresses his individual shape of the universe to another person while creating the media text. In this process, he enriches and diversifies his universe shape by transforming it into another form. Due to it one part of his individual shape of the universe disappears turning onto other's property.

The main target of the universe shape is not the individual, but changing process of the object and subject world that surrounds it. Here, media text is the specific approach to make existence for the individual universe shape. For instance in the newspaper article there is a typical to the newspaper style (immanent) peculiarity. They are:

a)   physical objects (paper);

b)   peculiarities that provide social functions (media text belongs to one specific publishing house or a presence of graphical instruments to send its main idea)

Second, the media text models the individual's inner intentions in accordance with peculiarities of external surrounding world by renewing the form of the authors" universe shape. The author's inner intentions are strongly marked in comparison with emotive parts (integral parts) of the media text. Thus, there are also renovated adaptable peculiarities of the media text except the typical to the media text quality. Graphic structure of the media text might negatively effect to its contextual composition.

The universe media shape concentrates on the most important events of the globe being the complicated system of representing the obvious existence. The universe media shape collects and analyses the most important events and occurrences for the individual as well as for the society. It also gathers all integral parts of media text and plays a concluding role. The universe media shape through the media text connects the individual with the society. So it also plays the contracting role. The changing process of the media existence to psychological existence contributes the consolidation of the individual with the society. On

this point, we can make a decision that there is a complete unity of the media existence with the individual existence. To sum up all above mentioned we are convinced to give the following decision about the term "media text":

1. Media text becomes an important element for accomplishing an information and communication process through the mass media;
2. Media text is undoubtedly an initial form of action used to carry out other types of interrelationships;
3. Media text is a complete and integrated unit of communication;
4. Media text is a complicated and compound model of representation of any part of natural existence;
5. Media text is the most potential means for interpreting circumstances, existence and processes;
6. Media text is the result of mechanical operation of the text in registering;
7. Media text is an accomplishment of pragmatic strategies to create an impression;
8. Media text is a powerful instrument used for social regulations;
9. Media text is a reconstructing factor for the universe media shape.

Therefore, it is reasonable to confirm that the media text is considered to be a unique powerful instrument of the mass media to create the media shape of the natural existence. In conclusion, we believe that this work will be a continuation of works on the model category of media linguistics.

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MIDDLE SCHOOL MATHEMATICS TEACHERS' VIEWS ON MATHEMATICAL REASONING

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One of the most intensively used areas of reasoning is mathematics. Among the goals of mathematics teaching, it can be said that getting rational answers to questions of "why", in other words developing reasoning, comes into prominence (Altıparmak & Öziş, 2005). Since reasoning is an ability that provides the foundation of mathematical thinking. Therefore, it can be said that mathematical reasoning forms the base of mathematics. As a matter of fact, the ability of mathematical reasoning is among the abilities aimed to be gained in the Middle School Mathematics Course Program (Ministry of Education, 2013). Similarly, the National Council of Teachers of Mathematics (2000) emphasizes the importance of mathematical reasoning. When the effect of reasoning in facilitating school and out-of-school life is taken into account, it is necessary to prepare environments for the development of these skills in the mathematics teaching process (MoE, 2013). From this point of view, teachers have an important role to develop these skills in the context of classroom activities. Teachers are needed to know what mathematical reasoning is and to be able to create environments that support their students' reasoning in order to be able to decide what activities students should do to support the development of their mathematical reasoning abilities. However, it appears that there very few studies examining teachers' mathematical reasoning and understanding (Loong, Vale, Bragg & Herbert, 2013). With this respect, this study aims to examine the views of middle school mathematics teachers on mathematical reasoning.

The study was conducted with 15 teachers working at different government schools. In order to expose the views of the teachers on mathematical reasoning, 4 questioned interview form prepared by the researchers was used. Obtained data will be analyzed by the method of content analysis. Within the context of findings, research results will be discussed according to related research in literature and suggestions will be presented.

NEW DEVOLOPMENTS ECONOMICS EDUCOTION

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Freedom of conscience, free conscience, freedom of information to the law, proper economic education and fair economic conditions, competent, imaginative capacity of the unlimited individuals to be able to lead and guide the world, the values which the knowledge freely reached and expressed are in legal security Neuroeconomic, behavioral, sensory, cognitive and advanced technological literacy that can lead to new inventions and inventions by increasing the basic and high skills and competences that they can bring to the market, and which can integrate both positive and normative economics both in theory and practice. Taking the information that holds the front-line of the value added with a view and passing it through the critical filter, it can be said that the information which provides training on the value economy, the continuity of the technology and the capital as the indispensable triple, A level of education that strengthens the social structure and texture of development as much as economic growth, which overcomes environmental awareness for sustainable development, reduces crime for reliable competition and economy, should be desirable.

Close

NOT A BURDEN ANY MORE: COMPLETION TASKS AS AN ALTERNATIVE FORMAT OF TEST PRACTICE IN COMPLEX LEARNING

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ABSTRACT

The study aims to investigate the effects of test formats after worked examples on learning outcomes and cognitive load in complex learning. 74 middle school students were randomly assigned to three groups: restudy, completion task, and conventional problem-solving. The conventional problem-solving group performed significantly the highest transfer test and cognitive load among three groups. These findings revealed testing effect in complex learning and showed that the completion task as a test format can be an alternative testing format when considering both learning outcomes and cognitive load; thus, serving as a good stepping stone between the learning and evaluation phases.

INTRODUCTION

The testing effect refers the idea that, after an initial learning phase, taking a test is more effective for transfer than restudying the same material (Roediger & Karpicke, 2006). The benefits of testing have reemerged as a promising strategy to improve learning performance (Fiorella & Mayer, 2016). A recent meta-analysis of 118 studies were robust and showed relatively higher effect size of the testing effect ($g = 0.51$) (Adesope, Trevisan, & Sundararajan, 2017). Nevertheless, many testing effect studies have used relatively simple tasks such as comprehending prose passages (Zaromb & Roediger, 2010) and memorizing words lists (Karpicke & Roediger, 2008). However, given that real-world educational contexts tend to teach more complex tasks that demand higher levels of learners' cognitive processing abilities, more research effort should be put to validating the testing effect on complex tasks.

Van Gog & Kester (2012) have studied the testing effect with worked examples in complex task. Worked examples provide learners with solution steps that bridge the given state and the target problem (Renkl & Atkinson, 2010). Research has shown that for novices, studying worked examples is more effective for learning than conventional problem solving (i.e., worked example effect, Aktinson, Derry, Renkl, & Wortham, 2000). In research on the worked example effect, learners were presented with a worked example to study followed by a problem to solve ("example-problem pairs"). This approach was similar to presenting learners with some information then testing their learning (Leahy, Hanham, & Sweller, 2015).

Another learning strategy is known as restudying, which is where learners study material, engage in worked examples, and then study the material again. According to Van Gog et al. (2015), participants who engaged in restudying outperformed those who took tests after studying with worked example (i.e., example-problem pairs). In other words, there was no test effecting in complex learning with worked examples. However, Karpicke and Aue (2015) have indicated that previous studies (van Gog et al., 2015) did not give sufficient consideration to how complexity was defined and controlled in each learning task; thus, it is impossible to accurately gauge the presence of the testing effect when learning complex tasks based on available studies. Such contradicting results call for further investigation on whether the testing effect applies to complex task. Furthermore, the present study attempted on proving testing effect in complex task, but by implementing completion task as an additional test format in between the conventional problem solving and the worked examples.

A completion task is like a worked example but with part of solution steps removed so that the learners will fill in the missing knowledge themselves (van Merriënboer & Sweller, 2005), giving learners more opportunities to actively apply the acquired knowledge than they would when completing worked example. These opportunities encourage them to engage in important problem-solving processes. When dealing with complex tasks, its high element interactivity would demand great processing on working memory (Jung, Kim, & Na., 2016; Kalyuga, 2011). Cognitive load theory states that if this demand exceeds learners' capacities, effective learning is hindered and learners become demotivated (Sweller, Ayres, & Kalyuga, 2011). Compared to example-completion pairs, example-problem pairs may overwhelm learners who are required to solve a problem right after studying the worked example (Renkl, Atkinson, Maier & Staley, 2002). Completion tasks serve as a bridge between when learners learn how to complete a task and when they actually complete the task on their own, reducing cognitive load (Renkl & Atkinson, 2010). Given that optimal learning strategies for complex tasks are not fully understood, current research has been investigating the testing effect on complex tasks and how completion tasks effect test performance and cognitive load. The present study seeks to add to this effort, so its three research questions were as follows:

RQ1. What are the effects of test formats after studying with worked examples on complex task learning outcomes?
RQ2. What are the effects of test formats after studying with worked examples on cognitive load?
RQ3. Are there any differences between completion tasks and conventional problem solving in learning outcomes and cognitive load?

RESEARCH METHODOLGY
Participants
Seventy-four students (average age = 14.00; female = 44.9%) from a middle school in Seoul, South Korea participated in this study. They were in their first year of middle school and were intentionally chosen for this reason because they would be likely to have the least amount of prior knowledge about the learning task, which is important because prior knowledge influences learning outcomes and cognitive load (Plass et al., 2010). To ensure homogeneity among three experimental groups with regard to prior knowledge, a one-way ANOVA test was conducted ($F(2, 71) = .380, p = .685$).

Experimental Materials
The experiment taught participants social studies materials after which students were asked to determine of market equilibrium price as authentic tasks. To solve this problem, the students had to consider the law of supply and demand and how market supply and demand are represented graphically. This task was a complex problem because the students had to process several elements and how they interacted. The research team and social studies teachers with between three and five years of teaching experience developed the experimental materials. A pilot test was conducted in order to determine the experimental materials' difficulty level and how long the experiment was likely to take. Learning materials were created for each step in the lesson step, see [Table 1] and [Figure 1].

Table 1: Learning objectives of each learning steps

	Learning Step		
	Step 1	**Step 2**	**Step 3**
Learning Objectives	The law demand, supply and demand-supply curve	The principle of demand and supply curve shift	The principle of market equilibrium price and equilibrium trade
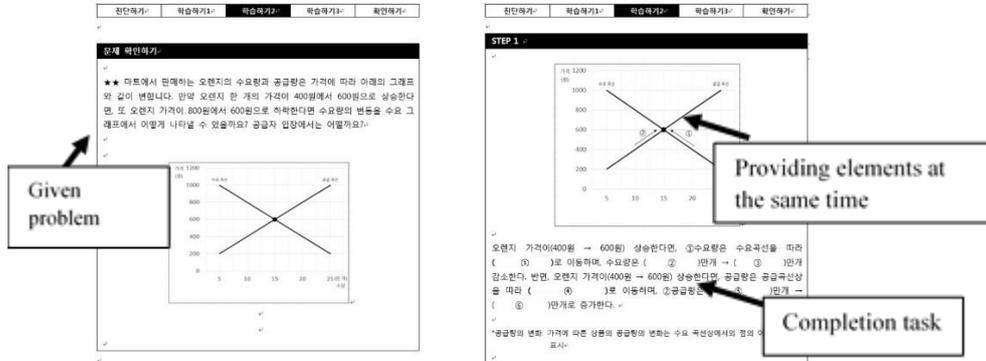
Figure 1: Example Frames from completion task group for learning phase

Experimental Instruments

Pretest

A pretest was conducted to confirm the homogeneity among the three treatment groups by measuring their prior knowledge of the subject. The test examined the subjects' knowledge about basic supply and demand concepts, the law of supply and demand, and the supply and demand curves. There were 13 questions consisting of 6 true-false questions, 3 pairing questions, and 4 short-answer questions, each of which was worth 1 point.

Retention test

The retention test was consisted of 8 items consisting of 1 multiple choice questions, 4 true-false questions, 1 descriptive question, 1 question in which the participant had to draw a supply and demand curves chart, and 1 question in which the participant had to shift the supply and demand curves.

Transfer test

Transfer is the process in which a learner applies what they have learned to an authentic problem (Johnson & Mayer, 2009).   The transfer test consisted of one descriptive question, which was taken from the Korean Educational Broadcasting System self-study book and was adjusted for the purposes of the study.   In the process of taking the transfer test, learners were required to analyze a newspaper report and apply what they had learned about supply and demand to as an authentic problem.

Cognitive load

Learners' perceived cognitive load was measured using a self-reported questionnaire developed by Paas and van Merriënboer (1994). The questionnaire consisted of a nine-point Likert scale, ranging from ranging from "extremely easy" (1) to "extremely difficult" (9), see [Figure 2].

Figure 2: Mental effort rating scale
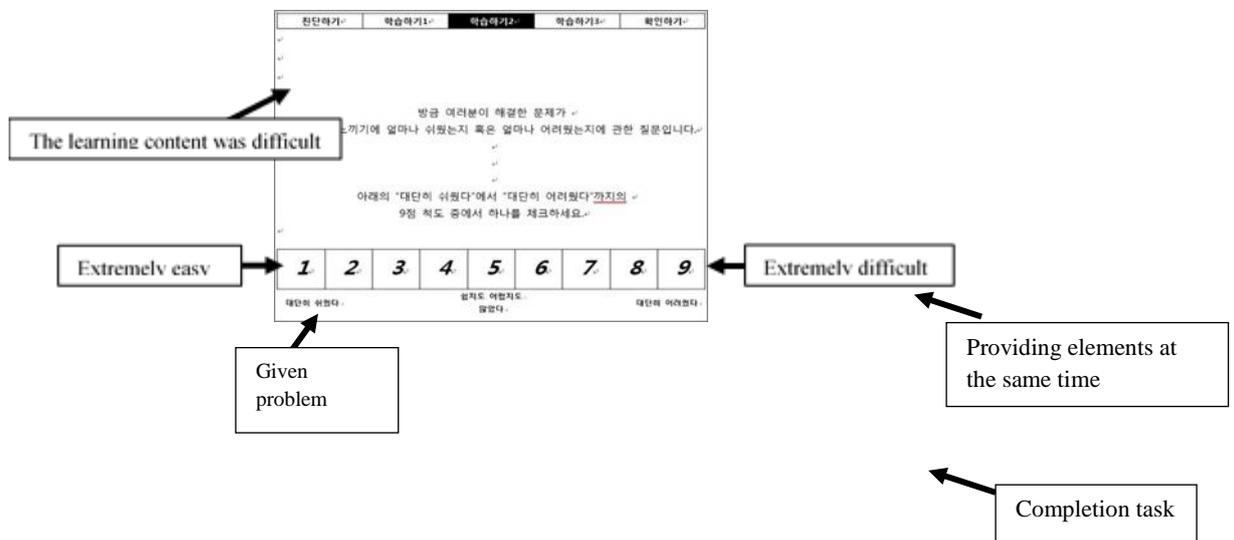
Experimental Design and Procedure

Participants were randomly assigned to one of three instructional conditions: 1) restudy condition (n = 26), which had restudy phase after studying worked examples; 2) conventional problem solving condition (n = 26), which had a test in which learners had to solve a conventional problem after studying worked examples; and 3) completion task condition (n = 22), which had a completion task after studying worked examples. There were two sessions in the experiment. The first session was composed of the pretest, the learning phase, cognitive measurement, and the retention test. During the learning phase, the participants studied complex tasks with worked examples and completed their particular intervening activity. Cognitive load tests were conducted after the learning phase to measure the load that they had experienced. The retention test was conducted last. The second session took place a week after the first session during which all groups took the same transfer test, see [Table 2].

Table 2: Procedure of experiments

Session	Phase	Objectives	Procedure			time
First session		Pre-test	Group Equivalence test			5min
	learning phase	Study1	Studying with a worked example			8min
		Intervening activity1	Restudy	Conventional problem solving	Completion task	8min
		Study2	Studying with a worked example			8min
		Intervening activity2	Restudy	Conventional problem solving	Completion task	8min
		Study3	Studying with a worked example			8min
		Intervening activity3	Restudy	Conventional problem solving	Completion task	8min
	Testing phase	Measurement	Perceived Cognitive load			2min
		Final test	Retention test			8min
Second session			Transfer test (after 1 week)			5min

Data analysis

The data collected for the study were analyzed using an ANOVA test to examine the effect of each test format on learning outcomes and cognitive load. The analyses were conducted using the Statistical Package for Social Sciences. The significance level was set at $\alpha = 0.05$.

Table 3: Experiment instrument and data analysis method

Dependent variables		Number of Item	Data collection	Sources	Cohen Kappa(κ)	Cronbach's alpha
Learning outcomes	Retention test	8	Scores of test	-	-	.769
	Transfer test	1	Content analysis	-	.908	-
Cognitive load	Perceived Cognitive load	1	Self-report questionnaire	Paas and van Merriënboer (1994)	-	.769

RESULTS

RQ1. What are the effects of test formats after studying with worked examples on complex task learning outcomes?

Table 4: Means and standard deviations of dependent variables across groups

	Restudy (n=26)		Conventional problem solving (n=26)		Completion task (n=22)	
	M	*SD*	*M*	*SD*	*M*	*SD*
Retention test score	4.00	2.37	4.54	2.15	3.18	2.30
Transfer test score	2.92	2.11	4.73	2.23	4.05	1.88
Cognitive load	4.73	1.97	6.65	1.46	5.05	1.21

Note: *M* = Mean, *SD* = Standard deviation

Table 5: ANOVA for test formats on learning outcomes

	Sources	*SS*	*df*	*MS*	*F*	*p*	*ES(η^2)*
Retention	Between	22.05	2	11.03	2.13	.127	
	Within	367.73	71	5.18			
	Total	389.78	73				
Transfer	Between	43.22	2	21.61	4.92*	.010	.122
	Within	311.92	71	4.39			
	Total	355.14	73				

Note: *SS* = Sum of squares, *df* = Degree of freedom, *MS* = Mean square, *p<.05, **p<.01, ***p<.001

To answer the first research question, a one-way ANOVA with test format as the independent variable were with retention and transfer learning outcomes as the dependent variables. No significant differences between the three conditions' effects on the retention test were found ($F(2, 71) = 2.129$, $p = .127$). However, the differences among the three groups' effects on the transfer test were significant ($F(2, 71) = 4.919$, $p = .010$, $\eta^2 = .122$). A post hoc analysis was performed to examine the specific differences in achievement between the experimental conditions. A Scheffe test showed that participants in the conventional problem-solving group performed better than those in the restudy group (mean difference = 1.808, $p = .011$), whereas no significant difference was found between the completion task and restudy groups and the conventional problem-solving condition group (mean difference = 1.122, $p = .188$; mean difference = -.685, $p = .532$, respectively), see [Table 5].

To confirm these effects, an additional orthogonal contrast test was conducted (orthogonal contrast rate: restudy: -1, completion task: .5, conventional problem solving: .5) on the retention and transfer tests. There was no difference between the restudy and test practice condition groups, including conventional problem solving and completion task groups, on retention test ($t(71) = -.252$, $p = .802$), but the test practice condition groups had significantly higher transfer test results than the restudy group ($t(71) = 2.867$, $p = .005$).

RQ2. What are the effects of test formats after studying with worked examples on cognitive load?

Table 6: ANOVA for test formats on cognitive load

Sources	*SS*	*df*	*MS*	*F*	*p*	*ES(η^2)*
Between	54.55	2	27.27	10.64***	.000	.231
Within	181.96	71	2.56			
Total	236.50	73				

Note: *SS* = Sum of squares, *df* = Degree of freedom, *MS* = Mean square, *p<.05, **p<.01, ***p<.001

This research question aimed to reveal the effect of the experimental conditions on perceived cognitive load during the learning phase. A one-way ANOVA confirmed that there was a significant difference between the cognitive load imposed on learners by each of the three experimental conditions ($F(2, 71) = 10.642$, $p < .000$, $\eta^2 = .231$). Post hoc Scheffe tests revealed that subjects in the conventional problem solving group reported significantly higher cognitive load than those in the completion task and restudy groups (mean difference = 1.608, $p = .004$, mean difference = 1.923, $p < .000$, respectively). In contrast, there was no significant difference in reported cognitive load between the completion task and restudy condition groups (mean difference =.315, p = .795), see [Table 6].

To precisely examine   the testing effect on perceived cognitive load, orthogonal contrasts (orthogonal contrast rate: restudy: -1, completion task: .5, conventional problem solving: .5) were conducted and revealed that test practice   condition groups, including conventional problem solving and completion task groups, imposed significantly higher cognitive loads than restudy conditions ($t(71) = 2.867$, $p = .005$).

RQ3. Are there any differences between completion tasks and conventional problem solving in learning outcomes and cognitive load?

Table 7: T-tests for test formats on learning outcomes and cognitive load

Dependent Variables	Mean difference	95% CI	df	t	p	ES(d)
Retention	1.357	(.059, 2.654)	46	1.842	.072	
Transfer	.685	(-.531, 1,901)	46	1.134	.263	
Cognitive Load	1.608	(.817, 2.400)	46	4.088	.000***	1.19

Note: *95% CI:* 95% of Confidence interval, *df* = Degree of freedom, *MS* = Mean square, *$p<.05$, **$p<.01$, ***$p<.001$

Exploration of the third research question was intended to generate empirical evidence by comparing between effectiveness of doing completion tasks or engaging in conventional problem solving after worked examples. To answer this question, independent T-tests were conducted on the completion task and conventional problem-solving groups. There were no differences in learning outcomes (retention: $t(46) = 1.842$, $p = .072$; transfer: $t(46) = 1.134$, $p = .263$). On the other hand, the completion task group experienced less cognitive load than the conventional problem solving group ($t(46) = 4.088$, $p < .001$, $d = 1.19$). Considering both learning outcomes and cognitive load, the completion task condition was found to be a more effective test format when engaging in complex learning.
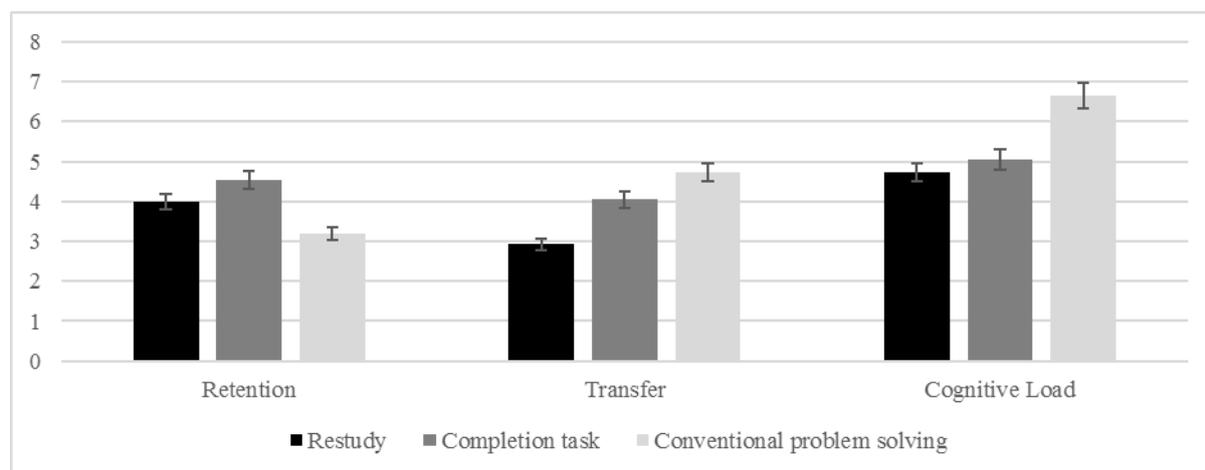
Figure 3: Means and standard deviations for learning outcomes and cognitive load by test formats

CONCLUSIONS AND DISCUSSION
This study investigated the effect of restudy, conventional problem solving, and completion task test formats, which were presented after learners were given worked examples, on retention and transfer as learning outcomes and perceived cognitive load.

First, the current study supported earlier testing effect studies (Karpicke & Aue, 2015; Smith, Blunt, Whiffen, & Karpicke, 2016). According to the orthogonal contrast test (orthogonal contrast rate: restudy: -1, completion task: .5, conventional problem solving: .5), there was no significant difference between test practice conditions group, including completion tasks and conventional problem solving, and restudy condition on retention ($t(71) = -.252$, $p = .802$), while the subjects in the test practice condition groups outperformed those in the restudy group on the transfer test ($t(71) = 2.867$, $p = .005$). This result aligned with the previous studies which showed that there was no difference on immediate retention test performance between restudy and test practice condition groups (Roediger & Karpicke, 2006a; Johnson & Mayer, 2009). This finding indicates that test practices seem to foster transfer during complex learning.

Second, the test practice conditions imposed more cognitive load than the restudy condition (orthogonal contrast test: restudy: -1, completion task: .5, conventional problem solving: .5; $t(71) = 2.867$, $p = .005$) . These results strongly support the existence of the worked example effect (Aktinson, Derry, Renkl, & Wortham, 2000; van Gog et al., 2015), which reduces unnecessary cognitive loads when learners solve problems with less or no guidance

Lastly, with regard to learning outcomes, there were no significant differences between the completion task and conventional problem solving condition (retention test results: $t(46) = 1.842$, $p = .072$; transfer test results: $t(46) = 1.134$, $p = .263$). On the other hand, the completion tasks condition group reported less cognitive load than the conventional problem solving condition group ($t(46) = 4.088$, $p < .001$, $d =1.19$). This finding aligns with earlier studies that showed that abrupt transitions from studying fully worked-out problems to solving conventional problems can increase cognitive load (Renkl, Atkinson, Maier & Staley, 2002). Providing completion tasks that bridge the gap between worked examples and conventional problem solving may reduce cognitive load (Renkl & Atkinson, 2010). These findings suggest that, in terms of learning outcomes and cognitive load, completion tasks are a more efficient test format than conventional problem solving when learning complex tasks.

There are several limitations to the current study that should be addressed in future studies. First, each cognitive load component (i.e., intrinsic, extraneous, and germane cognitive loads) should be measured independently. This research only measured the total amount of perceived cognitive load through subjective self-reporting, which means that this data cannot be used to optimize the three different kinds of cognitive loads by reducing intrinsic and extraneous cognitive loads and promoting germane cognitive loads.

Furthermore, learning environments that use varieties of learning strategies are needed to encourage students to engage in various kinds of tests besides written test format. Although test practice has been proven effective at improving learning outcomes, students do not easily adopt these strategies due to affective burdens. Therefore, various test formats, such as self-explanation and peer retrieval practice, that can replace written tests and their effects on complex learning outcomes should be studied.

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NURTURING STUDENTS FOR THE 21ST CENTURY: DISCIPLINARY LITERACIES AND INTERDISCIPLINARY DISPOSITIONS

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Nanyang Girls' High School is a premier all girls integrated programme school in Singapore. Curriculum innovation is something that the school believes strongly in. Since 2014, the school has been thinking of new ways to design and develop its curriculum to provide students with an authentic, personalised, relevant curriculum that will enable students to make meaningful connections and develop a heart for the community by paying forward through active service. In January 2016, the school introduced an enhanced curriculum for its Secondary One cohort. This curriculum requires teachers to rethink the way they teach their disciplines and connect with other disciplines through the use of macro and micro concepts. Disciplinary or micro concepts were used to provide disciplinary depth. Macro concepts such as Communication, System, Model, Evidence, Change and Sustainability were used to enable connections across disciplines. Beyond an emphasis on disciplinary literacies, students also learn to tackle real world problem through interdisciplinary studies. They learn to use Design Thinking to scaffold their thoughts and reflections as well as to create viable solutions. Disciplinary literacies and interdisciplinary dispositions is Nanyang Girls' High School's way of providing breadth and application as well as rigour and depth that will prepare our students well for the 21st century world.

ON THE EFFECTIVE TEACHING IN VOCATIONAL SCHOOL

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ABSTRACT
Classroom instruction is accepted as a central component the evolution of teachers' guiding - teaching, and the organization of students' thinking - learning. In this paper, we suggest four important factors that could contribute to an effective and learning and teaching environment; 1-teacher background and experience, 2-lecture activities in classroom or in laboratory, 3-assessment or homework activities, 4-effective interaction between the teacher and the students for effective education. The effective teacher is as a maestro that able to orchestrate the music of the classroom. Finally, we can say that when the teacher becomes more involved in the learning process, the effective result of the teaching will become efficient.
Key words: effective teaching, vocational school, important factor

INTRODUCTION
Traditionally, teachers were the 'holders of information' and their role was to transference this knowledge to students. The internet has changed all that as information can now be obtained anywhere, any time on any subject. Thus the role of teachers has changed to developing the skills and tools to assist students in analyzing the information available (Slavin, 2010.)

Effective teaching is more than just the professional transference of knowledge and skill on a mathematical subject. Effective teaching provides that this weak approach to learning is replaced by powerful, student approaches to learning that analyze, develop and create understanding. Students need to initiate learning and maintain engagement during learning in their development as mathematics learners (Teddlie, Stringfield, & Burdett, 2003).

The answer of Smith (1995) is that learning is a consequence of experience for the question of 'what is good or effective teaching?' He proposed teaching and learning should be focused on the creation of appropriately well-organized experiences so that learning comes naturally.

He stressed that schools should focus less on 'talking about learning and teaching' and 'more about *doing*'. For the effective teaching, we need to reflect on what we do in the classroom rather than on the talk about theoretical way of the lecture. So, it is clear to say that to reach an effective teachers we need to identify clearly what it is that effective teachers do in all educational activities.

Alton-Lee (2003) has provided ten point model for the characteristics of quality teaching which cover the following areas:

- A focus on student achievement.
- Pedagogical practices that create caring, inclusive and cohesive Learning communities.
- Effective links between school and the cultural context of the school.
- Quality teaching is responsive to student learning processes.
- Learning opportunities are effective and sufficient.
- Multiple tasks and contexts support learning cycles.
- Curriculum goals are effectively aligned.
- Pedagogy scaffolds feedback on students' task engagement.
- Pedagogy promotes learning orientations, student self-regulation, metacognitive strategies and thoughtful student discourse.
- Teachers and students engage constructively in goal oriented assessment.

(Alton-Lee, 2003)

According to Gurney (2007), these ten models lead to the two extremes of the quest that 'focus on what you do' and 'a deep analysis of the best evidence on quality teaching'. In reaching his own conclusions he had found a path that draws these two philosophical approaches together so that he reached a possible new model that will provide further direction in the quest for that 'good teacher'. Then, he suggests that it is the interaction of the following five key factors that provide a basic for a good teaching:

- Teacher knowledge, enthusiasm and responsibility for learning.
- Classroom activities that encourage learning.
- Assessment activities that encourage learning through experience.
- Effective feedback that establishes the learning processes in the classroom.
- Effective interaction between the teacher and the students, creating an environment that respects, encourages and stimulates learning through experience.

(Gurney, 2007)

In this study, we explain that we understand some of Gurney's five key factors for good teaching.

TEACHER BACKGROUND AND EXPERIENCE

In his search on the question 'how children fail?, Holt (1964) reached that schools did not recognize the living quality of education. He stressed that the boring nature of tasks, the dishonesty of teachers with the limiting of knowledge. This expression was the leading point of Gurney's teaching model that the creation of a classroom that reflects the teacher's knowledge, enthusiasm and the responsibility for creating a learning environment that will effectively enhance the student's desire to learn. Gurney stressed that to create this environment, the teacher must be prepared to all dimensions of an education system that reflects a conservative way of schools. Teachers need to develop their thinking about the nature of teaching and learning.

Many theories about reflective practice provide special direction for critical self-reflection (Bailey, Dale, and Squire, 1992; Baird, 1991; Cole and Knowles, 2000; Day, 1999; McMahon, 1999 & Stodolsky, 1990).
According to Baird (1991), 'teaching is more than a craft', suggesting it is an 'educational science and a pedagogical art'. Cole and Knowles (2000) stressed a model for reflective best approach that includes the following key words: 'Learning, Participation, Collaboration, Co-operation, and Activism'.

We believe that the SCORE model suggested Strong, silver and Robinson (1995) should be applied to teachers to reach the aimed education model;

- ❖ *S:* The Success of mastery of the subject that you teach.
- ❖ *C:* The Curiosity that every teacher should have entrenched in their teaching. A teacher who is not curious has lost a critical portion of the passion for learning.
- ❖ *O:* Originality – a teacher who is passionate about the teaching process will be creative; will be constantly seeking new ways of engaging and challenging students.
- ❖ *R:* Relationships are central to the effective classroom and teachers are crucial in the nurturing of opportunities for students to engage with subjects that at senior levels can lead to a life-long interaction with the subject.
- ❖ *E:* To maintain this process the teacher needs Energy. This a something that schools do not always provide, and teachers in general need the time to reflect; to re-energize and to regenerate their focus on the learning process. It is an essential ingredient in the effective classroom that is too often ignored.

(Strong, silver and Robinson, 1995)

LECTURE ACTIVITIES IN CLASSROOM OR IN LABORATORY

Smith (1995) gives the answers the question presented in this study as to what do effective teachers do in the classroom. It is a well-known realty that an effective classrooms and a modern laboratory is the one of the basic key factor that supports an effective learning environment.

Stipek (1996) presents six efficient methods that support the idea that 'an effective classroom is a classroom of opportunity and experience, where learners can explore and experiment in a climate that recognizes the process of learning as the measure of success rather than the right answer approach'. He also expressed that 'the vital role of intrinsic motivation in creating an environment where students can feel that they are the masters of their own learning'. In other words, 'quality teaching provides sufficient and effective opportunity to learn'.

The fact that a teacher may be successful in one semester does not necessarily mean that the success will be continued in the next semester (Strong, silver and Robinson, 1995). The teaching environment may be the same but the attitudes that each different students' group moved a classroom will always influence the outcome of the education. Instructors should be able to identify the different ways of each class and work with their students to create best learning environment targeted.

ASSESSMENT OR HOMEWORK ACTIVITIES

the assessment could be a part of an effective education system. the nature of an educational environment that is dominated by assessment procedures could have some difficulties for the learning environment. Gurney expressed that 'if the students are able to see the value of the learning process, and the assessment is a part of the learning and not an end in itself, then they can buy into the process and actually use it to gain better results while benefiting from the learning environment which they help to generate through their self-monitoring and peer-assessment activities'.

Cameron (2002) demonstrated the classification of assessment that are identifying the processes of peer tutoring, co-operative learning, reciprocal teaching through predicting answers, questioning, clarifying and summarizing and collaborative reasoning. All of Cameron's processes when used in an educational environment will develop the students as they are main actors playing for the learning. So, the coherent answer to the Smith's question mentioned above is turning on that If assessment activities are part of the 'doing' then they become a central part of the learning process.

EFFECTIVE INTERACTION BETWEEN THE TEACHER AND THE STUDENTS

Hattie (1999) claims that 'feedback – focused, appropriate, timely and learning related should be one the main educational character of the effective teacher'. He defines feedback as 'the most powerful single moderator that enhances achievement'. As instructors, we applied this definition with modifying a classroom where our feedback to the learners was aimed at encouraging them to become more active learners. In this application, our explanations, our questioning methods and our assessments linked with the learning environment interplaying of feedback and students' input. We observed that our students gave feedback as they know that their own learning would become part of the feedback process.

Slavin (2010) noticed that 'the value of feedback but warns that too much can be as detrimental as too little' and 'the nature of interplay of learning and teaching in the activities of the effective classroom adds to the value of the feedback in such an environment'. According to Gurney (2007), Slavin's approach provides another key aspect of the effective teacher: 'feedback that is appropriate and meaningful to the learner will be a central part of the effective learning environment'.

RESULTS

Eisner (2002) explains the meaning of the very nature of the effective classroom by his famous words that 'every generalization we make, every conclusion we draw, must be true of every individual'. The effective teacher will be able to organize the administration of the classroom, into an environment of excitement for learning. The point about the effective teaching process is that it is continuously skiing that is important and done balanced. As Gurney (2007) noticed that 'the teacher becomes more involved in the learning process, as the passion for knowledge is shared with the students, so the effective nature of that teaching and learning environment will become evident'. Finally, and shortly, we can say that when the teacher becomes more involved in the learning process, the effective result of the teaching will become efficient.

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ONLINE ASSESSMENT FOR MATHEMATICS LECTURE

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ABSTRACT
The use of computers as a main material of education to teaching and learning mathematics is a method that teachers reorganize their lecture presentation and educational activities and laboratory applications. An online assessment or e-assessment is used to take in parts of an assessment system. Questionnaires and online tests can be presented and completed outside of educational environment or in some controlled areas.

In this respect, the use of online assessment has a number of advantages for both the teachers and the students. In this study, we make some analyzing on the use of an online assessment tool that ALICE Interactive Mathematics (AIM) provides interactive feedback to students learning mathematics. The results say that the technological assessment tool can be offered because of improved pass rate and students' satisfaction.
Key words: online assessment, computer environment, flexible learning opportunities

INTRODUCTION
Assessment can be a tool for accountability, but it can also be a process for students' learning. It is well known and accepted reality for assessment that teaching involves the efficient use of both formative and summative assessment. Additionally, the online assessment areas presents some unique alternative for assessment, but also offers some special applications for positive assessment.

When the using of computers to teaching and learning be widely in education, many teachers have to reorganize their teaching strategies for all educational activities in the all level of the schools. However, it is not a scientific true that the use of computer-assisted learning only provides significant effect to students and teachers. Lawson (1995) stressed that the introduction of students to a computer software program perceived as a non-significant activity.

In his study, most students think the using of computer software package as interesting, because of its non-significant way, they tend to change for the more traditional mode of educational environment. Maybe it can be one reason for the changing that the assessment is a traditional nature, being based on written tests and examinations by face to face application.

Herrero stayed that "Instead of simply giving examples of objects that satisfy a definition, or checking that they satisfy a certain list of properties, students are led through a series of exercises to work with the examples and explore their properties". This mean that Leaving students to work on the computer without any additional activity is not a useful strategy, but positive effects can be expected when the computer programs is supported to the assessment process and other educational activities. The use of computer technology as a tool for learning and teaching should be good planned and computer projects need be special planned for every students' expectation from the lecture.

In this study, we analyze the effect of a computer tool containing a mathematical software focusing on algebraic expression to use online assessment. The assessment project used for this paper is about the self-assessment in an elementary mathematics subject. The availability of an internet page accessed from anywhere with an internet connection provide students different alternatives and advantages in the learning process. It is important part of education process that assessment tools giving feedback at appropriate points of the learning and teaching process provide the expectations of teachers and learners that provide. Additionally, the online assessment tools should be organized for the different presentation of questions that the teacher and students see valuable in their teaching and learning.

THE ASSESSMENT PROCCESS

A useful feature of studies of assessment in last years has been the change of the point of attention as more interest in the interaction between online assessment and learning. This new situation could provide that improvement in online assessment will give a strong contribution to the improvement of teaching and learning (Claxton, 1995).

Students' demand is grooving up for more feedback to problems given out in classrooms (Cizek, Fitzgerald & Rachor, 2005). Tthis has led to the confirmation of a lot of material in the computer downloads. We modified this situation by the presentation of the questions, which are automatically assessed by the package Maple. The questions were grouped for students to test the various topics.

The diversity of student backgrounds and learning styles is continuously increasing when the computer technology come in the education life (Daro, 1996). Some students can concentrate continuously for several hours trying to learn a particular concept. For many students, it is more useful to be able to do themselves with the tasks. Students access to learning material on the internet couldn't be enough to accomplish to lecture. Many students getting lecture material from the internet tend to make homework later, if the assessment is independent of internet usage. For the positive contribution to students' learning, they need to interact with the lecture material. Students' learning mathematics have a special meaning that the understanding of how a solution method reached to the result. So, we need to find feedback to the students that a correct answer will give a position to operate the other part correctly.

THE SOFTWARE FOR THE LECTURE

There are various views of the category of mathematical software which used for them (Fairbrother, Black & Gill, 2004). Maple is used by ALICE (Active Learning in a Computer Environment) Interactive Mathematics (AIM) to assess solutions submitted by students that are provided via the International Workshop on Advanced Learning Technologies (IWALT, 2000). In this study, AIM is used as a supported tool to manage the projects. AIM allows students to provide immediate feedback and detailed solutions.

The internet web pages use the randomization facility within Maple. This mean that we have the two levels of randomness in the organizing of questions. These are the randomization of variables, algebraic expressions – equations for a task, and the randomization of a set of questions. Also, images of mathematical subjects can be used for questions (Fuchs, 1993). Feedback can be provided to students in a variety of forms, at any times and anywhere. It can be said that the development of quality questions and feedback take time, but, teachers has the chance of the reduced time spent on assessment.

ORGANIZATION OF THE PROJECT

Ten practice question files, covering all topics in elementary mathematics, were added in the organization of the project. In every question, practicing of students' skills in problem solving was aimed. The multiple response questions and questions that contain full solutions are available to the students. Eight sort test quizzes were applied in this projected, beginning at the third week of the semester. The solutions are closed to the students until after the deadline of the exams.

The student would take 1 point for a correct answer and 0 point for a wrong answer for grading of every simple question. A penalty can be used for students' more. It is possible for teachers to change the grade groups. The instructor can give award points based on the solution given from the students via a configuration in the software.

The assignment of penalties and multiple attempts does not contribute to the learning outcome and this feature can be get out for the practice questions. However, in a test exam, it provides the instructor a means for classification of the students. The student participated in all working was possible to give additional marks, instead of giving 0 for the special question. It depends the teachers' decision that special mark is equivalent to the mark the student would have taken when an incorrect solution is done (Sew, 2003).

ASSESSMENT OF THE PROJECT

The use of the Internet for assessment and the experience may be the first time for the study group students. The system requires students to understand the basic syntax for writing algebraic expressions for a computer program. It is not necessary for the students to be well at using computer program and to know the software.

Students do not need to know the use of the functions of the program, which are found on many mathematical software and most graphics calculators. In addition, students need to know some simple operations as that calculating of numbers operations, taking the square roots of an expression, entering a matrix, a vector and a funtion.

As an interactive assessment tool on the web the use of Maple brings with the possibility of different learning modules. Although, many pure mathematics and mathematics education researchers think that the use of mathematical software package, and although they find the package useful for manipulating of some algebraic expressions or matrices having big dimensions, they tend to make little use of computer programs. Our study group students were aware of that the software was used as the assessment material of the mathematics in this current project.

The study group students understood that they have benefited from this learning experience. This can only be corrected by their feedback and performance. The evaluation of whether the tool resulted an expected learning rate for students has the same way. The students' perception about the usefulness of the internet tool to their learning was evaluated from an exploration, which was completed by 26 students.

The search was conducted in week 9 of a 14-week semester, and by that time, 22 students responded that they were more comfortable with internet testing than at the beginning of the semester. Four students had some problems with internet testing and only two students did not have any idea about internet testing. The following questions (Sew, 2003) were asked, and the student responses are given beside each question whether the system helped them with their learning (Table 1).

Questions	Yes	No	Unsure
Does the availability of web question files help your understanding of topics in mathematics?	20	4	2
Do you find the feedback on the web questions useful in learning?	23	2	1

Table 1: The student responses to the questions about internet assessment.

RESULTS

The project with the following preferred outcomes is evaluated that an enhanced student-learning rate, flexible learning opportunities, and automatic assessment (Sew, 2003).

Percentage of students scoring				
Year	Less than 50%	50–69	70–79	80% or more
2014	20	40	30	10
2015	22	66	10	2
2016	4	52	26	18

Table 2: Percentage of students scoring from the assessment

The management of the quiz tests consists of copying the grading statistics from the internet web page at the end of each quiz test. Flexible learning opportunities are attained with the internet tool from the points of view of students and the teachers' point of view. First, the majority of students attained very good marks for each of the first six tests. This is because the students were told that the best of six out of the eight tests would count towards the final assessment. 20% of the assessment comes from a handwritten assignment, half of which contains questions on proofs and the other half requires the use of Maple. To pass the lecture, students must obtain at least 30% of the marks from the end-of-semester written examination and a combined total of 60% of the total assessment (Table 2).

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ONLINE COURSE EVALUATION SYSTEM ADOPTION IN HIGHER EDUCATIONAL INSTITUTIONS: EVIDENCE FROM AN EMERGING COUNTRY

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ABSTRACT
Course evaluation in the educational industry is undergoing constant changes due to the rapid development of technology and the role it plays in the industry. The study seeks to understand why Higher Educational Institutions (HEIs) migrate their traditional course evaluation process to online course evaluation systems. Using a qualitative, interpretive case study methodology, this study examines the migration of traditional course evaluation process to an online course evaluation system from a developing country perspective. It was therefore discovered that Higher Educational Institutions migrate from the traditional to online course evaluation systems in order to save time, cost, and environmental influences and to increase efficiency and effectiveness. The study contributes to the body of knowledge on the adoption of online course evaluation systems by outlining what causes HEIs to adopt an online course evaluation system from a developing country perspective. This serves as a guide to other institutions that will want to adopt the online course evaluation system. Arguably, it is arguably one of the first empirical study on the adoption of online course evaluation systems that has been conducted from a developing country perspective.
Keywords – Online Course Evaluation System, Information Systems, Higher Educational Institutions (HEIs), Performance Evaluation, Developing Country, Ghana

INTRODUCTION

The act of student evaluating teaching is a prevailing development in Higher Educational Institutions (HEIs). In most HEIs in Africa, students evaluate courses for formative purposes, that is, to serve as a feedback mechanism to faculty for instructional improvement (Blair & Kimila, 2014). According to Lin and Pervan (2001), evaluation is a process that suggests planning and treatment by providing feedback information and contributing to organizational development. Evaluation of the performance of lecturers by students started as early as 1915 (Bemile, Jackson, & Ofosu, 2014). Zanin-Yost and Crow (2012) stated that, the quality of student learning although not exclusive, is directly related to the quality of teaching. In efforts to improve educational outcomes for students and increase accountability for teachers, there is the need to evaluate courses taught by lecturers.

Course Evaluation in the educational industry is undergoing constant changes due to the rapid devolvement of technology and the role it plays in the educational industry (Johnson, 2003). The evaluation process is now

virtualized, that is, it is being migrated from the physical environment to the virtual environment known as the online course evaluation. Prior research on online course evaluation systems have come to the conclusion that online surveys are more resource-efficient and offer greater convenience, ease of use, and student satisfaction (Donovan, Mader, & Shinsky, 2007). Studies on evaluation of course evaluation has been conducted from different scopes which focuses more student and faculty perceptions of course evaluations, the validity and reliability of course evaluations, online versus paper course evaluations and effects of allowing students access to course evaluation data (Adam, 2009; Ahmad, et al., 2012; Annan S. , Tratnack, Rubenstein, Metzler -Sawin, & Hulton, 2013; Dorit, McClean, & Nevo, 2012; Azizah, et al., 2011; Donovan, Mader, & Shinsky, 2007). Few studies have been conducted on the online versus paper course evaluations from a developing country's perspective (Anderson, Jeff, & Eleanora, 2005; Donovan, Mader, & Shinsky, 2007; Avery, Bryant, Mathios, Kang, & Bell, 2010; Bemile, Jackson, & Ofosu, 2014; Nicole, Steven, & Erin, 2007). However, all the above studies on the online versus paper course evaluations concentrated on comparing the paper-based system to the online course evaluation system in order to identify the importance of the online system over the paper-based system leaving out the migration process of the paper-based to the online system. This study instantiates with a specific case study in the context of a developing country "Ghana" to understand why higher educational institutions migrate from traditional to online course evaluation system. The next section presents the review of literature.

LITERATURE REVIEW

This section reviewed literature on performance evaluation since the course evaluation is a form of performance evaluation. The section then gives an overview of course evaluation and discusses it types.

Performance Evaluation

In a competitive society, every organization strives to attain stable development and survival of which the higher educational institutions are not exempted (Jalaliyoon & Taherdoost, 2012). Higher Educational Institutions have become more accountable to its stakeholders due to the increased public interest in their performance (Bisao, 2009). This can be attributed to the modern knowledge based economy where higher educational institutions serve as the centres for developing human resource. Thus, playing an essential role in countries' economic growth and development (Jalaliyoon & Taherdoost, 2012). In higher educational institutions, course evaluation serves as a type of performance evaluation for both lecturers and the courses they teach (Donovan, Mader, & Shinsky, 2007).

Overview of Course Evaluation

Course evaluation is an important means of assessing courses, lecturers and providing formative feedback for future improvement of a course or mode of teaching (Blair & Kimila, 2014; Donovan, Mader, & Shinsky, 2007). Course evaluations have undergone major shifts in the last century. It has changed along with beliefs and values concerning the role of teachers, effective teaching and modes of evaluation, and theories of student learning (Ellett & Teddlie, 2003). There are two main modalities for course evaluation. These are the traditional and Web – based (online) Course evaluation (Ardalan, et al., 2007; Thorpe, 2002).

Traditional Course Evaluation

The traditional modality of Course Evaluation is also known as the paper – based course evaluation. Ardalan et al. (2007), discussed in their study that, traditionally, universities have used paper-and-pencil surveys to collect students' feedback. Normally, a portion of a regular lecture session is devoted to the distribution, completion and collection of the paper-based surveys. The processing of data collected is difficult. Some studies describe it as expensive, time-consuming and prone to errors (Ardalan, et al., 2007).

Web – Based (Online) Course evaluation

Thorpe (2002) indicated that improvements in Information Communication technologies have caused the paper – based course evaluation system to be moved to online platforms, making an online course evaluation a norm for most HEIs. A Web – based course evaluation is an electronic questionnaire, which requires a written or selected response answer to a series of questions to evaluate the instruction of a given course. The benefits of having students to complete faculty evaluations online, compared to the traditional paper format include time and cost savings, less susceptibility to influences, and faster reporting of results (Alauddin & Kifle, 2014; Alessia & Crow, 2012; Blair & Kimila, 2014).

Migration from traditional to online course evaluations systems have received greater research attention in developed economies like Texas (David, Denise & Robert, 2010), California (David & Matthew, 2010); Indiana (Donovan, Mader & Shinsky, 2006), Australia (Alauddin & Kifle, 2014) and Canada (Saadé, 2003) than the developing economies such as Trinidad and Tobago (Blair and Kimila, 2014) and Ghana (Ansah, 2010). As a result, it is important that more studies should be conducted in the context of developing countries especially in African countries to validate and add to the findings of the few existing studies.

Most of the studies on online course evaluation have one thing in common; they are all conducted from the nursing, psychology and educational sector. There are few studies originating from the management information systems perspective. The dominant literature from this field is the studies conducted by Dorit, McClean and Nevo (2012) but their study was on the advantages offered by online Students' Evaluations of Teaching (SET). They used a Canadian university as a case study to identify critical success factors of online evaluations from students' point of view. Some of the factors identified as important by the students include anonymity, ease of use and accessibility. This was in line with a study conducted from a developing economy's perspective to assess whether students are ready to move to the online modality of course evaluation (Blair & Kimila, 2014). Virtualization of process in the educational sector for instance e-learning are a few of the studies in the literature which discusses how higher educational institutions virtualize the course evaluation process (Saadé, 2003). Hence, this study will contribute to the virtualization of course evaluation process.

RESEARCH SETTING AND METHODOLOGY
Research Setting
The setting for the research is the developing-country context of Ghana. The case study was based on *"University A"* (pseudonym), a Ghanaian university with a student population of thirty-five thousand, six hundred and eighty-three (35,683) as at September 2014 which represents a male-female ratio of about 3:2. "University A" aims to develop a world-class university through quality teaching, learning, research and knowledge dissemination hence to ensure quality teaching, the university formed the Academic Quality Assurance Unit (AQAU). The AQAU was formed to foster excellence and ensure the continuing quality of academic programs offered by the university. The responsibility of the unit which is of relevance to the study is Course Evaluation.

METHODOLOGY
This study employs the use of a qualitative, interpretive case study as its methodology in order to achieve the purpose of this research (Klein & Myers, 1999; Myers & Avison, 2002). Walsham (1995;1993) indicated that, interpretive case study in information systems research is aimed at researching into a phenomenon with the notion of understand interactions between information systems phenomena and their real-life contexts. This is in line with information systems research as other authors argue that it should examine the interactions of the social system (users and context) and the technical, in our case the online course evaluation system (Weißenfels, Ebner, Ebner, & Smolnik, 2016; Avgerou, 2000). The philosophical assumptions (ontological and epistemological perspective) underpinning the interpretive paradigm are that reality and knowledge are socially constructed between researchers and their participants, making both subjective in the research phenomenon, process and output (Klein & Myers, 1999; Orlikowski & Baroudi, 1991). Drawing from the qualitative, interpretive case study, this study seeks to understand the interaction between the online course evaluation system and its environment. The justification for choosing the qualitative, interpretive case study approach is the ability to aid in getting in-depth understanding from the research phenomenon to be studied and its environment.

Data gathering
Based on the tenets of the interpretive paradigm and case study research, this study employs evidence from multiple sources to support the research findings – this strategy is known as data triangulation (Walsham, 2006;1995). Data for this study was gathered from 2014 to 2015 through artefact analyses, observations, Internet searches, focus group discussions, archival records and formal and informal interviews. Using a purposive sampling technique, a total number of fifty-four (54) participants were interviewed for this study. The breakdown of the participants are forty

(40) students, ten (10) lecturers and three (3) Administrative staff from the AQAU and a Webmaster in the "*University A*" Computing Systems. Each interview lasted for an hour, with the consent of the participants, each interview session was tape-recorded and afterward transcribed after the fieldwork. The preliminary findings were presented to the participants through a workshop for verification of findings and feedback from participants.

Data Analysis
Analysis of the data was carried out both during and after data collection (Myers, 2009; Walsham, 1995, 2006). The researcher adopted the qualitative thematic analysis (Ryan & Bernard, 2003) which involves carefully reading, summarizing, reflecting and categorizing the data into emerging thematic segments (Miles & Huberman, 1994). The researcher followed the above process to induce themes on why higher educational instituions adopt online course evaluation systems. To ascertain the authenticity, plausibility and criticality of the analysis, as these emergent themes were identified, the researcher went back to the field to discuss it with participants and verify the findings (Walsham, 2006). This is in line with interpretive studies where data can be collected and analyzed simultaneously and iteratively (Baxter & Jack, 2008).

THE CASE OF *"UNIVERSITY A"*
The traditional Course Evaluation System
Until 2013, *"University A"*, like most Ghanaian universities used paper-based evaluation method (traditional system) to collect student feedback on both lecturers and courses taught. This traditional system was conducted in the last week of the teaching period of each semester. Portions of the regular lecture session are devoted to the distribution, completion and collection of the paper-based questionnaires. The sample for the evaluation depended on the class attendance for that single session. Students who are not in class during the session miss the opportunity to evaluate. This was established by the Assistant Registrar of the AQAU who indicated that;
"The Paper-Based questionnaires were usually brought to the lecture room, usually during the last lecture session of every course, and a portion of the lecture period is dedicated to the filling of the questionnaires. The questionnaires are normally distributed to students by the teaching assistants of the lecturer and students are given a short period of time to fill and submit the questionnaires".
 These printed questionnaires are typically a mixture of scaled, closed-ended and open-ended questions. The responses to closed-ended questions can be quickly recorded using a widely available scanning technology called the Photo scribe PS900. This set of scaled responses would then be processed as quantitative feedback. The open-ended questions, such as "Please comment on this course" and the semi-open-ended questions, such as "Any comments or suggestions for future improvement?" would elicit written comments from the students.
The Assistant Registrar further indicated,
"At times, because of the comments recorded in parts of the questionnaire, we hire the services of extra staff to type the comments and others to scan the forms. This tends to delay the evaluation process, and always has backlogs of unprocessed data from the previous semester."
These comments would require manual transcription to provide readability for this handwritten material and, more importantly, to provide anonymity for the student respondents. This set of comments would then be assembled as qualitative feedback. The AQAU hires the services of extra personnel to manually type these comments. The processing of this qualitative feedback, requiring transcription, is one of the major disadvantages of this method, because it is expensive, time-consuming and usually prone to error.
Analysis is conducted on the collected data to determine the performance of the lecturers and how the course was delivered. From the data collected as valid, an average response rate of at least 60 percent is required. Where feedback is low, departments give consideration to ways in which the response rate might be improved. Departments monitor the response rate and take it into account when evaluating the feedback and developing the action plan.
At the end of every evaluation process, a summary of the analyzed data and a copy of the unedited subjective or written portion are sent to the lecturer concerned. Copies of the same materials are sent to the lecturer's Head of Department and Dean. The Director of AQAU is required to send comments on the analyzed data to the Dean

concerned. Everything is done under strict confidentiality. Heads of the departments are required to discuss their evaluation report with the teaching staff. Deans are required to talk to teaching staff whose output is found to be below expectation.

Decision for Online Course Evaluation System

It was ascertained that the paper-based method of evaluation was somewhat flawed, as the top management of the AQAU responsible for overseeing the printing and distribution of these questionnaires indicated that the cost of using the paper- based questionnaire was very high. The cost included the printing the questionnaire. This is because the printing is not done in-house, it was usually outsourced. Most of the time, the printing of the questionnaires is delayed and this also delays the whole evaluation process. There are occasions when some courses are not evaluated because of the non-availability of forms.

Both the Research Assistant and the Assistant Registrar indicated that;

"The Cost involved in printing the paper-based forms was so high, take one student offering six courses, the person is supposed to fill at least five forms. Take this number and multiply with the total population of the University, which is around thirty-eight thousand (38,000). So each Semester we end up printing approximately one hundred and ninety thousand (190,000) forms, and there are occasions they have run out of forms."

The cost of distributing them to each Faculty throughout the *"University A"* campuses was so high. Hence, the unit devised a plan where the various faculties were called upon to pick up their evaluation forms from their main office when it was ready. But it was noted that most faculties delayed in going to their forms, resulting in the delays of the evaluation process. Furthermore, there was always a huge cost associated with collecting, scanning and storing the paper evaluation forms. Also, the costs of typing students' responses to open-ended questions and the costs of delivering hardcopy summary reports to Faculty were so high. This was ascertained by the Assistant Registrar of the Academic Quality Assurance Unit.

He declared;

"Take the case of a student offering six courses. The student is supposed to fill at least five forms. Take this number and multiply it by the total population of the University, which is around thirty-eight thousand (38,000). Simply put, the unit ends up printing approximately one hundred and ninety thousand (190,000) forms every semester."

Finally, there was high administrative cost in processing this large number of questionnaires. Since they were paper-based, they had to be collected and scanned manually using the Photo Scribe Series PS900 Machine. The Photo Scribe Series PS900 is an image-capturing device that is used to scan or capture data, and conduct validation and key correction of the scanned data. It then exports the scanned and corrected data into an ASCII or Text format which is suitable for electronic processing. And since it was just one machine being used, it took an unusually long time to scan all the questionnaires. On some occasions, the scanner could break down several times and it costs a lot to repair it. This causes various inconveniences and undue delays.

Furthermore, there was the pressing issue of time. It always took a long time for all the questionnaires to be scanned, and this led to the late provision of the results. Most of the time, there were backlogs of the un-scanned questionnaires from the previous semester into new semesters. The photo scribe PS 900 scanner could capture only the Likert scale questions. For the open-ended questions, other staff had to be employed overtime to type all the responses and most of the time there were some typographical errors. Also, the processing time for the evaluation was prolonged. On several occasions, deadlines for scanning a semester's questionnaire were not met. During this same time, another set of questionnaires would be available to be processed. Hence, there was always a problem of having backlog questionnaires from the previous semester to scan.

Also, there is the issue of environmental forces. With the University aiming to be a world class institution, it will be feasible to throw away the traditional mode of doing things and adopt contemporary methods, which are more resource efficient.

This was ascertained by the Assistant Registrar as he indicated that;

"Looking at all the big universities in developed countries, most of them are adopting the online system. So, it will be plausible for "University A" to adopt such a system if the university really wants to compete with the "outside Universities""

Finally, there was also an issue of the difficulty in modifying the existing questions for the evaluation. For instance, an interview with some of the Faculty members indicated that the evaluation questionnaire did not capture innovation. By so doing, it becomes difficult to assess Faculty members on innovative ways of teaching. The paper-based questionnaire is such that it is difficult to be modified. The cost of printing the forms are very high. This made the evaluation questions difficult to be modified. As a matter of fact, the same questionnaire has been used over five years. Even, though it was rare, some students indicated that the paper-based evaluation process is susceptible to Faculty influence. This is because in a typical paper-based evaluation process, it is possible that the Faculty member might perform on the day of the evaluations some activity that is designed to elicit a favorable response from students or in some cases just the presence of the Faculty member before or during the evaluation process may either influence or intimidate the students, especially if the student fears that the Faculty member may have some way of identifying the student's response.

In view of the above problems, in 2011 there were recommendations from some Heads of department to virtualize the paper-based Course Evaluation system. In 2012, a decision was made to develop the online Course Evaluation system. Since the university has an internal computing unit, the Assistant Registrar of AQAU sought the assistance of the webmaster of the university's Computing Systems. The online system was developed in-house by the webmaster and his Unit comprising of a database programmer and a graphic designer. It took four (4) months to develop the online Course Evaluation system.

The Online Course Evaluation System

As noted earlier, course evaluations are carried out in the last week of Lectures. Before evaluation period, a memo is sent from the AQAU to all Faculty members of the University, reminding them of the evaluation of courses and lecturers. Also, some of the memos are sent to students through the University's electronic mail. During the evaluation period, a link directing students to the evaluation page is put on the university's website and AQAU homepage. When students click the link, it takes them to a one-page questionnaire item, with four sections. In the first section, the student chooses his or her campus, course code, name of the lecturer (s), academic year, and semester from a dropdown menu. The student then moves to the second section that is the Course Evaluation section, which is a questionnaire item on the course. The next section is on Lecturer Evaluation, which covers questions that are asked about the attendance of the lecture and how the lecturer delivered the course. The final section is to provide qualitative comments. Students are given the opportunity to add the comments and suggestion for improving the course and its mode of delivery. After filling the questionnaire, the student clicks on the submit button at the bottom of the page and his or her form is saved in the database.

REASONS FOR ADOPTING THE ONLINE COURSE EVALUATION SYSTEM

Reduced Processing Time

First and foremost, unlike the paper-based course evaluation system that took longer to process, approximately four to five months. The online Course Evaluation shortens this processing time for a day's job. For the online course evaluation system, there is no need to print over eighty thousand questionnaires, distributing and scanning after it has been filled. This tends to take away the flaws of backlogs. Also, for the online system, there is no need to hire the services of extra personnel to type in the comments of the students. This tends to prevent typographical mistakes. Since the collected data could be analyzed within days, this substantially reduces the time for lecturers to receive their reports and enable them to quickly act upon the students' evaluation. The time and resources used in processing the data can be diverted to other projects.

Reduced Operational Cost

From the research findings, it is ascertained that, the online Course Evaluation system is very cost effective. It takes away the cost of printing over one hundred and eighty thousand evaluation forms, each semester as compared to the paper-based Course Evaluation system. Cost is an important consideration for institutions of higher Education. Notwithstanding that, the online Course Evaluation system also tend to take away the cost of distributing these evaluation forms throughout the various campuses. All these funds can be diverted to fund other projects in the

university. Finally, there is reduced administrative cost unlike the typical paper-based Course Evaluation process which is a labor-intensive process. The funds that would have been channeled into the hiring of extra personnel to process the data and the cost of repairing the scanners if they break down can be diverted to other pressing needs of the unit.

Easy modification of Evaluation Questions
From the research findings the AQAU has the flexibility in the questionnaire design, which is the ability to easily change the items on the evaluation forms. Unlike the paper-based course evaluation system, the questions for the evaluation can easily be modified without any implications. For instance, the current evaluation system did not capture how innovative the lecturers were in class. Hence, the academic quality assurance unit has decided to add technological innovation of lecturers to the evaluation and it was done with ease. If the University was still using the paper-based system, it would have been difficult to modify the system for a new set of evaluation forms to be printed. Also, the field for capturing comments is limited or has fixed length in paper-based forms. But with the online system this limitation is eliminated.

The ability for students to evaluate at their convenient time
Students have the flexibility to fill the online evaluation forms at their own pace, that is as and when they want to fill it. The online course evaluation system affords students with flexibility in completing their evaluation forms provided they have access to a computer and the Internet. Enabling students to complete the form at their own convenience increases the likelihood that students will have the time needed to consider their rating and write all that they want to say in the student comments section.

Environmental Forces
Another factor that influenced the *"University A"* to virtualize the physical process of its Course Evaluation is the environment. Environment in this context refers to aggregates of conditions or forces that influence or shape *"University A"*. The environmental forces are classified into two (2). The external environment of *"University A"* refers to its competitive forces. With the notion of developing into a world class university, there is the need to act accordingly since virtualizing the course evaluation process is a contemporary phenomenon which most western school are adopting. Another internal environmental factor is the growing population of *"University A"*. The University has experienced a tremendous growth in its population to about forty-two thousand, six hundred and ninety-two (42,692) and looking at this growth rate the paper-based method of Course Evaluation will not suffice.

Accessibility
Accessibility from the research findings can be viewed in two strands. Accessibility on the part of the students and accessibility on the parts of lecturers. Comparing the paper-based course evaluation system to the online system, most students tend to miss the opportunity to evaluate the courses when they are not at lectures during the day of the evaluation. Since the evaluation for a course is done only once in a semester most of the student's perspective may not be captured. But this is not so with the online course evaluation system, the students will have a long time, whether at lectures or not to voice out their grievances during the evaluation period. All of the students in the class tend to have equal access to the online course evaluation system. None of the students will miss this opportunity to evaluate because they are absent from class. Furthermore, lecturers can have access to the evaluation report within a short period of time as compared to the paper-based evaluation method and it will aid in informing how they teach the next semester.

DISCUSSION OF FINDINGS
Reasons Higher Educational Institutions adopt online course evaluation system
Reduced Cycle Time for Processing
The issue of time can be viewed along the line of reducing the processing time of the paper-based course evaluation system. As earlier indicated, the processing of the data from the paper-based evaluation system in *"University A"*

can take approximately four to six months, hence feedback of the evaluation is not received on time. Again, there are always backlogs of unprocessed data from the previous semesters. Also, the cycle time is prolonged – the cycle time refers to the total time from the beginning to the end of the evaluation process. This includes the processing time, during the evaluation. It was also discovered that "an online ratings system can substantially shorten the time to receive ratings reports, thereby enabling teachers to consider and act on student feedback in a timely manner". Also, Dorit, McClean and Nevo (2012) and Avery et al., (2010) also ascertain the above fact that the introduction of the online course evaluation system tends to reduce both the cycle time of the evaluation process hence increasing productivity.

Cost Effectiveness
From the analysis of the findings, it is observed that the online course evaluation system is very cost effective. There is a reduction in the operational cost. Thus, the online course and the lecturer evaluation system tend to take away the cost of printing the paper evaluation forms. It also tends to take away the cost involved in distributing the forms to the various colleges and departments and the cost of repairing scanning machines. Also, the extra cost involved in paying staff to scan the paper forms are eliminated when it comes to the online system. This is in line with the literature (Bemile, Jackson & Ofosu, 2014; Johnson, 2003; Nikolaidis & Dimitriadis, 2014) where empirical finding suggests that, online course evaluation system is generally perceived as less expensive than paper-pencil evaluation systems. From the studies, automating the Course Evaluation process eliminates the paper costs and reduces personnel costs for processing rating forms. Bothell and Henderson (2003) have undertaken a rigorous cost study that points out that the overall costs for online systems is substantially lower than those for paper-based systems.

Accessibility Issues
From the study, it could be realized that the online course evaluation system offers the convenience to students to access the system as and when they want to during the evaluation period. This tends to leverage on a high and quality response rate, since students can take their time to fill the forms, unlike the paper-based evaluation forms that require students to be physically present for the evaluation. Usually, accessibility goes hand in hand with time constraint when it comes to the paper-based system. Students are required to fill the forms in class within a shorter period of time. In this study's case, the allotted time for the paper-based evaluation is 10-15 minutes, hence, the students just rush through the filling of the forms at times preventing them from giving quality feedback. Furthermore, the online Course Evaluation system tends to give lecturers access to the evaluation report within a shorter period of time as compared to the paper-based evaluation (Alauddin & Kifle, 2014).

Flexibility
Another reason, higher educational institutions may pursue the development of an online Course Evaluation system is that, it offers the flexibility to easily adapt or change the evaluation questions at a lesser cost compared to the paper-based Course Evaluation system (Azizah et al., 2011). In some online rating systems, instructors are given the flexibility to adapt and personalize the rating forms. They can easily change or add questions (or both) to elicit feedback according to their individual needs. Of course, most institutions with online rating systems do not allow unlimited "teacher tinkering" with the form. The system has to ensure that the mandated items cannot be changed or eliminated by instructors.

CONCLUSION/IMPLICATION
The research extends the study on course evaluation (Adam, 2009; Avery et. al, 2010; Bemile, Jackson, & Ofosu, 2014) in developing countries by probing into the reasons for the migration to an online course evaluation system in higher educational institutions. This study pointed out that higher educational institutions migrate to an online course evaluation system because of the following: reduced cycle time for processing, Cost effectiveness, Accessibility, Flexibility and Environmental forces. The limitation of the study stems from its focus on a single case study in one developing country. However, it adds to the body of knowledge by bridging the gap in the area of adoption of online course evaluation system in developing countries like Ghana. Also, with the issue of practice, this

study will guide and inform institutions that would want to migrate or adopt an online course evaluation system. Thereby, aiding in the decision to transition course evaluation process from the traditional system to the online system.

Even though the findings generated may be replicated in other institutions, this study focused on why HEIs adopt online Course Evaluation system using *"University A"* as a case study. Since HEIs differ in their process, the findings may differ, as a result, readers must be careful in generalizing the findings of the research since the context might make a difference. Finally, as online course evaluation systems move on to more accessible technologies like mobile phones or smart phones, future studies should concentrate on identifying which forces will enable or constrain such a process.

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ONLINE INTERACTION QUALITY AMONG ADULT LEARNERS: THE ROLE OF SENSE OF BELONGING AND PERCEIVED LEARNING BENEFITS

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ABSTRACT
The present study employs social cognitive theory (SCT) and social capital as the guiding frameworks to explain online interaction quality among learners in a blended learning program (*N*=179). Capturing performance expectancy by perceived learning benefits and online interaction quality with nuanced cognitive measures, the study aims to validate how the SCT and social capital, which are mostly used in predicting online interaction quality in virtual settings, are applicable in an academic setting. More specifically, we investigate the relationship between trust, norms of reciprocity, sense of belonging, altruism, perceived learning benefits and learners' perception of online interaction quality. Data were collected quantitatively by means of a questionnaire. Confirmatory factor analysis (CFA) and path analysis were employed to validate the instrument and answer the research question respectively. The findings show that only sense of belonging and perceived learning benefits significantly account for a moderate variance in online interaction quality ($R^2 = .46$). Based on the findings, implications for instructional practice and further research are suggested.
Keywords: online interaction quality, social capital, perceived learning benefits, and adult learners

INTRODUCTION
Different instructional approaches such as scaffolding, prompting, and role assignments have been adopted by instructors in online and blended learning to enhance learners' participation in online discussions. Of equal importance, the quality of these online discussions is also a major concern. If high level of online participation is hard to achieve, high quality of online interaction is even more difficult to reach. There are different factors inhibiting adult learners from being active online, e.g. assuming different roles during the undertaking of the study or the preference of interacting with those of similar backgrounds (Yukselturk, 2010). Nevertheless, the decision to dedicate time and effort to online discussion of adults are normally weighted based on cost-benefits evaluation (Kollock, 1999). This means of learners are intrinsically and extrinsically motivated in their online participation, factors related to situational variables will be of less significance.

The quality of online interaction has been investigated in a number of settings. For example, Peltier, Schibrowsky, and Drago's study (2007) confirms that instructor's facilitation has a positive impact on learners' perception of online interaction quality. Additionally, Lee and Bonk (2016) found that the higher the degree of closeness learners perceived, the more they became involved in their online participation in blogs, thus contributing more to the community of learners. In virtual learning communities in which the sharing of knowledge is voluntary, Chang and Chuang (2011) and Chiu, Hsu, and Wang (2006) found that social capital, measured by trust, norms of reciprocity, and sense of belonging significant predict the quality of knowledge sharing. The nature of virtual learning communities and the learning communities of adult learners share the essence that their members are more likely to

contribute and advance the quality of online interactions when they are motivated and intrigued by factors other than obligation from the course requirement. Thus employing the social capital framework along with factors related to learners such as performance expectancy as an extrinsic motivational factor and altruism as an intrinsic motivational factor would provide more insights regarding enablers of online interaction quality. However, research findings up to date have revealed that such studies in formal education settings are still scarce. The results from studies in virtual learning communities as those carried out by Chang and Chuang (2011), Chiu et al. (2006) and Lampel and Bhalla (2007) cannot be generalized to adult education settings for a number of reasons. The first is that the quality of online interaction or knowledge sharing in these studies is that of being accurate, reliable, complete and understandable (Chiu et al., 2006). Thus when applied to educational setting, such measures of the quality of online interaction cannot comprehensively capture the cognitive essence required for academic knowledge development. Second, performance expectancy in virtual learning communities is conceptualized as reputation and community building (Chang & Chuang, 2011; Chiu et al., 2006). These outcome expectations are not applicable in formal education settings as adult learners may not have that motivation of enhancing individual status and expanding social connections with peers given that they have other options in addition to online interaction opportunities.

Against these backgrounds, the present study aims to bridge the gap in literature by investigating how social capital and factors related to learners' motivation such as altruism and performance expectancy measured by perceived learning benefits are associated with online interaction quality. Conducted in the context of formal education setting that employs blended learning as mode of instructions, the present study aims to unravel critical factors contributing to the quality of online interaction among a group of adult learners who are heterogeneous in their socio-demographic background. More specifically the following research question is addressed: What are the relationships between social capital and learners' personal-related factors, namely, altruism and perceived learning benefits and online interaction quality? In addition, we also examine if these relationships are moderated by learners' socio-demographics, including age, gender, educational attainment, and employment status.

THEORETICAL BACKGROUND

The quality of online discussion or knowledge sharing by members in a learning community is affected by various factors. Hsu, Lu, Yen and Chang (2007) argue that the extent to which individuals contribute to the learning community is contingent on their personal motivation and the social environment, of which they are a member. Researchers have based largely on the Socio Cognitive Theory (Bandura, 1989) to explain the behaviors of knowledge sharing in an online learning community, e.g. Chiu et al. (2006). The Social Cognitive Theory states that a person's behavior is influenced by the social networks and their cognition, e.g. expectations including outcome expectations and self-efficacy (Bandura, 1989). Previous studies have included social capital as aspects of the social networks and performance expectancy and altruism as those of personal cognition in explaining the quality of online interaction among learners (e.g. Tamjidyamcholo, Baba, Tamjid & Gholipour, 2013). Self-efficacy, being one of the factor in the SCT, is not included in most studies, e.g. Hsu et al. (2006) for the reason that self-efficacy is context-specific and hence is subject to change over time (Chen, Gully, & Eden, 2001). Thus in the following section, factors related to the social environment, namely social capital and personal cognition including performance expectancy and altruism that are hypothesized to be associated with online interaction quality are discussed.

Online interaction quality

Due to the fact that the context in previous studies is different from academic settings, the online interaction quality is measured by the quality of information shared rather the cognitive aspects related to knowledge construction such as triggering self-reflection and knowledge transfer. Taking this into account, the present study adopts the cognitive presence scale from Arbaugh, Cleveland-Innes, Diaz, Garrison, Ice, Richardson, and Swan (2008) to capture the online interaction quality among the adult learners in a blended learning program. We define online interaction quality as an evaluation of how the learners perceive the interaction with other learners help them to build up their knowledge related to the courses and facilitate knowledge transfer.

Social capital

According to Putnam (2000), social capital refers to the networks, norms, and social trust that foster the collective processes and actions of members within a community for the public good. From a different standpoint, Bourdieu (1986) and Coleman (1988) (cited in Zhang & Kaufman, 2015) address social capital as the social networks and resources obtained by individuals through their memberships and interactions within the community. Bourdieu and Coleman's conceptualization of social capital implies that individuals can benefit from the community of their membership whereas Putnam proposes that the community can benefit from the social capital generated through the interactions among its members (Oztok, Zingaro, Makos, Brett, & Hewitt, 2015; Zhang & Kaufman, 2015). Despite different emphasis, these authors share the idea that social capital results from the dynamic interaction among members and an increase in social capital is beneficial for individuals and the community (Oztok et al., 2015).

When investigating the role that social capital plays in enhancing the quality of online interaction among learners, we view the concept from Putnam's perspective. This means that the trust, sense of belonging, and norms of reciprocity among the classmates are hypothesized to motivate them to actively contribute to the online discussions for leveraging the quality of one another's learning. In this study, we adopt the definition of trust, norms of reciprocity, and sense of belonging from Chang and Chuang (2011) to conceptualize and operationalize social capital. Accordingly, trust is defined as "individual beliefs and expectations that other participants can perform consistent behaviors to follow norms and principles of a virtual community" (Chang & Chuang, p.12). The authors refer to norms of reciprocity as the perception of fairness to mutually share knowledge to each other in a virtual community and sense of belonging as feeling of belonging to a group or a set of people. These three constituents of social capital have been confirmed as significant factors relative to online interaction quality in virtual communities in Chang and Chuang (2011), Chiu et al. (2006), and Tamjidyamcholo et al. (2013).

Altruism and performance expectancy

Altruism is defined as the offer to help others by voluntarily sharing knowledge without an expectation of a return from the recipients (Kollock, 1999; Steward & Gossain, 2006; Yu & Chu, 2007). According to Hung, Durcikova, Lai, and Lin (2011), altruism is considered a type of intrinsic motivation that triggers one's knowledge sharing to the community. However the authors found a non-significant effect of altruism on the quality of knowledge shared, which is in line with the findings from Lampel and Bhalla (2007) and contradictory to the results from Chang and Chuang (2011). In this regard, it is relevant to take Kollock's (1999) opinion into account, who postulates that altruism may compete with extrinsic motivation such as the evaluation of the gain that can be obtained. In fact, Hsu et al. (2006) and Hung et al. (2011) found that extrinsic motivation such as reputation is stronger than altruism in predicting the quality of online interaction in a community. In an educational setting, research validating the role of altruism as a measure of intrinsic motivation and performance expectancy as extrinsic motivation concerning online interaction quality is not yet recognized. In addition, performance expectancy in existent studies mainly focuses on reputation, community development, and network expansion. These outcomes are not highly relevant in educational settings because the most important motivation and goals of one's participation in online discussions related to the courses under question is the perception of how the community can help them to build and expand their knowledge repertoire. Therefore, this study addresses these two gaps by using perceived learning benefits of a measure of performance expectancy. The construct is adopted from Xie and Ke (2011) to capture the perceptions of learners as to how the learners evaluate the value of online discussion relative to their learning.

Based on these theoretical backgrounds, we hypothesize that social capital measured by trust, norms of reciprocity, and sense of belonging and learners' intrinsic and extrinsic motivation measured by altruism and perceived learning benefits respectively, will have a positive relationships with the quality of online interaction as perceived by the learners.

METHODOLOGY

Research design

The present study employed a quantitative approach to data collection by means of a questionnaire. Data were collected one time in different centers for adult education in Flanders (Belgium). Thus in terms of design, the study is cross-sectional in nature. The questionnaire was distributed both online on the researchers' institutional platform or

in the participants' classrooms with the presence of their instructors and one of the research members. To minimize issues related to common method bias, the participants were encouraged to give answers most relevant to them and therefore, no right or wrong answers were the case. The participation in the study was totally voluntary, i.e. no incentives were given and the anonymity of the participants was guaranteed.

Participants

The participants in this study are learners who were following the Specific Teacher Training program. The program employed blended learning as an instructional strategy. Learners who have successfully completed the program are granted with a certification to be qualified for teaching at secondary levels. After screening for incomplete and unengaged answers, one hundred and seventy nine questionnaires were retained for analyses. The number of female learners (61.5%) is nearly twice as much as male learners (38.5%). Higher secondary degree holders (57.5), constitute the majority, followed by higher education degree holders (39.1%) and lower secondary degree holders (3.4%). As for employment, learners who have a fulltime job is the biggest group (62.6%). Those who are part-timers accounts for 20.7% and those who are full-time enrolled 10.6%. Learners aged between 18-30 accounts for half of the sample, followed by those aged between 31-40 (32.4%) and 41-50 (17.3%). The average age of the participants is *M*=32.08, *SD*=7.82.

Instrument

The present study used existing scales validated from previous studies. As for the independent variables, social capital including three dimensions, i.e. trust, norms of reciprocity, and sense of belonging, and altruism were adopted from Chang and Chuang (2011) and Chiu et al. (2006). Perceived learning benefits measuring how the learners perceived that online interactions with peers contribute to their understanding of the course were adapted from Xie and Ke (2011). Regarding the dependent variable quality of knowledge sharing, we have opted to modify the cognitive presence scale from Arbaugh et al. (2008) because the scale is more nuanced and applicable for capturing the cognitive quality of online interaction among a community of adult learners rather than a professional learning community as in Chang and Chuang (2011) and Chiu et al. (2006). In total, there are 32 items included in the questionnaire. After the scales have been decided upon, face validity had been verified by three experts in the fields of adult learning and social capital before they were translated into Dutch, which is the mother tongue of the participants. When there were discrepancies in the translation, a third Dutch-native colleague was consulted to ensure the clarity of the items' meaning into without losing the essence of the items in English.

Data analysis method

To answer the research questions, we applied Partial Least Square-Structural Equation Modeling (PLS-SEM) as method of data analysis. Accordingly, the analyses consisted of two phases. First the measurement model was validated by confirmatory factor analysis (CFA). At this step, construct validity was evaluated by two rules of thumbs suggested by Fornell and Larcker (1981) and Chin (1998) such that the average variance extracted (AVE) for each construct should be equal or greater than .50 and the square root of the AVE of each construct should be greater than the correlations of this specific with others. The second step in PLS-SEM was to confirm the hypotheses by means of path analyses. All these two steps were conducted by employing SmartPLS 2.0 M3 (Ringle, Wende, & Will (2005).

RESULTS

Measurement Validation

Confirmatory factor analysis shows that all items have adequate factor loadings (>.400) onto to their respective constructs. Thus no items have been removed. Table 1 presents the mean, standard deviations, the *AVEs*, composite reliability, and Cronbach's alpha.

Table 1: The mean, standard deviations, average variance extracted (*AVEs*), composite reliability, and Cronbach's alpha of the constructs

Constructs	*M* (*SD*)	*AVEs*	Composite reliability	Cronbach's Alpha
Trust	3.61 (0.56)	.57	.87	.82
Norms of reciprocity	3.78 (0.76)	.85	.92	.82
Sense of belonging	3.51 (0.72)	.76	.93	.90
Altruism	4.17 (0.63)	.84	.94	.90
Perceived learning benefits	3.33 (0.70)	.67	.91	.88
Online interaction quality	2.92 (0.91)	.68	.96	.96

As for divergent validity, the square root of *AVE* of each construct displays greater value than the correlations between the constructs themselves. This reveals that multi-collinearity is not a concern in this sample. Table 2 presents the *AVEs* and the correlations among the constructs.

Table 2: The correlations among the constructs with their respective *AVEs* (in bold)

Constructs	OIQ	AL	PLB	NP	SB	T
OIQ	**.82**					
AL	0.114	**.92**				
PLB	0.619	0.235	**.82**			
NP	0.293	0.554	0.275	**.92**		
SB	0.417	0.469	0.362	0.586	**.87**	
T	0.237	0.360	0.125	0.526	0.572	**.75**

Notes for abbreviations: Online interaction quality (OIQ), altruism (AL), perceived learning benefits (PLB), norms of reciprocity (NP), sense of belonging (SB), and trust (T).

The structural model

As the measurement model has been confirmed, path analyses were followed to identify the significant predictors of online interaction quality. According to the results presented in Table 3, perceived learning benefits were the most significant factor (β=.55, *p*<.001). However, altruism did not significantly predict online interaction quality (β=-.18, *p*>.05), which means extrinsic motivation has outweighed intrinsic motivation. Among the three constructs of social capital, only sense of belonging was found as the significant factor (β=.23, *p*<.05). Altogether, the significant predictors account for a variance of 46% in online interaction quality, which shows a medium effect according to Hair, Ringle, & Sarstedt (2011).

Table 3: Result from path analysis for the outcome variable online interaction quality (R^2 = .46)

Independent Constructs	Standardized coefficients	*t*-statistics
Trust	.08	.86
Norms of reciprocity	.07	.64
Sense of belonging	.23	1.97*
Altruism	-.18	1.79
Perceived learning benefits	.55	7.22***

Notes: **p*<.05, ***p*<.001

Analyses of variance

Analyses of variance, including ANOVAs and *t*-tests were used to examine if socio-demographic variables may affect the relationship among the variables.

(1) T-test result showed that there was no significant difference between male and female learners regarding perception of online interaction quality, $t(177) = 0.277$, $p = .785$.

(2) The results from ANOVA reveal that there was no statistical differences among the three age groups of learners as for perception of online interaction quality, $F(2) = 0.067$, $p = .935$. However, a significant difference was found among learners who have different educational attainment, $F(2)=4.692$, $p = .01$ and employment statuses, $F(2) = 3.362$, $p = .037$. Post-hoc analyses further revealed that learners who hold a higher education degree ($M = 2.67$, $SD = 0.04$) had significant lower mean scores than higher-secondary degree holders ($M= 3.09$, $SD = 0.84$). In addition, learners who were a part-timer scored higher ($M = 3.16$, $SD = 0.85$) than learners who were fulltime enrolled ($M = 2.5$, $SD = 0.91$).

As educational attainment and employment status can moderate the relationships between the independent variables, namely altruism, perceived learning benefits, trust, norms of reciprocity, and sense of belonging and online interaction quality, we conducted multi-group moderation to validate the model. Following Keil, Saarinen, Tan, Tuunainen, Wassenaar, and Wei's (2000) approach, the model parameters or regression coefficients and standard errors (*SE*) of each path were estimated for each group. Subsequently, *t*-statistics were applied to find out if the effects of the five independent variables were significantly different as a function as group differences. However, all *t*-statistics were non-significant indicating that educational attainment and employment status were not significant as moderators. The results of multi-group moderation analyses are presented in Table 4.

Table 4: Results of multi-group moderation for educational attainment and employment status

Latent variables	Higher secondary degree holders (*n*=103)		Higher education degree holders (*n*=70)		*t*-statistics	*p*-values (*2-tailed*)
	Regression coefficients	*SE*	Regression coefficients	*SE*		
Altruism	-0.07	0.11	-0.28	0.12	1.27	0.21
Perceived learning benefits	0.51	0.08	0.61	0.07	0.88	0.38
Trust	-0.03	0.14	0.15	0.09	0.96	0.34
Norms of reciprocity	0.15	0.11	0.02	0.10	0.83	0.41
Sense of belonging	0.19	0.12	0.10	0.11	0.57	0.57
Latent variables	Part-time learners (*n*=37)		Fully-enrolled learners (*n* =19)		*t*-statistics	*p*-values (*2-tailed*)
	Regression coefficients	*SE*	Regression coefficients	*SE*		
Altruism	-0.25	0.13	-0.14	0.11	0.59	0.56
Perceived learning benefits	0.54	0.06	0.41	0.08	1.28	0.21
Trust	0.17	0.15	0.16	0.19	0.06	0.95
Norms of reciprocity	0.34	0.12	0.07	0.16	1.32	0.19
Sense of belonging	0.22	0.19	0.36	0.16	0.48	0.64

DISCUSSION AND CONCLUSION

Based on SCT (Bandura, 1989) and social capital theory (2000), the present study investigates the relationships between social capital, personal related factors, i.e. altruism and perceived learning benefits, and online interaction quality. The study has operationalized perceived learning benefits and online interaction quality in such a way that is more relevant to a community of adult learners following a formal education program. Multigroup moderation was also conducted to examine the moderating effects of socio-demographic factor. Yet, non-significant moderation was found.

Although outcome expectancy in this study was captured by perceived learning benefits to be more relevant in education settings, its positive relationship with online interaction quality is in line with previous studies (Chang & Chuang, 2011; Chiu et al, 2006). However, altruism as a measure of learners' intrinsic motivation failed to predict

online interaction quality, which is also found in Hung et al. (2011) and Lampel and Bhalla (2007). This finding highlights that in virtual learning communities, intrinsic motivation manifest in altruism is more important to explain the quality of interaction because the sustainability of the communities highly depend on the voluntariness of each member. In educational settings, altruism may lack its prevalence because the need to sustain the online interactions among the learners may not be the responsibility of the learners but the instructors instead. Given this lack of need, the learners may rely on their evaluation of performance expectancy, namely perceived learning benefits as the sole motivation for their quality contribution. In addition, as most learners in this sample are employed fulltime and part-time, the evaluation of cost benefits has outweighed altruism. Thus to successfully enhance the quality of online interaction, it is suggested that the instructors can explicitly clarify how online interactions with peers are aligned with the learning objectives. In so doing, the learners will be more motivated to substantially contribute to online discussions and overcome barriers such as the lack of time due to other obligations.

Contradictory to most studies that employ the social capital framework to explain online interaction quality, only sense of belonging was positively correlated with the dependent variable. That trust and norms of reciprocity were found to be non-significant suggest that learners in a program may have known each other and consider that helping each other in need is a normal practice. Then there is not that high variability in terms of trust and norms of reciprocity among learners in a program whose identities are more visible than those in virtual learning communities as investigated by Hsu et al. (2007). Being found as a significant predictor, sense of belonging has demonstrated that it is the most significant element of social capital in online learning environment as initially postulated by Rovai (2002). Thus, an online learning environment in which learners feel that they share a common goal, e.g. enhancing knowledge on a particular topic or tackling an educational issue, and that they are highly welcomed to present their voices is desired to bring about high quality of online interaction. To achieve this goal, again the instructors' strategies in creating opportunities for the sharing of personal background and lived experiences among learners as suggested by Nistor, Daxecker, Stanciu, and Diekamp (2015) is recommended. Additionally, effort to build up common goals and missions related to the professional career such as an educator identity as in this study, should also be invested as this helps the learners feel more connected to one another and chances are that they will be more active in their online contributions.

There are some limitations that make the generalization to be taken with caution. First, although self-report questionnaires can be the most appropriate method to capture relative concepts such as trust, sense of belonging and perceived learning benefits, it is recognized that the quality of online interaction can be better measured by objective methods such as message coding. Therefore, future research with more objective measures of online interaction will help to further validate the findings. The translation of the questionnaire is also one factor that needs to be taken into account. More specifically, we suggest validating the questionnaire in an English-speaking sample to confirm the reliability and validity of the measurement model. Third, that the participants in this sample were adult learners following a common program, namely Specific Teacher Education, may limit the interpretations of the results in hard disciplines such as Computer Science. For example, Neumann, Parry, and Becher (2002) postulate that learners in different disciplines may have different epistemological beliefs and learning approaches with soft-disciplined faculty being more subscribed to reflective discussions as method of knowledge construction. Therefore, we suggest that a comparative study using disciplines as a moderator can be more helpful to gain more insights into the critical enablers of online interaction quality.

In conclusion, in an adult educational context, the present study has revealed that the SCT and social capital theories can be relevant to explain the quality of knowledge sharing among learners in a blended learning program. The two critical elements that have been identified are perceived learning benefits and sense of belonging, which help to explain a moderate variance in learners' perception of online interaction quality. Based on these findings, implications for instructional practices have also been proposed. In essence, making learning goals explicit, underlying how online interaction is important to one's learning, and creating a mutually respectful environment with shared goals and identity are of significance to enhance the quality of online interaction among learners.

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OPEN SOURCE SOFTWARE FOR ANALYSIS AND CORRELATION OF READING PATTERNS WITH SUPERIOR SAT SCORES USING GAZE-TRACKING DEVICE

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ABSTRACT

An open-source application using a gaze- tracking device for investigating a correlation between reading patterns and superior Scholastic Aptitude Test (SAT) reading scores is presented. An eye-gaze tracking device tracks where the reader is looking across the screen and provides the coordinates of the gaze. The collected data enables us to determine reading patterns and times spent looking at specific sections of the screen and analyze them. The statistical analysis shows that the ratio of time spent on reading the passage and time spent on reading the questions has the highest correlation with number of correct answers. The software is released under the GNU General Public License and is freely available for all educators.

INTRODUCTION

The SAT is a standardized test that many American students choose to take in order to enroll in University. Students want to know what methods are the most effective in order to achieve their highest potential score. Previous analysis of the SAT's reading section has been through post-test surveys, which are highly subjective and depend completely on the students' biased answers [1]. A more objective analysis of SAT reading sections should be conducted in order to provide students with the most reliable techniques for reading various passages.

Eye gaze tracking technology has been developed recently and made readily available to average consumer. The device tracks the eye gaze with a camera and high-resolution infrared sensor. The data collection method is very simple, nonintrusive, and objective. By using this non-intrusive method we were able to collect data but still have the test-taking scenario as accurate as possible. Fig. 1 shows the demonstration of the technology.

Our method uses an eye-gaze tracking device in order to collect and store data on reading patterns when students are taking the SAT reading test. Unbiased data collected from the eye-tracking device allows us to analyze and find different reading patterns. Correlation analysis between reading patterns and raw scores can uncover the most effective and efficient way to read a SAT reading passage. Our findings reveal that some reading patterns (e.g. ratio of time spent on reading questions and the ratio of time spent on reading the passage) have a significant impact on SAT scores while other patterns (e.g. total amount of switches between the passage and the questions) have little to no impact on performance for the SAT reading section. Our application is open-source and is available to all educators who are interested in a more objective SAT analysis. The source code is available on Github: https://github.com/19howea/EyeTribeDataCollection.git.
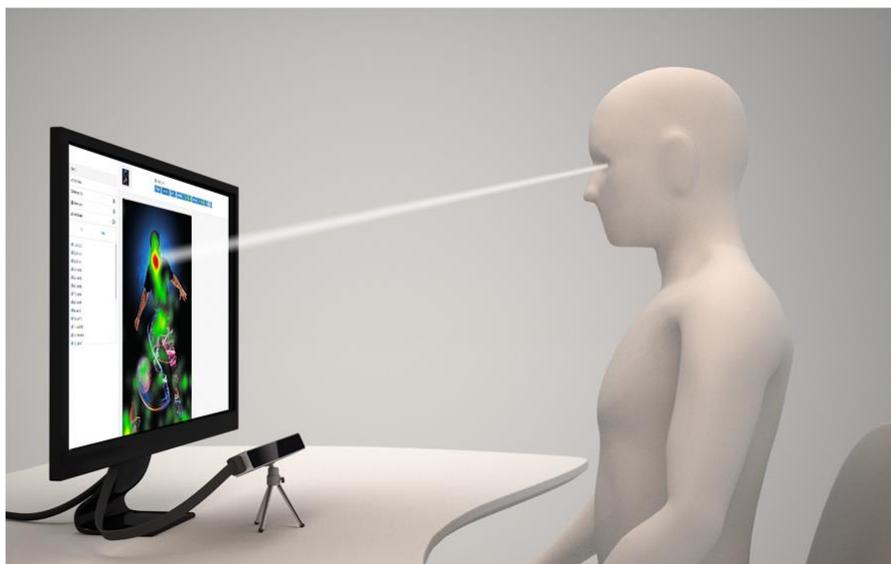
Fig 1. Eye gaze tracking technology [3]

RELATED WORK

Traditionally the way College Board would collect data about the test is through biased and qualitative post test surveys. This has created a very unreliable and hard to analyze data set. Prior to our research there was no unbiased, nonintrusive and statistical method to evaluate reading patterns on a SAT. Our method aims to give students a more comprehensive and detailed way to better improve their test scores. Moreover, our open-source code gives teachers around the world with varying backgrounds a chance to analyze his or her students relative to their experience.

PROPOSED METHOD

For our research we used an EyeTribe eye-tracking device in order to detect gaze patterns from the test subjects. The biggest screen an EyeTribe eye-tracker can accurately work on is a 24inch monitor. Our code is optimized for a 24inch monitor because with the biggest screen the points of where the subject is looking on the screen can be as clear as possible.

Data Collection Method

To collect our data we use Khan Academy's practice SAT reading passages as the environment [4], where the passage is on the left side and the questions are on the right side. Students are required to take the test online while the Eye-Tribe device is tracking their eyes. The coordinates of where the students are looking are stored in a CSV file for us to analyze. With the 24inch monitor, the coordinate goes from (0,0) to (600,1024). The Eye-Tribe device is capable of recording 30 coordinates in a second. Figure two shows the visualization of a test takers eye gaze on the Khan Academy interface.
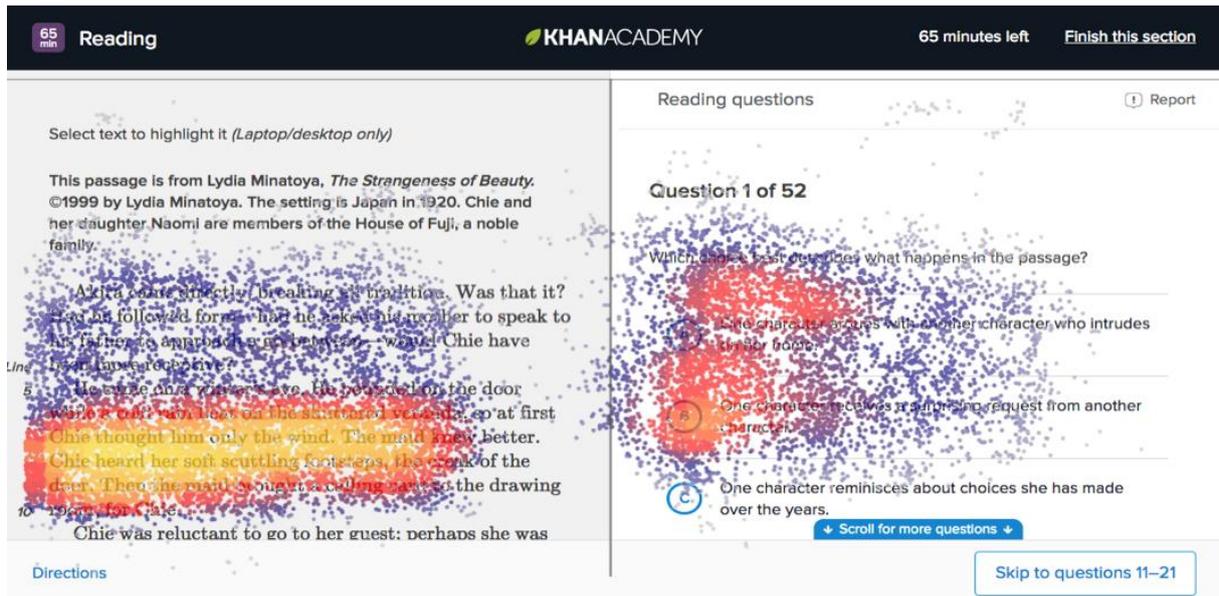
Fig 2. Heat map of eye gazes on Khan Academy's SAT passage test interface

In addition, we take note of number of correct answers, incorrect answers, unanswered questions, and other various features of the test subjects like ethnicity, gender, age, etc. Table 1. shows an example of our ground truth data which will be used for our statistical models.

Table 1. Example of ground truth data

Last_Name	First_Name	Age	Grade	Gender	Nationality	Date_of_Experiment	Time_of_Exp	This passage	Correct_Ans	Incorrect_An	No_Answer	Total_Questi	Bad_Data
		15	10th	Male	USA/Japan	20170430	143937	This passage	7	3	0	10	FALSE
		15	10th	Male	USA/Japan	20170430	150317	This passage	8	2	0	10	FALSE
		15	10th	Male	USA/Japan	20170430	152308	This passage	7	3	0	10	FALSE
		17	11th	Female	India	20170503	182049	This passage	7	3	0	10	FALSE
		17	11th	Female	India	20170503	184936	This passage	9	1	0	10	FALSE
		17	11th	Female	India	20170503	190715	This passage	8	2	0	10	FALSE
		16	11th	Male	USA	20170503	193919	This passage	9	1	0	10	FALSE
		16	11th	Male	USA	20170503	195308	This passage	8	2	0	10	FALSE
		16	11th	Male	USA	20170503	201347	This passage	10	0	0	10	FALSE
		15	10th	Male	Australian/Ja	20170509	185826	This passage	9	1	0	10	FALSE
		15	10th	Male	Australian/Ja	20170509	192957	This passage	9	1	0	10	FALSE
		15	10th	Male	Australian/Ja	20170509	194208	This passage	10	0	0	10	FALSE
		17	12th	Male	China	20170702	173821	This passage	10	0	0	10	FALSE
		17	12th	Male	China	20170702	175936	This passage	7	3	0	10	FALSE
		17	12th	Male	China	20170702	181520	This passage	6	4	0	10	FALSE
		17	12th	Male	USA/China	20170703	174023	This passage	10	0	0	10	FALSE
		17	12th	Male	USA/China	20170703	175737	This passage	8	2	0	10	FALSE
		17	12th	Male	USA/China	20170703	181509	This passage	8	2	0	10	FALSE
		16	11th	Fermale	USA/China	20170703	183150	This passage	9	1	0	10	FALSE
		16	11th	Fermale	USA/China	20170703	184526	This passage	8	2	0	10	FALSE
		16	11th	Fermale	USA/China	20170703	185926	This passage	7	3	0	10	FALSE
		15	10th	Fermale	USA	20170705	184206	This passage	10	0	0	10	FALSE
		15	10th	Fermale	USA	20170705	190210	This passage	7	3	0	10	FALSE
		15	10th	Fermale	USA	20170705	192711	This passage	9	1	0	10	FALSE
		16	10th	Male	USA/Philippir	20170710	233302	This passage	7	3	0	10	FALSE
		16	10th	Male	USA/Philippir	20170710	234730	This passage	9	1	0	10	FALSE
		16	10th	Male	USA/Philippir	20170711	101649	This passage	8	2	0	10	FALSE
		15	10th	Male	China	20170717	202514	This passage	7	3	0	10	FALSE
		15	10th	Male	China	20170718	112200	This passage	9	1	0	10	FALSE
		15	10th	Male	China	20170718	113332	This passage	8	2	0	10	FALSE
		17	11th	Male	USA/Japan	20170517	175032	This passage	9	1	0	10	FALSE
		17	11th	Male	USA/Japan	20170719	103354	This passage	6	4	0	10	FALSE
		17	11th	Male	USA/Japan	20170719	104922	This passage	7	3	0	10	FALSE
		17	11th	Female	USA/Philippir	20170519	180053	This passage	10	0	0	10	FALSE
		17	11th	Female	USA/Philippir	20170721	122916	This passage	8	2	0	10	FALSE
		17	11th	Female	USA/Philippir	20170721	124709	This passage	10	0	0	10	FALSE

Analysis method

From the collected data, we extract 12 reading pattern features in order to then compare them with the number of questions answered correctly. The list of features and their explanation is presented in Table 2.

Table 2. List of features and their explanation

No.	Feature	Explanation
1	Total Time	Total time to complete one passage
2	Percentage of total time looking at the passage	Percentage of total time looking specifically at the passage
3	Percentage of total time looking at the questions	Percentage of total time looking specifically at the questions
4	Total amount of times the subject switches from looking at the passage to looking at the questions or vice versa	Total amount of times the test taker switches from looking at the passage half to the questions half or vice versa
5	Time spent solely on reading the passage at the beginning	Amount of time spent solely on reading the passage at the beginning of the test
6	Amount of ten second intervals spent solely on reading the passage	Amount of ten second intervals which have 80% or more of the ten seconds spent on reading the passage
7	Amount of ten second intervals spent solely on reading the questions	Amount of ten second intervals which have 80% or more of the ten seconds spent on questions the passage
8	Percentage of first four minutes spent only on reading the passage	Percentage of first four minutes spent only on reading the passage
9	Percentage of first four minutes spent only on reading the question	Percentage of first four minutes spent only on reading the question
10	Percentage of last four minutes spent only on reading the passage	Percentage of last four minutes spent only on reading the passage
11	Percentage of last four minutes spent only on reading the questions	Percentage of last four minutes spent only on reading the questions
12	Speed of reading the passage	The speed at which the test taker reads the passage

After extracting the 12 features, we then calculate the correlation of each above feature with the number of correct answer in order to find which features have the biggest impact. The correlation coefficient is ranges from -1 to 1. The closer the correlation coefficient gets to 1 or -1 the stronger the correlation between said feature and the number of correct answers is. We want to find which features have the most impact to see how we can maximize potential SAT reading passage scores. The correlation coefficient between features and number of correct answers is calculated by Pearson correlation formula [2].

$$r = \frac{1}{n-1} \sum \left(\frac{x-\bar{x}}{S_x}\right)\left(\frac{y-\bar{y}}{S_y}\right) \qquad (1)$$

- r is the correlation coefficient
- n is total number of data
- x is the feature vector, $\bar{x}$ is the average of x
- y is the correct answers vector, $\bar{y}$ is the average of y
- S_x is the summation of x
- S_y is the summation of y

EXPIREMENT SETTINGS
We chose high school students ranging from 14 years old to 18 years old as our experimenters because they are the main targets of this analysis. They were asked to read a passage and answer the questions with no restrictions. After we collected out sample set we decided to have each participant take the test two different ways: reading the passage then the questions and reading the questions then the passage.

We have collected data from 33 students coming from 10 different countries. In total, we have collected over 1000 minutes raw reading pattern data. Their performances were also recorded as we have explained above and in the example in Table 1.

RESULLTS

We found that if a student spends more time reading questions then reading the passage, the performance was better (Fig. 3); however, if a student switch a lot between reading passage and reading questions, it does not improve his performance. Currently, a lot of data is skewed because of a small data set but we are working on collecting more to have the most accurate results for what features matter most.
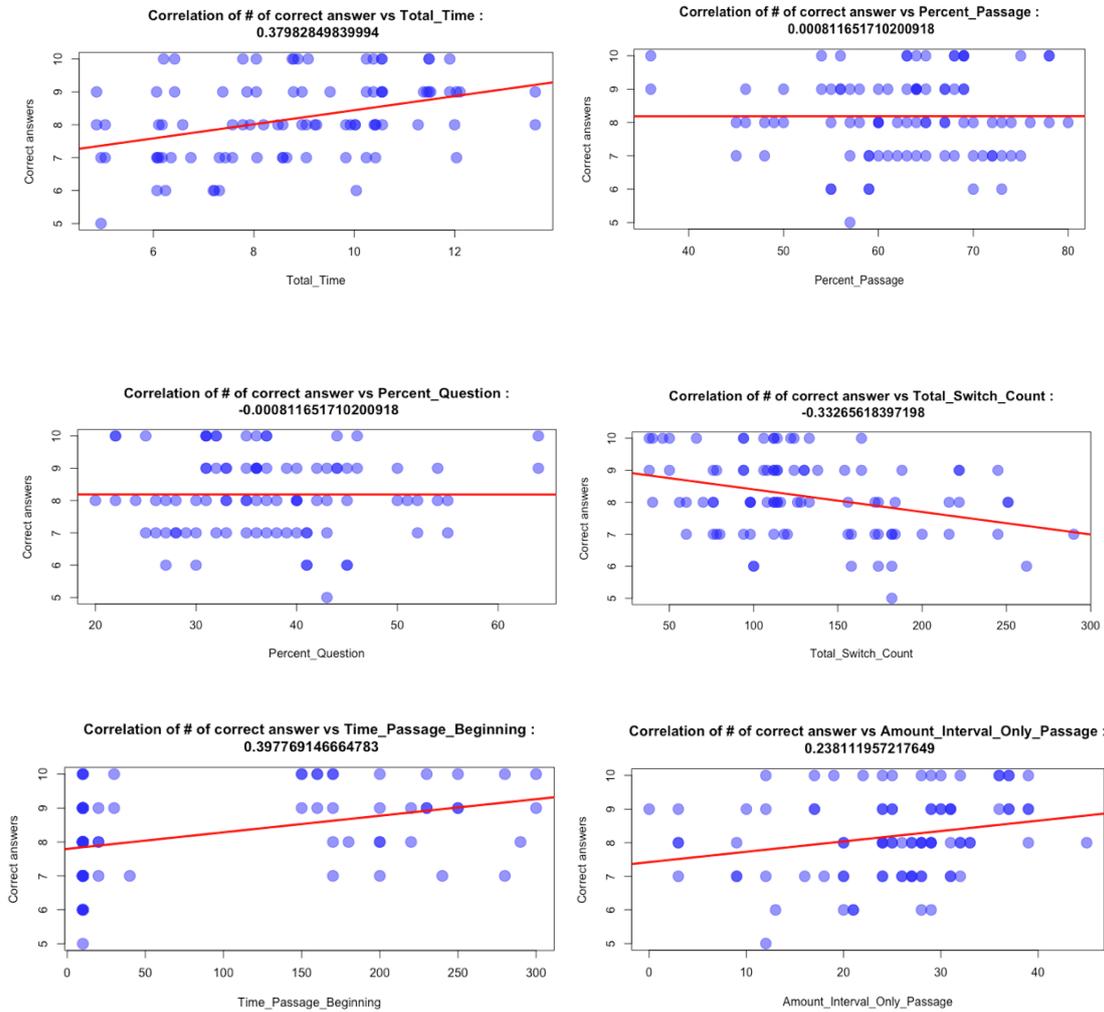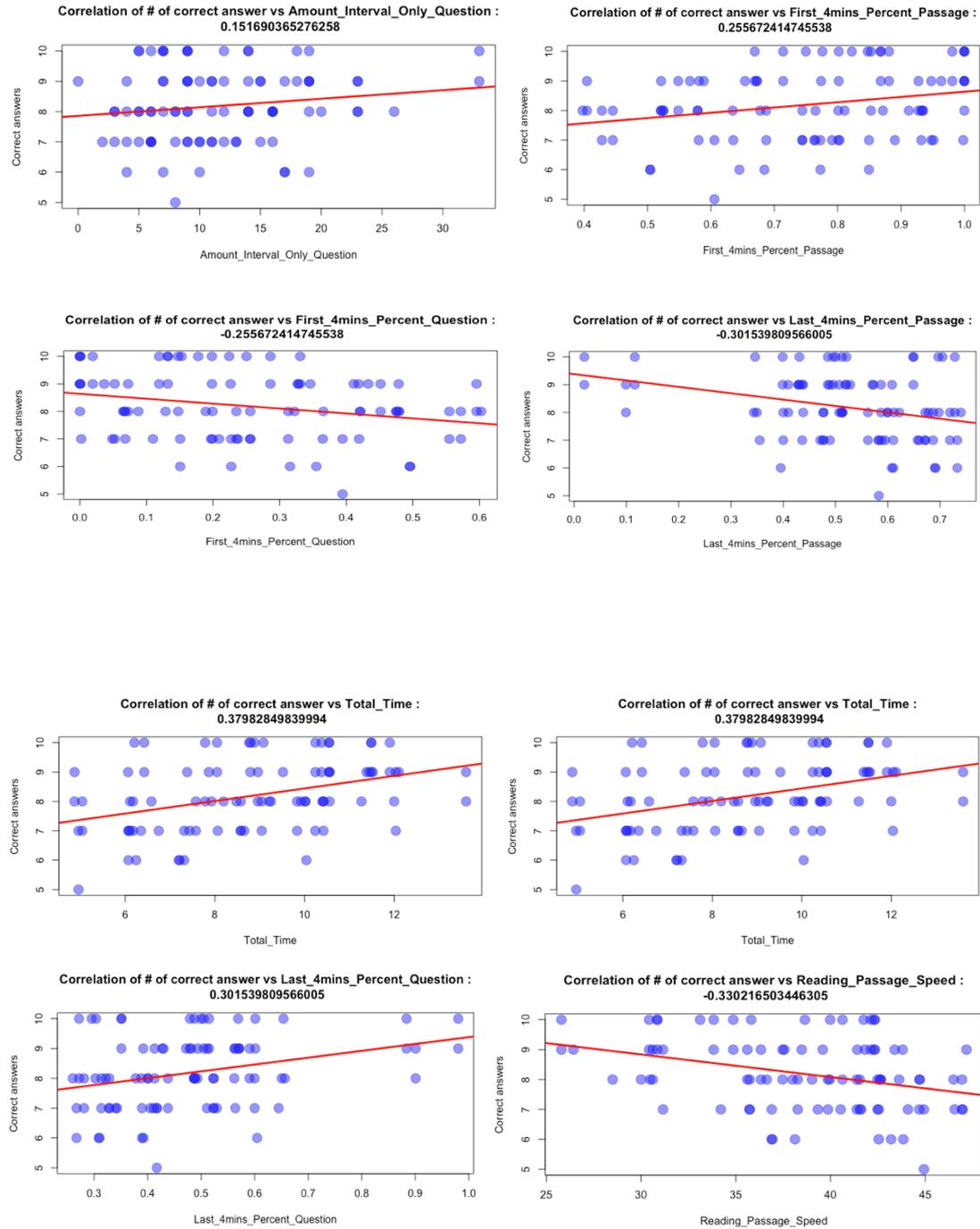
Fig 3. Graphs of correlation against the 12 features

The correlation coefficients of all features and the correct answers are listed in Table 3.

Table 3. Correlation coefficient between a reading pattern feature and number of correct answer

No.	Feature	Correlation Coefficient
1	Total Time	0.3798
2	Percentage of total time looking at the passage	0.0008
3	Percentage of total time looking at the questions	-0.0008
4	Total amount of times the subject switches from looking at the passage to looking at the questions or vice versa	-0.3327

5	Time spent solely on reading the passage at the beginning	0.3978
6	Amount of ten second intervals spent solely on reading the passage	0.2381
7	Amount of ten second intervals spent solely on reading the questions	0.1517
8	Percentage of first four minutes spent only on reading the passage	0.2557
9	Percentage of first four minutes spent only on reading the question	-0. 2557
10	Percentage of last four minutes spent only on reading the passage	-0.3015
11	Percentage of last four minutes spent only on reading the questions	0.3015
12	Speed of reading the passage	-0.3302

CONCLUSIONS

The purpose of the research was to provide a more quantifiable data set for reading standardized tests, specifically the SAT, and use this data to then help improve test takers efficacies to improve scores. The benefit of our approach is that it is easy, quantifiable and can be used on type of student. Our program is an open source program that is available to all who are interested in conducting objective SAT reading data. From our research we have found that the switch count and speed of reading have the lowest negative correlation and the total time and time spent reading the passage at the beginning have the highest positive correlation. Meaning that reading the passage first and the questions while minimizing switches and maximizing time given is the most effective way to read a SAT passage to maximize your score. To better improve our research we want to collect more data from a more diverse population to verify our analysis more objectively and use a statistical test for those with high score and those with low score in order to show strong evidence on the impact of SAT reading patterns.

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        http://www.businessinsider.com/oculus-acquires-danish-startup-the-eye-tribe-2016-12
  Khan Academy, https://www.khanacademy.org/mission/sat/exams

OPINIONS AND EXPERIENCES OF UNIVERSITY STUDENTS' REGARDING OF THEIR OWN LEARNING BY KEEPING REFLECTIVE JOURNALS

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Reflective journals are now used by many educators as an effective method to support teaching and learning process. In this qualitative study, three open-ended questions were asked to university students from Child Development Department, in order to determine their views and experiences on keeping reflective journals and it's effects on their own learning. Descriptive analysis has been applied to the responses. The results will be shared in full text.

ORGANIZATIONAL COMMITMENT OF SECONDARY SCHOOL TEACHERS

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 ABSTRACT
This study aims to determine the organizational commitment of secondary school teachers to their schools, colleagues, the teaching profession and instructional work. The population of this descriptive survey consisted of 1,602 teachers who were working at 55 secondary schools located in Elazığ city center during the 2016-2017 school year. The data collection tool was distributed to 460 teachers working at 11 randomly selected schools. However, data from 349 teachers were analyzed. The data collection tool consisted of two sections. The first section included conceptual questions, and the second section included items about teachers' organizational commitment behaviors. The results showed that teachers were "always" committed to an advanced sense of duty, and "often" committed to colleagues, the teaching profession, school development and the entire scale. Male teachers were more committed to the teaching profession. They stated more than their female counterparts that they would choose the profession even if they did not have to work, that they were proud of the profession, they saw it as an ideal profession, that they wanted to have recognition, and that they viewed choosing the profession as the most positive decision in their lives.
Keywords: Secondary school, organizational commitment, commitment to the teaching profession

INTRODUCTION

The degree to which a task is effectively carried out depends on the quality of the work environment. The concept of work environment is also known as organizational effectiveness, environment, climate, organizational ideology, ecological field or organizational information (Hoy, Tarter, Kottkamp, 1991; Celep, 2000:143). The sense of work environment that teachers have may affect their styles of work. One of the factors that form the bases of teachers' sense of work environment are their interest and attitudes towards the objects in their work environment (profession, work, team, student, school). One concept that encompasses the interest of workers in the objects in their work environment is organizational commitment.

As a concept and way of understanding, organizational commitment exists anywhere with a sense of community and is an emotional representation of social instincts. Embodying the loyalty of a slave to his master, of a civil servant to his duty and of a soldier to his homeland, commitment was once referred to as loyalty and refers to the state of being loyal. Overall, commitment is an ultimate feeling. Feeling committed to a person, a thought, an institution or something bigger than ourselves refers to a responsibility which we must meet (Ergun, 1975).

Organizational commitment is a biased and effective commitment to organizational goals and values. More than a mere tool, this type of commitment requires an individual to play his role solely for the well-being of the organization, in relation with its goals and values (Lodahl and Kejner, 1965; Artun, 2008).Committed workers firmly believe in the goals and values of the organization, voluntarily follow orders and expectations (Firestone and Pennell, 1943; cited in Balay, 2000). Being a work-related attitude of workers, organizational commitment is defined by Mowday et al. as "a high level of belief in and acceptance of organizational goals and values, the will to make a real effort for organizational goals; and a strong desire to stay in an organization and continue membership in it" (Mowday et al., 1979; cited in Boylu, Pelit and Güçer, 2007). Commitment is defined as "behaviors limited to one's actions or those that exceed formal, normative expectations" (Mowday, Steers, Porter, 1979; Celep, 2000:15). First coined by Lodahl and Kejner (1965), Mowday et al. (1979) define organizational commitment as an individual identifying with a certain organization and the strength of his ties to it. Kanungo (1982) treats organizational commitment in two dimensions, commitment to work itself and to the organization, and defines the term as the psychological association that an individual has established with an organization.

Allen and Mayer (1991) developed a three-dimensional model by emphasizing the psychological side of organizational commitment. They explored organizational commitment in three levels: affective, continuance and normative commitment. Affective commitment is defined as the wish of workers to commit emotionally to the organization. Workers stay in the organization with their own will and desire. Continuance commitment refers to the workers to make the decision of staying in the organization by weighing the costs of leaving against the benefits of staying in the organization. Normative commitment, the final dimension, refers to a type of compulsory commitment in which workers stay in the organization owing to a sense of security and responsibility (Erdil and Keskin, 2003).

Commitment to the school is defined as teachers adopting the goals and values of the school, making an effort to meet them, and sustaining their will to stay in the school. This definition is based on "organizational commitment" (Mowday, Porter, Steers, 1979, p.232; Celep, 1998:58).

Teachers' Organizational Commitment
Teachers' organizational commitment is divided into the subheadings commitment to school development, commitment to colleagues, commitment to the teaching profession and commitment to an advanced sense of duty.

Commitment to School Development
Teachers' commitment to school development was tested with the items "I am proud of my school, my school gives me the passion to work, I enjoy working at my school although I could work elsewhere, I feel that my school is the best, I care about the future of the school, I make more of an effort than is expected for the school, I actively attend the meetings at the school, and I would willingly teach a course outside my subject area to stay in the school."

Commitment to an Advanced Sense of Duty
This dimension was tested with the items "I make a lot of effort for unsuccessful students, I do my best at my job, I make time for my students outside the classroom for both course-related and other issues, I go to class on time, I enjoy going to class".

Commitment to the teaching profession
Teachers' professional commitment was tested with the items "I would continue the teaching profession even if I didn't need the money, I am proud of being in the teaching profession, I view the teaching profession as an ideal profession, I would like to have a name in the teaching profession, choosing the teaching profession was the best decision in my life".

Commitment to Colleagues
Harmony between colleagues and close and friendly relations create a motivating environment for work success. When this relation is directed towards the goal of the organization, it may increase the efficiency of the organization. Teachers' commitment to colleagues was tested with the items "I am proud of my colleagues, I believe other teachers see me as a close friend, my best friends are other teachers in the school, I enjoy being with other teachers between classes, I see myself as a close friend to other teachers, I maintain a close relationship with other teachers outside the school, I avoid creating problems for colleagues, I am willing to help my colleagues solve work-related problems".

THE STUDY
Purpose
The aim of this study is to determine secondary school teachers' commitment to school development, colleagues, the teaching profession and an advanced sense of duty.
    Answers to the following questions were sought in the study:
    1. What are secondary school teachers' organizational commitment feelings in the subdimensions and the entire scale?
    2. Do secondary school teachers' commitment to the development of their school, their colleagues, the teaching profession and an advanced sense of duty vary depending on variables such as gender, marital status, age, professional experience, title, subject area, work place and place of duty?
    3. Is there a significant relationship between the subdimensipons of the organizational commitment scale and secondary school teachers' gender, marital status, age, professional experience, title, subject area, work place and place of duty?

METHOD
This study is a survey. Surveys aim to describe a past or present situation, event, individual or object as it is, in its own conditions (Karasar, 2009:77). The population included a total of 1,602 teachers working at 55 secondary schools located in Elazığ city center during the 2016-2017 school year. The data collection tool was distributed to 460 teachers working at 11 randomly selected schools. However, data from only 349 teachers were ultimately analyzed. The data collection tool had two sections. The first section comprised conceptual questions and the second one comprised items about teachers' organizational commitment behaviors. Sample size was determined by using the table designed by Krejcıe and Morgan (1970). Accordingly, the sample size necessary for 95% confidence level in a population of 1,600 individuals was 310 (Krejcıe and Morgan, 19709:607).

The measurement tool used in the study, teachers' organizational commitment in educational institutions scale, was previously used by Celep (1998). It had two sections for teachers and students. The first section comprised conceptual questions aiming to describe teachers' demographics, while the second section included 32 items aiming to determine teachers' organizational commitment feelings. The data collection tool was graded as "Always (5), Often (4), Sometimes (3), Rarely (4), Almost never (1)". The interval of the tool was 4/5= .80. The yapı validity of the tool was measured with exploratory factor analysis. Factor analysis is a statistical technique aiming to gather the variables measuring the same construct or quality and describe it with a few factors (Büyüköztürk, 2009:123). The suitability of the data for factor analysis was tested with Kaiser-Meyer-Olkin (KMO) and Barlett's tests. Bartlett Test = 5657,749 and validity coefficient KMO =.918, p=.000. The minimum recommended KMO value for factor analysis to be performed on data was 0.60 (Pullant, 2001). Therefore, the data were deemed suitable for factor analysis. As a result of the first exploratory factor analysis on Teachers' Organizational Commitment Scale, four items with factor load values below 0.40 (items 3, 23, 27 and 31) and another item which appeared in more than one factor with a difference of .10 between them (item 19) (Büyüköztürk, 2009:125) were removed from the scale. At the end of the second factor analysis, another item that appeared in multiple factors and had a difference below .10 (item 22) was also excluded. Ultimately the number of items in the scale went from 32 to 26. The scale had four factors. The total variance explained by the four factors was 60%. Following factor rotation, the first factor of the scale had five items (12, 16, 20, 25, 26) and its Cronbach Alpha reliability value was .80. The load values of items in the first factor varied between 0.493-0.782. Factor two had eight items (8, 9, 11, 14, 17, 21, 30, 32) and its Cronbach Alpha reliability value was .84. The load values of items in factor two ranged between 0.655-0.730. Factor three included five items (4, 5, 10, 18, 24). The Cronbach Alpha reliability value of this dimension was .80. The load values of items in factor three varied between 0.767-0.833. The fourth factor had eight items (1, 2, 6, 7, 13, 15, 28, 29). The Cronbach Alpha reliability value of this dimension was .83. The load values of items in the fourth factor ranged between 0.687-0.790. Factor five consisted of three items (23, 27, 31). The Cronbach Alpha reliability value of this dimension was .68. The factors were named by considering the contents of the items. The first factor was named "commitment to an advanced sense of duty", the second factor "commitment to colleagues", the third one "commitment to the teaching profession" and the final one "commitment to school development".

The data were analyzed on the SPSS for Windows 21 package. Teachers' demographic characteristics (gender, marital status, age, professional experience, title, subject area, work place and place of duty) were identified through frequencies and percentages. The levels of teachers' feelings were identified with arithmetic means and standard deviations. Independent groups t-Test was performed to investigate whether a significant difference existed between the views of respondents with different gender, marital status, subject area and work place variables. In addition, one way analysis of variance (ANOVA) was used to explore whether the feeling mean scores of the groups varied with age, title and years in the profession. The significance level of the tests was .05.

FINDINGS
This section presents teacher distribution according to their demographics, findings in the subdimensions based on teachers' feelings, and comments. The demographics of the participating teachers were as follows: 46,7% were female (n=163), 53,3% were male (n=186); 66,2% were married (n=231), 33,8% were single (n=118); 43,6% were aged between 21-30 years (n=152), 35,8% were aged between 31-40 years (n=125), 16,6% were aged between 41-50 years (n=58), 4,0% were aged 51 and above (n=14); 21,5% had 1-2 years of work experience (n=75), 28,1% had 3-7 years of work experience (n=98), 30,4% had 8-12 years of work experience (n=106), 10,3% had 13-17 years of work experience (n=36) and 9,7% had 18-22 years of experience (n=34); 16,9% were teacher candidates (n=59), 76,2 were teachers (n=266) and 6,9% were (n=24) expert teachers; 36,7% were teaching science (n=128) and 63,3% were teaching (n=221) social sciences; 61,3% were working in city centers (n=214) and 38,7% were working in small towns (n=135).

1. Table 1 displays the results of the analyses regarding the question "What are secondary school teachers' organizational commitment feelings in the subdimensions and the entire scale?"

Table 1. Analysis results of the Teachers' Organizational Commitment Scale and its subdimensions

Subdimensions	$\overline{X}$	SS
1. Commitment to an advanced sense of duty	4,30	,62
2. Commitment to colleagues	4,03	,64
3. Commitment to the teaching profession	4,09	,80
4. Commitment to school development	3,93	,71
5. All of them	4,03	,53

As shown in Table 1, teachers evaluated themselves as "always" *commited to an advanced sense of duty*, while they evaluated themselves as "often" committed in other subdimensions and the entire scale.

2. Table 2 displays the results of the analyses regarding the question "Do secondary school teachers' commitment to the development of their school, their colleagues, the teaching profession and an advanced sense of duty vary depending on gender, marital status, subject area and work place?"

Table 2. T-test results of teachers' commitment subdimensions with respect to gender, marital status, subject area and work place

Dımensıons	Variables	N	$\overline{X}$	SS	Levene F	p	t	p
1. Commitment to advanced task consciousness	Famele	163	4,34	,46	7,033	,008	1,241	,216
	Male	186	4,26	,73				
2. Commitment to colleagues	Famele	163	4,07	,55	3,982	,047	,936	,350
	Male	186	4,00	,72				
3. Commitment to teaching profession	Famele	163	4,21	,67	13,829	,000	2,726	,007
	Male	186	3,98	,89				
4. Commitment to the development of the school	Famele	163	3,86	,68	1,474	,226	-1,574	,116
	Male	186	3,98	,74				
5. All	Famele	163	4,07	,41	13,865	,000	1,130	,259
	Male	186	4,00	,61				
1. Commitment to advanced task consciousness	Married	231	4,27	,67	2,948	,087	-1,035	,302
	Single	118	4,35	,51				
2. Commitment to colleagues	Married	231	4,05	,68	,749	,387	,650	,516
	Single	118	4,00	,57				
3. Commitment to teaching profession	Married	231	4,04	,84	3,987	,047	-1,766	,079
	Single	118	4,19	,71				
4. Commitment to the development of the school	Married	231	3,99	,69	3,316	,069	2,154	,032
	Single	118	3,81	,75				
5. All	Married	231	4,04	,55	1,142	,286	,221	,825
	Single	118	4,03	,48				
1. Commitment to advanced task consciousness	Science.	128	4,27	,63	,223	,637	-,668	,504
	Social Sciences	221	4,32	,61				
2. Commitment to colleagues	Science.	128	3,97	,67	,316	,575	-1,300	,194
	Social Sciences	221	4,07	,63				
3. Commitment to teaching profession	Science.	128	4,05	,83	1,316	,252	-,716	,462
	Social Sciences	221	4,11	,79				
4. Commitment to the development of the school	Science.	128	3,88	,75	1,887	,170	-,969	,333
	Social Sciences	221	3,95	,69				

5. All		Science.	128	3,99	,53	,064	,801	-1,276	,203
		Social Sciences	221	4,06	,53				
1. Commitment to advanced task consciousness		Province center	214	4,27	,70	5,442	,020	-1,151	,251
		District center	135	4,34	,45				
2. Commitment to colleagues		Province center	214	4,03	,71	6,200	,013	,061	,952
		District center	135	4,03	,53				
3. Commitment to teaching profession		Province center	214	4,03	,84	3,052	,082	-1,658	,098
		District center	135	4,18	,73				
4. Commitment to the development of the school		Province center	214	3,97	,73	,261	,610	1,464	,144
		District center	135	3,86	,67				
5. All		Province center	214	4,03	,59	4,484	,035	-,382	,703
		District center	135	4,05	,42				

As shown in Table 2, teachers' *commitment to the teaching profession* varied significantly based on gender (t (347)=2,726, p<.059. Female teachers' commitment to the teaching profession ($\bar{X}$=4,21) was more positive than that of male teachers ($\bar{X}$=3,98). *Commitment to school development* also varied based on gender (t (347)=2,154, p<.05). Married teachers' commitment to school development ($\bar{X}$=3,99) was more positive than that of single teachers ($\bar{X}$=3,81).

3. Table 3 displays the results of the analyses regarding the question "Do secondary school teachers' commitment to the development of their school, their colleagues, the teaching profession and an advanced sense of duty vary depending on teacher age, professional experience and title?"

Table 3. ANOVA results of teachers' commitment subdimensions with respect to age, professional experience and title

Dımensıons	Year	N	$\bar{X}$	Source of variance	Sum of squares	sd	Squares Average	F	P	Fark
1. Commitment to advanced task consciousness	21-30	152	4,28	intergroup	,870	3	,290	,746	,525	-
	31-40	125	4,35	within-group	134,054	345	,389			
	41-50	58	4,28	Total	134,924	348				
	51 and over	14	4,11							
2. Commitment to colleagues	21-30	152	4,01	intergroup	1,603	3	,534	1,273	,284	-
	31-40	125	4,10	within-group	144,793	345	,420			
	41-50	58	3,91	Total	146,396	348				
	51 and over	14	4,08							
3. Commitment to teaching profession	21-30	152	4,16	intergroup	3,876	3	1,292	2,000	,114	-
	31-40	125	4,11	within-group	222,873	345	,646			
	41-50	58	3,87	Total	226,749	348				
	51 and over	14	4,00							
4. Commitment to the development of the school	21-30	152	3,81	intergroup	4,304	3	1,435	2,847	,038	1-2
	31-40	125	4,04	within-group	173,859	345	,504			
	41-50	58	3,96	Total	178,164	348				
	51 and over	14	4,10							
	Seniority									
1. Commitment to advanced task consciousness	1-2 year	75	4,23	intergroup	1,439	4	,360	,927	,448	
	3-7 year	98	4,36	within-group	133,485	344	,388			
	8-12 year	106	4,32	Total	134,924	348				
	13-17 year	36	4,34							
	18 year and over	34	4,17							

		N	X̄		SS	df	MS	F	p	Diff
2. Commitment to colleagues	1-2 year	75	3,95	intergroup	,836	4	,360	,494	,740	
	3-7 year	98	4,07	within-group	145,560	344	,388			
	8-12 year	106	4,03	Total	146,396	348				
	13-17 year	36	4,05							
	18 year and over	34	4,09							
3. Commitment to teaching profession	1-2 year	75	4,18	intergroup	3,287	4	,822	1,265	,283	
	3-7 year	98	4,17	within-group	223,462	344	,650			
	8-12 year	106	4,04	Total	226,749	348				
	13-17 year	36	3,92							
	18 year and over	34	3,95							
4. Commitment to the development of the school	1-2 year	75	3,65	intergroup	8,302	4	2,075	4,203	,002	1-2,4
	3-7 year	98	3,98	within-group	169,862	344	,494			
	8-12 year	106	3,96	Total	178,164	348				
	13-17 year	36	4,14							
	18 year and over	34	4,04							
Position										
1. Commitment to advanced task consciousness	Candidate teacher	59	4,28	intergroup	1,273	2	,636	1,648	,194	
	teacher	266	4,32	within-group	133,651	346	,386			
	Expert teacher	24	4,09	Total	134,924	348				
2. Commitment to colleagues	Candidate teacher	59	3,96	intergroup	1,848	2	,924	2,211	,111	
	teacher	266	4,07	within-group	144,548	346	,418			
	Expert teacher	24	3,81	Total	146,396	348				
3. Commitment to teaching profession	Candidate teacher	59	4,25	intergroup	4,578	2	2,289	3,565	,029	1-3
	teacher	266	4,08	within-group	222,171	346	,642			
	Expert teacher	24	3,73	Total	226,749	348				
4. Commitment to the development of the school	Candidate teacher	59	3,70	intergroup	3,884	2	1,942	3,855	,022	1-2
	teacher	266	3,98	within-group	174,280	346	,504			
	Expert teacher	24	3,91	Total	178,164	348				

The analysis results showed that age $(F_{(3, 345)}=2,847, p<.05)$ and professional experience $(F_{(4, 344)}=4,203, p<.05)$ created a significant difference in teachers' *commitment to school development* scores, while title caused a significant difference in their *commitment to the teaching profession* $(F_{(2, 346)}=3,565, P<.05)$ and *commitment to school development* $(F_{(2, 346)}=3,855, p<.05)$ scores. According to the results of the Scheffe test performed to find the groups that created the significant difference, the commitment levels of teachers with 1-2 years of professional experience ($\bar{X}=3,65$) were more negative than those of teachers with 3-7 ($\bar{X}=3,98$) and 13-17 ($\bar{X}=4,14$) years of experience. Considering the title variable, teacher candidates had more positive *commitment to the teaching profession* ($\bar{X}=4,25$) than expert teachers' ($\bar{X}=3,73$). In the *commitment to school development* subdimension, teacher candidates had more negative scores ($\bar{X}=3,70$) than those of practising teachers' ($\bar{X}=3,98$). The Bonferroni test was performed to find the groups between which the significant difference existed for the variable of age, and the results showed that the scores of teachers aged between 21-30 years ($\bar{X}=3,81$) were more negative than those of teachers aged between 31-40 years ($\bar{X}=4,04$).

4. Table 4 displays the results of the analyses regarding the question "Is there a significant relationship between the subdimensions of the organizational commitment scale and secondary school teachers' ages?"

			1	2	3	4	5	6
1. Year	Pearson	Correlation	1	-,023	-,015	-	,120*	-,007
	Sig.	(2-tailed)		,664	,780	,113*	,025	,899
	N		349	349	349	,035	349	349
						349		
2. Commitment to advanced task consciousness	Pearson	Correlation	-,023	1	,604**	,580**	,602**	,809**
	Sig. (2-tailed)		,664		,000	,000	,000	,000
	N		349	349	349	349	349	349
3. Commitment to colleagues	Pearson	Correlation	-,015	,604**	1	,583**	,574**	,828**
	Sig. (2-tailed)		,780	,000		,000	,000	,000
	N		349	349	349	349	349	349
4. Commitment to teaching profession	Pearson	Correlation	-,113*	,580**	,583**	1	,536**	,789**
	Sig. (2-tailed)		,035	,000	,000		,000	,000
	N		349	349	349	349	349	349
5. Commitment to the development of the school	Pearson Correlation		,120*	,602**	,574**	,536**	1	,837**
	Sig.	(2-tailed)	,025	,000	,000	,000		,000
	N		349	349	349	349	349	349
6. The Full Scale	Pearson	Correlation	-,007	,809**	,828**	,789**	,837**	1
	Sig.	(2-tailed)	,899	,000	,000	,000	,000	
	N		349	349	349	349	349	349

*Correlation is significant at the 0.05 level (2-tailed).
**Correlation is significant at the 0.01 level (2-tailed).

Table 4. Correlations among Variables

Correlation analysis is a statistical method used to test the linear relationship between two variables or that between a variable and two or more others, and to measure the level of any existing relationship.

According to Table 4, a low, negative and significant relationship existed between teachers' ages and commitment to the teaching profession (r=-0.11, p<.05), and the correlation coefficient showed that as age increased, commitment to the teaching profession decreased. On the other hand, a low, positive and significant relationship existed between age and commitment to school development (r=0.12, p<.05), and the correlation coefficient showed that as age increased, so did commitment to school development. The determination coefficients (r^2=0.012, r^2=0.024) showed that age accounted for 1,2% of the total variance in the commitment to the teaching profession behavior and 2,4% of that in the commitment to school development behavior. There was a high, positive and significant relationship (r=0.80,r= 0.82, r=0.78 and r=0.83, respectively) between the subdimensions and the entire scale. Between the subdimensions too, a moderate, positive and significant relationship   was   seen.

CONCLUSIONS
The study explored the commitment feelings of secondary school teachers with respect to age, gender, years in the profession, title, subject area, and work place. The findings of the study are discussed here with reference to the existing literature. While teachers stated they were "always" committed to an advanced sense of duty, they stated to be "often" committed to their colleagues, to the teaching profession and to school development. In the commitment to the teaching profession subdimension, there was a difference in favor of males. In other words, male teachers stated at a higher level than females that they would stay in the teaching profession even if they did not need it financially, that they were proud of the profession, that they saw it as an ideal profession, that they sought recognition in the profession, and that it was the most positive decision they made in their lives. Cengiz, Turgut and Kabakçı's (2014) study found a result in favor of males in the commitment of lecturers to the profession, to instructional work and to the study group subdimensions.

These results are similar. Other corroborating studies have been conducted by Gıcı, 2011; Güner, 2006; Kutlay, 2012; Narman, 2012; Topaloğlu et al. 2008. In the commitment to school development subdimension, a significant result in favor of married teachers was found.

The commitment to school development levels of teachers with professional experience of 1-2 years was significantly more negative than those with 3-7 or 13-17 years of experience. In other words, as experience increased, so did commitment to school development levels. Corroborating results have also been obtained by Atar, 2009; Karagöz, 2008; Güner, 2006; Kutlay, 2012; Demirhan, 2010; Taşçı, 2011; Kurtbaş, 2011; Güçlü and Zaman, 2011; Yılmaz, 2009. On the other hand, Cengiz, Turgut and Kabakçı (2014) concluded in their study that individuals' commitment scores did not vary significantly based on years spent working.

With respect to the variable of title, teacher candidates were more positive than practising teachers in the commitment to the teaching profession subdimension. According to the results of a study by Cengiz, Turgut and Kabakçı (2014), research assistants had higher "commitment to the profession" than instructors, lecturers, assistant professors, associate professors and professors. Boylu et al. (2007) found that academics with the professor title had lower loyalty levels than research assistants. These results are parallel to those of the present study. In the commitment to school development subdimension, teacher candidates had more negative scores than teachers. According to the results of a study by Cengiz, Turgut and Kabakçı (2014), however, research assistants had higher "commitment to school" than lecturers and professors. This finding is in conflict with those of the present study. In the same subdimension, the scores of teachers aged between 21-30 years were more negative than those of teachers aged between 31-40 years. While studies by Cengiz, Turgut and Kabakçı 2014; Atar, 2009; Gıcı, 2011; Güner, 2006; Kutlay, 2012; Topaloğlu et al., 2008; Artun, 2008; Arslan, 2013 concluded that age did not have any significant effect, certain other studies found a significant relationship (Apak, 2009; Karagöz, 2008; Narman, 2012; Demirhan, 2010; Ekenci, 2012; Taşçı, 2011; Kurtbaş, 2011). According to this data, as age increased, so did commitment to school. This may suggest that as teachers got older and gained more work experience, they started to harbor more positive feelings for the profession.

Teachers responded "sometimes" to the following item in the commitment to school development subdimension: "I would willingly teach a course outside my subject area to stay in the school". In Celep's (1998) study, 62.6% of the teachers stated in response to the same item that they would prefer to teach at another school if their own school did not give them the opportunity to teach their own subject area. The results are similar. Even though teachers gave high scores to the commitment to school development items "I make more effort than expected for the school" and "I care about the future of the school", they scored lower in the item about wishing to teach a different course in order to stay in the school, thus showing that this item has the smallest effect on commitment. The results of Celep (1998) were also similar to these in the same items.

The arithmetic means of teacher responses in the advanced sense of duty subdimension revealed that they were "always" committed to an advanced sense of duty in three items and "often" committed to it in two items. Teachers were found to make a lot of effort to successfully do tasks in this subdimension at the school. Similarly, Celep (1998) also found that teachers particularly enjoyed higher level instructional tasks and made a superior effort to perform these tasks at school.

Teachers responded "always" to one item in the commitment to the teaching profession subdimension, and "often" to four items. Celep (1998) found that teachers were strongly committed to the teaching profession. In the commitment to colleagues subdimension, teachers stated they "always" avoided creating problems for their colleagues, helped their colleagues willingly in solving their work-related problems and felt proud of their peer teachers. In the remaining five items, the respondents stated to be "often" committed to their colleagues.

Between teachers' ages and commitment to the teaching profession subfactor was a low, negative and significant relationship. The correlation coefficient showed that as age increased, commitment to the teaching profession fell. On the other hand, a low, positive and significant relationship existed in the commitment to school development subfactor, showing that as age increases, so does commitment to school development. Considering determination coefficients, it may be stated that age accounted for 1,2% of the total variance in commitment to the teaching profession behavior, and 2,4% of the total variance in commitment to school development behavior. A high, positive and significant relationship existed between the subdimensions of the scale and the entire scale, while a moderate, positive and significant relationship existed among the subdimensions.

Recommendations based on the results of the study are as follows:

1.Teachers wish for national education directorate employees to treat them respectfully and for administrators to help them.

2. Teachers state that inadequate salaries and payments lower their work satisfaction. The Ministry of Education may consider this and improve payments by bringing a performance-based system base don multiple data sources. In addition, career stage exams in the teaching profession may be made more functional.

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ÖZET

Öğrenme sitilleri insanların doğuştan sahip oldukları karakteristik özelliklerden bir tanesidir. Her bireyin kendine özgü bir öğrenme sitili vardır ve bu kişisel sitil bireylerin daha etkin ve verimli biçimde öğrenme yollarını ifade etmektedir. Bu çalışmada, bir devlet üniversitesi meslek yüksek okulunda uzaktan eğitimle öğrenim gören öğrencilerin sahip oldukları öğrenme stilleri ile cinsiyet, yaş, öğrenim görülen sınıf düzeyi ve öğrenim görülen program türü gibi değişkenlerin öğrenme stili üzerindeki etkisi araştırılmaktadır. Araştırmanın örneklemini üç farklı programda uzaktan eğitimle öğrenim gören 182 ön lisans öğrencisi oluşturmaktadır. Örneklemde yer alan öğrencilerin öğrenme stillerini ve bazı değişkenlerle ilişkisini belirlemek amacıyla, Kolb Öğrenme Stili Envanteri III (KÖSE-III) kullanılmıştır. Bulgular, uzaktan eğitim öğrencilerinin daha çok "özümseme" ve "değiştirme" öğrenme stillerine sahip olduklarını ve öğrenme stillerinin; cinsiyet, yaş, öğrenim görülen sınıf düzeyi ve öğrenim görülen program türüne göre anlamlı bir düzeyde değişmediğini göstermektedir.

Anahtar sözcükler: öğrenme stili, uzaktan eğitim, ön lisans, demografik değişkenler

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ÖĞRENME YAKLAŞIMI ÜZERİNE BİR ARAŞTIRMA: MESLEK YÜKSEK OKULU ÖRNEĞİ

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ÖZET

Öğrenme yaklaşımı kavramı, öğrencinin öğrenmeyi gerçekleştirmedeki amacı, öğrendiği bilgiyi işleme biçimi veya gerçekleştirme şekli olarak tanımlanmaktadır. Bu çalışmada, meslek yüksek okulu öğrencilerinin öğrenme yaklaşımlarının cinsiyet, sınıf düzeyi ve akademik başarıları değişkenlerine göre farklılık gösterip göstermediğini araştırılmaktadır. Ayrıca, ders çalışma süreleri ile öğrenme yaklaşımları arasında anlamlı bir ilişki olup olmadığı incelenmektedir. Veriler bir devlet üniversitesinin meslek yüksek okulunda öğrenim gören 276 öğrenciden elde edilmiştir. Veri toplama aracı olarak Öğrenme Yaklaşımları Ölçeği (ASSIST) kullanılmıştır. Bulgular, öğrencilerin öğrenme yaklaşımlarının cinsiyet ve sınıf değişkenlerine göre anlamlı bir değişikli göstermediğini ancak akademik başarı düzeyi değişkenine göre pozitif yönde bir ilişki oluğunu ifade etmektedir. Diğer önemli bir bulgu ise öğrencilerin ders çalışma süre ile öğrenme yaklaşımları arasında orta düzeyde bir ilişki olmasıdır.

Anahtar Kelimeler: öğrenme yaklaşımı, ders çalışma, meslek yüksekokulu

ÖĞRETİM TEKNOLOJİLERİ ALANINDAKİ EĞİLİM TAHMİNLERİNİN TÜRKIYE ADRESLİ MAKALELERLE KARŞILAŞTIRILMASI: BİR İÇERİK ANALİZİ ÇALIŞMASI

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Bu çalışma kapsamında alan uzmanları tarafından hazırlanan ve ilgili alana yön veren NMC tarafından yayınlanan Horizon Raporların Türkiye'deki yansımalarının incelenmesi amaçlanmaktadır. Bu amaç doğrultusunda Türkiye'de öğretim teknolojileri alanında yayınlara yer veren beş temel dergi seçilmiş ve 2010-2016 yılları arasında yayınlanan makaleler incelenmiştir. Çalışma kapsamında 2902 makale incelemeye alınmıştır. Bu makalelerden doğrudan öğretim teknolojileri alanı ile ilgili olan 809 makale seçilerek Horizon Raporlarda belirtilen eğilimlerle ilişkisine bakılmıştır. Verilerin analizinde içerik analizi yöntemi kullanılmıştır. Analiz sonucunda Horizon Raporlarda ki tahminlerle Türkiye'de yayınlanan makalelerin paralel bir yol izlemediği görülmüştür. Ancak uzaktan eğitim, sosyal ağlar, eğitsel oyunlar ve mobil öğrenme gibi alanlardaki çalışmaların diğer konulara göre daha fazla yapıldığı söylenebilir. Bu durumun ortaya çıkmasında uzaktan eğitim alanında yayın yapan dergilerin de incelemeye alınmış olmasının etkili olduğu düşünülmektedir. Bu sonuçlar doğrultusunda Türkiye'de yayınlanan çalışmaların dünya literatürü ile paralel ilerleyebilmesi için özellikle alan eğilimlerinin incelenmesinin faydalı olacağı düşünülmektedir.

ÖĞRETMEN ADAYLARININ CİNSEL KİMLİKLERİNİN YAŞAM DOYUMU VE UMUTSUZLUK DÜZEYLERİ AÇISINDAN İNCELENMESİ

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Bu çalışmada öğretmen adaylarının cinsel kimliklerine göre yaşam doyumları ve umutsuzluk düzeyleri açısından incelenmesi hedeflenmiştir. Bu hedef doğrultusunda şu alt amaçlara yanıt aranmıştır.-Öğretmen adaylarının cinsel kimlikleri açısından yaşam doyum düzeylerine göre anlamlı bir farklılık var mıdır-Öğretmen adaylarının cinsel kimlikleri açısından umutsuzluk düzeylerine göre anlamlı bir farklılık var mıdır?Araştırma gelecek nesillerin şekillenmesini sağlayacak ve öğrencilere rol model olacak öğretmenlerin toplumsal cinsiyete dayalı olarak ortaya çıkan cinsel kimliklerin yaşam doyumları ve umutsuzluk düzeylerinin kendilerini nasıl etkiledikleri ve cinsel kimlikler açısından yaşanılan sorunlara göre farklılık olup olmadığını görmek, bu doğrultuda öğretmenlere ve öğretmen adaylarına yardımcı olmak açısından önemlidir. Araştırmma ilişkisel tarama modelinde betimsel bir çalışmadır. Araştırmanın çalışma grubunu Çukurova Üniversitesinde ve diğer üniversitelerde formasyon eğitimi alan farklı cinsel kimliklere sahip (Heteroseksüel ve homoseksüel) öğretmen adayları oluşturmaktadır. Verilerin analizi elde edilen istatistiki sonuçlar neticesinde parametrik veya nonparametrik olarak değerlendirilecektir.

ÖĞRETMEN ÖĞRENCİ İLETİŞİM SORUNLARI:MESLEK YÜKSEK OKULU ÖRNEĞİ

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ÖZET

Eğitim öğretim ortamları, yalnızca iletişim kurmayı değil, iletişimin kaliteli ve etkili olmasını gerektirmektedir. Bu çalışmada üniversite öğrencileri ile öğretim elemanları arasında yaşanan öğretim elemanı kaynaklı iletişim sorunlarının öğrencilerin görüşlerine göre belirlenmesi hedeflenmektedir. Çalışmada nitel araştırma yöntemlerinden olgu bilim (fenomenoloji) deseni kullanılmıştır. Araştırmanın katılımcıları amaçlı örnekleme türlerinden ölçüt örnekleme yöntemine göre belirlenmiştir. Bir üniversitemizin meslek yüksekokulundaki 5 programdan seçilen toplam 10 tane ikinci sınıf öğrencisi araştırmanın örneklemini oluşturmaktadır. Veriler yüz yüze görüşme tekniği kullanılarak, açık uçlu sorulardan oluşan yarı yapılandırılmış görüşme formu yoluyla toplanmıştır. Bulgular, etkili iletişimden uzak olmak ya da önemsememek, öğrenci fikirlerine açık olmamak, eleştiriye tahammülsüzlük, yüksek düzeyde ego ve yetersiz sınıf hakimiyeti gibi durumların öğrenciler gözüyle en önemli sorunlar olarak görüldüğünü göstermektedir.
Anahtar sözcükler*: öğrenci öğretmen iletişimi, meslek yüksekokulu, fenomenoloji

GİRİŞ

İletişim, bireyin semboller kullanarak karşısındakini etkileme süreci olarak ifade edilebilir (Dökmen, 1989). Dolayısıyla eğitim de başlı başına bir iletişim etkinliğidir denilebilir. İletişimdeki verimlilik öğreticiler ile öğrenciler arasındaki iletişimin niteliğine bağlı olduğu söylenebilir. Öğretmenlerin etkili iletişim becerilerine sahip olmaları gerektiği eğitimin sağlıklı yürütülmesi açısından büyük önem arz etmektedir. Bireyin kendini iyi ifade edebilmesi ve karşısındakini daha iyi anlayabilmesi için kişinin uygun dinleme ve konuşma alışkanlıkları erken yaşlarda kazanmış olması, eğitim hayatının başlangıcında özgüven ve verimlilik açısından çok önemlidir. Bir iletişim dinamiği olan öğretmenlikte de etkili olabilmek için iyi bir iletişim becerisine sahip olmak önemli mesleki kriterlerden bir tanesidir.

Akkök (1996), öğrencilerin ev ortamından okul ortamına girdiklerinde onlardan yeni davranış biçimleri geliştirmelerinin beklentisinin oluştuğunu ifade etmektedir. Böyle bir hazır bulunuşluk çocukların kendilerine güvenlerini artacağı, kendilerini doğru ifade edebilen ve bireyler arası iletişimde başarılı bireyler olarak yetişebileceklerini gözlemlemiştir. Ergin ve Birol (2000) öğrenmeyi, iletişim sonucunda bireyde meydana gelen kalıcı davranış değişikliği olarak ifade etmiş ve öğrenmenin iyi bir iletişimle ortaya çıkan bir ürün olarak ifade edilebileceğini belirtmiştir.

Sosyal ortamlarda öğrenme ve öğretme faaliyetlerinin sürdürüldüğü başta okullar ve üniversiteler olmak üzere her türlü öğretme ve öğrenme ortamında sürdürülecek etkinlikler iletişim türleri üzerinden gerçekleşmektedir (Bolat, 1996). Ergin ve Birol (2005) öğrenmenin, çeşitli iletişim süreçlerinin sonucunda meydana gelen kalıcı izli davranış değişikliği olduğunu ifade etmişlerdir. İletişimsel bir bağlantı olarak, öğretmen ile öğrenci arasındaki iletişimin kalitesinin, öğrenmenin de kalitesini belirlemede önemli bir etken olduğu sonucuna varılabilir (Çilenti, 1988). Başka bir ifadeyle, Öğrenme ve öğretme sürecinde karşılaşılan sorunların temelinde yetersiz iletişimin önemli bir etken olduğu söylenebilir.

Sağlıklı bir iletişim, aynı zamanda Öğretmenin öğrenci üzerindeki etkisini artıran önemli faktörlerden birisi olduğu söylenebilir. Öğretmenin öğrencisi ile olan sağlıklı iletişimi, yüksek akademik başarı kadar, motive olmaları için de gereklidir (Aspy ve Roebuck,1977; Brophy ve Evertson, 1976).
Alan yazı çalışmaları incelendiğinde iletişimin etkisi ve önem üzerine yapılan birçok çalışma oluğu söylenebilir; (Bozdoğan, Şengül & Bozdoğan, 2013; Kaya, Taşdan, Kop & Metin, 2012; Kaya, Afacan, Polat & Urtekin, 2013; Özaydınlık, Kabaran, Göçen & Altıntaş, 2014; Şenel & Aslan, 2014).

YÖNTEM
Bu çalışmada, nitel araştırma yöntemlerinden olgu bilim (fenomenoloji) deseni kullanılarak veriler toplanmıştır. Olgu bilim (fenomenoloji) deseni, bir fenomen ya da kavramla ilgili farklı bireyler tarafından yaşanmış tecrübelerin anlamlandırılmasını konu almaktadır (Creswell, 2007).
Araştırmanın katılımcılarını bir devlet üniversitesinin meslek yüksekokulunun 5 ön lisans programının son sınıflarında öğrenim görmekte olan 10 gönüllü öğretmen adayı oluşturmaktadır. Katılımcıların belirlenmesinde amaçlı örnekleme türlerinden ölçüt örnekleme kullanılmıştır. Her bölümden 1 kadın ve 1 erkek olmak üzere 2 öğrenci seçilmiştir. Görüşme yapılacak öğrencilerin seçiminde araştırmacılar tarafından, ilgili bölümlerde görev yapmakta olan öğretim görevlilerinden destek alınmıştır. Öğrencilerin seçiminde son sınıfında öğrenim gören, iyi gözlem yapabilen ve eleştirel yönü güçlü öğrencilerin belirlenmesi hedeflenmiştir (Tablo 1).

Katılımcılar	Cinsiyet	Ön Lisans Programı
Ö1	K	Kimya
Ö2	E	Kimya
Ö3	K	İnşaat
Ö4	E	İnşaat
Ö5	E	Elektrik
Ö6	E	Elektrik
Ö7	K	İşletme
Ö8	E	İşletme
Ö9	K	Muhasebe
Ö10	E	Muhasebe

Tablo 1. Katılımcılar

Verilerin toplanmasında, görüşme tekniği kullanılmıştır. Veriler, açık uçlu sorulardan oluşan yarı yapılandırılmış görüşme formu yoluyla elde edilmiştir (Kaya, Sungurtekin & Deniz, 2016). Görüşmeler esnasında katılımcıların izniyle ses kaydı yapılmış, daha sonra bu ses kayıtları yazılı ifadelere dönüştürülmüş ve içerik analizi ile değerlendirilmiştir.
BULGULAR

ELEŞTİRİYE KAPALI OLMA

Bu Başlık altında veriler "öğretim elemanlarının eleştiriye açık olma durumları", "öğretim elemanlarının sınıf içi ve dışı davranış tutarsızlığı", "öğretim elemanlarının öğrencileri dinleme düzeyi", "araştırma görevlilerinin öğrencilere karşı tavrı", "öğretim elemanlarının egosantrik davranışlarının olması" ve "öğretim elemanlarının sunum becerilerinin düzeyi" olarak sınıflara ayrılmıştır (Kaya, Sungurtekin & Deniz, 2016).

Katılımcılar, öğretim elemanlarının genelde eleştiriye açık olmadıkları yönünde görüş bildirmişlerdir. Öğrenciler, öğretim elemanların "bilgi düzeylerinin anlaşılması" yönünde kaygı yaşadıklarını ve kendilerinin "üst düzey öğretim elemanı" olarak gördüklerini ifade etmişleridir. Ayrıca öğretim elemanlarının bazı durumlarda hakaret içeren ifadeler kullandığı tespit edilmiştir.

"Hocalarımıza dersle ilgili bir öneride bulunduğumuz zaman ve bu öneri kendi uygulamasından farklı ise bize sert tepkiler gösterdikleri oluyor. Bu tartışmayı sürdüren arkadaşlarımızla üste çıkma çabası gösteriyorlar. ... Farklı fikirler konusunda anlayışlı değiller" (Ö2).

"Doçent ve Yardımcı Doçent hocalarımız sıklıkla kendi unvanlarını ve başarılarını ve farklılıklarını ön plana çıkarıyorlar. Öğretim görevlisi hocalarımızdan üstün olduklarını genelde ima etmeye çalışıyorlar. Kendilerinden ders almamızın kıymetini bilmemizden bahsediyorlar" (Ö5)

Öğrencilerin ifadeleri analiz edildiğinde, öğretim elemanlarının ve üyelerinin eleştiriye açık olmadıkları hatta tahammüllerinin bile olmadığı sonucuna varılabilir. Çok yaygın olarak karşılaşılan, öğretmenlerin, öğrencilerine karşı "akademik başarı notu" veya "sınav" ı bir silah veya bir caydırıcı koz olarak kullanmaları burada da gözlemlenmiştir.

Ö5' in ifadelerinden hareketle, öğretim üyelerinde "unvan" hiyerarşisi algısının üst düzeyde olduğu ve bu durumu öğrencilerinde yansıttıkları söylenebilir.

TUTARSIZ DAVRANIŞLAR

Araştırmaya katılan üniversite öğrencileri, ders hocalarının sınıf içi ve sınıf dışındaki davranışlarının zaman zaman farklılıklar gösterdiği dolayısıyla "tutarsızlık" olarak ifade edilebilecek bir davranış ve tutum içerisinde olduğunu ifade etmişlerdir.

"Hocalar ders dışında daha güler yüzlü daha samimi oluyorlar. Sınıfta bazen çok ciddileşip hatta bazen korku saçabiliyorlar. Hatta soru sormaya bile çekiniyorum." (Ö7)

"Bütün hocalarımızın sınıfta otorite kurma çabası içindeler. Bazıları bunu yaparken bağırıp çağırıyorlar... birden ciddileşip birden bağırıp çağırmaya başlıyan hocalarımızda oluyor. Sınıf sakin olunca çok daha neşeli oluyorlar. Bazen arkadaşlarımızla sınıfta espirili konuşmalar yapıp başka bir zamanda çok sinirli davranışlar gösteren hocalarımızda oluyor" (Ö10)

Yukarıdaki ifadelerden, ders hocalarının ders içi ve ders dışı davranışları birazda sınıftaki öğrencilerin durumuna bağlı olarak farlılık gösterdiği söylenebilir. Bu farklılık, sınıf içinde daha ciddi ve otoriter bir öğretmen, sınıf dışında ise daha rahat ve sakin davranabilen bir arkadaş potresi oalrak ifade edilebilir.

DİNLEME – ANLAMA

Öğrenciler, öğretmenlerin kendilerini dinleme ve anlama çabası göstermeleri konusunda da olumsuz tutum içinde olduğu görülmektedir.

"Bence bizi tam anlamaya çalıştıklarını sanmıyorum. Düşünce fikirlerimizin yada önerilerimizin zayıf ve yetersiz olduğunu bazı hocalarımızın mimiklerinden veya sözlerinden anlayabiliyorum. Benim söylediğim kendi düşüncesinden farklı olduğunda hemen kendi düşüncesini tekrardan anlatmaya çalışıyorlar. Kendilerine göre farklı olan bu düşüncenin doğru olabileceği üzerine hiç durmuyorlar bu durum bende öz güven kaybına sebep oluyor. Hatta farklı bir görüş belirtmekten korkuyorum" (Ö8)

İçten ve samimi dinlememek, öğretim elemanlarının öğrenci ile iletişimindeki en temel sorunlardan biri olduğu görülmektedir. Aslında, eğitimde öğretmenin bir rehber olduğu göz önüne alındığında, öğretmenin çok iyi bir dinleyici ve öğrencilerin söylediklerini anlamaya çalışan çok iyi bir "çözümleyici" olmaları gerektiği söylenebilir. Öğrencilerin düşünceleri içerisinde bir doğruluk payının olabileceğini göz ardı etmek hocaların yaptıkları önemli iletişim hatalarından bir tanesi olduğu söylenebilir. Öğretmenler, öğrencilerin ifade etmeye çalıştıkları düşüncelerinde, kendilerini ifade edememe sorunu yaşayabileceklerini göz önünde bulundurarak öğrenci ifadelerini farklı bakış açılarıyla anlamaya çalışmaları gerekmektedir.

SUNUM – HİTABET

Aşağıdaki öğrenci ifadelerinden, Öğretim elemanlarının sunum ve hitabet becerilerinin öğrenci değerlendirmesine göre yetersiz olduğu anlaşılmaktadır;

"Bence etkili sunum ve düzgün ve etkileyici konuşma her hocada olması gereken bir özelliktir. Birkaç hocamızın dışında anlatımı etkiyici ve sürükleyici olan hocamız yok. Böyle olancada dikkatimiz dağılıyor başka şeylerle meşgul olmaya başlıyoruz. Ondan sonra hoca –konuşmayın susun- diyor. Öğrenci ile göz iletişimi kuran hoca çok az. Hoca bana baktığında derse daha iyi konsantre oluyorum. Bazı hocalar sadece bir iki öğrenci ile konuşuyor" (Ö6)

Sunum ve hitabet, sınıf ortamının verimliği açısından en gerekli beceriler olduğu söylenebilir. Her branştaki öğretmenin, sunum ve hitabet becerisini sürekli geliştirme çabası içerisinde olmaları gerekmektedir. Derse hazırlıksız katılma, sınıftaki hitabeti olumsuz etkileyen temel faktörlerden bir tanesidir.

SONUÇ

Öğretmen öğrenci iletişiminin öğrenci gözüyle araştırıldığı bu çalışmada, öğretmenlerin otoriter olma çabaları en önemli iletişim sorunlarından bir tanesi olduğu sonucuna varılmıştır. Öğretmenlerin öğrenci eleştirilerine olumlu yaklaşmamaları da diğer önemli sonuçlardan bir tanesidir. Günümüzde öğretmen merkezli eğitimin yaygınlaştığı düşünülürse, öğrenci eleştirisine kapalı olma, günümüz öğretmen modeliyle uyuşmadığı anlamına gelmektedir.
Tutarlılık ve dengeli davranma, bir öğretmenin öğrencilerine güven vermesi açısından önemlidir. Bu çalışmada, öğretmenlerin sınıf içi ile sınıf dışı davranışlarında, sınıfta öğrenciler arasında ve değişim zamanlardaki ders içi davranışlarında zaman zaman tutarlı davranmadıkları sonucuna varılmıştır. Sağlıklı bir eğitim ortamında öğrencilerin öğretmenlerinin davranışlarını tahmin edebilmeleri beklenmektedir. Öğretmenin tutarsız davranışları, öğrencilerin hem derse hem de öğretmenlerine olan ilgiyi olumsuz etkilemektedir. Öğretmenlerin sunum ve hitabet becerilerinde öğrencilere göre yetersiz olduğu sonucuna varılmıştır. Öğrencilere göre öğretmenleri bu durumu önemli bir sorun olarak görmemektedirler. Öğretmenler etkin ve verimli bir öğretimin ancak iyi bir sunum ve yeterli bir hitabet ile olabileceğini bilmelidir.

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ÖZET
Eğitim kurumları, toplumsal taleplere hitap edebilmek ve kaliteli toplum bireyleri yetiştirebilme için her zaman yoğun bir çaba içerisinde girmektedirler. Toplumların sosyo -ekonomik ve iktisadi – siyasi alanlarında meydana gelen değişimler doğal olarak eğitim örgütlerini de etkilemektedir. Bu çalışmada, meslek yüksekokulu öğrencilerinin ders denetimi hakkındaki görüşlerinin belirlenmesi planlanmıştır. Araştırmanın çalışma grubunu bir devlete üniversitesinin meslek yüksek okulunda inşaat teknolojisi, petro - kimya, işletme, muhasebe ve elektir ve enerji programlarında öğrenim gören 125 öğrenci oluşturmaktadır. Araştırma verileri, katılımcılara verilen ve açık uçlu sorular içeren görüşme formları ile elde edilmiştir. Verilerin analizi içerik analizi tekniği ile yapılmıştır. Bulgular, öğrenciler gözüyle ders denetiminin, eğitim ortamlarındaki eksikliklerin giderilmesi, daha güvenli bir ortamın oluşturulması ve okul yönetiminin öğretmen ve öğrencileri denetlemeleri olarak algılandığını göstermektedir.
Anahtar sözcükler: ders denetimi, meslek yüksek okulu, öğrenci görüşleri

PARTNERSHIP WITH PARENTS AS A FUNDAMENTAL PREREQUISITE FOR THE REALIZATION OF A QUALITY EDUCATIONAL PROCESS OF THE KINDERGARTEN

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SUMARRY

Parents are the most important co-workers in the education of their children in the kindergarten, therefore, they should be involved in its work in various ways. These can be parental meetings, workshops, individual conversations, and the like. They contribute to the realization of a partnership with parents that is extremely important for achieving a common goal, which is child welfare. In this paper, we will describe the way in which we facilitate the adaptation of children to the educational institution, enhance their commitment to preschool teachers, develop trust, openness and tolerance by means of working with the children's parents. Partnership with parents is one of the fundamental prerequisites for the realization of a quality educational process of the kindergarten.

INTRODUCTION

A partnership between an educational institution (kindergarten) and parents (family) is a prerequisite for an optimal development and learning of a child. A quality relationship between these factors has a positive influence on a child and its welfare. Parents are the primary care givers in a child's life and they want the best for their child, therefore, they want to be included in its growth and development. In modern world children spend most of their time in educational institutions and because of that fact, it's of most importance for the parents to be included in all the events regarding their child's education and upbringing. A partnership is built on a solid base made by the strongly motivated preschool teachers who are the main initiatiors of building partner relationships with the parents (family). Parents should be able to feel welcomed and accepted in a kindergarten at any time which results in a pleasant environment and communication, with the main goal still being children's welfare.

STUDY

There is a number of definitions of the term partnership in the preschool literature, and the one common thing is that the term partnership includes honour, respect, belief, open communication, flexibility, active listening, sharing information and nonjudgmental attitude. It is often that the term partnership is equalized with the term collaboration. The author Ljubetić (2014., pg. 5, acc. to Pašalić-Kreso, 2004.) emphasizes that „*collaboration develops and nurtures mostly superficial and formal relationships which, no matter how frequent they are, can't bring qualitative changes*" if the communication between parents and the educational institution doesn't change pertinently. Also, the same author (pg. 6) accents that the main characteristic of collaboration relationships between parents and the preschool institution is the hierarchy of the relationship „*where the institution takes higher place, which implies the unequalness of the partners in the relationship*". In a partnership the child and its welfare are in the first place and by families and kindergartens working together, it is for the best for the child. „*In a partnership, the family and the institution put the child, it's wellbeing, it's needs and potentials in the centre of attention by both parties which have the same interests, goals and tasks*" (Ljubetić, 2014, pg. 6). In the book The Hundred languages of Children, in an interview with the author Gandini, the author Spiaggari speaks not only about the children that have possibilities, ideas, knowledge and competencies, but also about their parents. Moreover, the author considers the preschool to be the blamed if the parents aren't included and do not cooperate in the educational process of the preschool.

The partnership between the kindergarten and the parents is considered to be the one of the main principles of The National curriculum for the Preschool Education which is being practiced in the Republic of Croatia since 2015. It is an official document which contains the fundamental values of the preschool education of children in kindergartens. The starting points of this document are the principles of freedom, openness and diversity, which should reflect on the totality of the organization and work process in all of the kindergartens across Croatia. The

National Curriculum for the Preschool Education (2014) perceives the family and the kindergarten as two basic systems in which a preschool child developes and grows, and their partnership is the result of quality interaction between those two factors. „*Quality and reciprocal communication allows the parents and the preschool teachers better understanding of the children, which neither of those two could acquire alone without the help of the other*" (Slunjski, 2012, pg. 129).

Considering the parents to be the most important partner in the upbringing and education of their children in the preschool education institutions and the most important representatives of their children's interests, it is crutial to encourage them to be included in the educational process of the kindergarten from the beginning, from the moment the children were enrolled in the kindergarten. „*The modern interpretation of the partnership represents a turn in the understanding of the way of thinking about parents, their role, wellbeing, their engagement...*" (Ljubetić, 2014, pg. 9).

A preschool institution should be a place where all the parents could feel welcomed, accepted and appreciated. There are various ways that the preschool teachers can approach the parents and from there build a solid base of partnership. The author Slunjski (2001) says that the daily interactions between parents and preschool teachers, their immediate involvement in the work of the kindergarten, mutual conversations about nurturing and psychological problems, their participation in various events, fieldtrips, celebrations, involvement in the advisory council of the kindergarten, are only the few possible ways of creating a bond between the parents and the kindergarten.

The role of the preschool teacher is the most relevant for the parents to be actively involved in all of the aspects of a daily functioning of the kindergarten and for them to become equal members of the team in a preschool education institution. In the beginning, when the child first starts to go to the kindergarten, initiatiors of an interaction with the parents are usually the preschool teachers and with time that role should be equally divided. With a two-way professional activities of the preschool teachers: one for the children – by implementing the programs of the preschool educational system; and one for the parents – by using different methods and styles of cooperation of the family and the preschool education professionals, there can be created more favorable conditions for the development of the child's personality, the principle of unity of influences can be achieved, parents can become equal during this process and there can be a continuity in the educational process; by doing all of the above, there are more benefits of the preschool work (Bašić and co., 2005).

Meetings with parents function as an opportunity to create a partnership bond between parents (family) and preschool teachers (kindergarten)

By going to the kindergarten a child faces a new and unknown situation which the child has not had the chance to experience before. The child is then faced with a new social environment which is different than its primary social environment (family). These two environments are very important for the child so there is a need to bring them closer to each other (Bašić and co., 2005). The topics for the parents – preschool teacher meetings choose the teachers by knowing well the parents, their interests and wishes. From the moment of its birth to the moment of going to school, a child experiences three phases of development, and for a child to overcome successfully all of the phases it is important for the parents and the preschool teachers to establish a successful communication (Milanović, 2014). These meetings are about planning celebrations, fieldtrips, workshops, about the contribution of the parents on projects, their daily involvement in the work of a group, and themed parents – preschool teachers meetings.

The very first parents – preschool teachers meeting (the first time the family meets the preschool teachers) is an opportunity for a solid collaboration on which they can build a strong foundation of the partnership. To some parents this is the first time they have encountered an educational institution so the information they will receive is of most importance. The first parents – preschool teachers meeting includes information such as introducing the kindergarten house rules, kindergarten meal plans, having spare clothes and shoes for the child, bringing toys from home, having a corner for the parents (a pinboard with information). The parents will receive useful information about working hours of the kindergarten, safety and health protocols, and many more. The given information will calm the parents and become the foundation for building a positive relationship with the kindergarten.

Also, in the first parents – preschool teachers meeting it is wise to introduce the parents with the adjustment process that every child will go through in its own way and that is possible (and normal as well) that in the beginning the child will cry while separating from the parents and while staying with others in a group, that it will protest and be resigned or closed off. These changes will pass, in some children sooner and in some later. The partnership and relationship between the parents and teachers can have a positive effect on the adjustment period because together they can determinate the child's habits and all other facts that will help in the child – teacher and teacher – child relationship, and also provide the child with an easier and quicker adjustment in the newly developed situation. Every child is different so it will undergo this adjustment period differently. Besides the emotional reactions (sadness, irritability, anger) there could also appear some behavioral changes (crying, agression, detachment) and some physical reactions (urination – going back to a previous phase of development, pain, going back to the pacifier etc.). Collaboration with the parents is crutial so that this period can pass as painless as possible. By daily communicating and passing on information from home or from kindergarten it is made sure that the possible problems can be overcomed in a quality way.

Daily communication between parents and preschool teacher

Parents need to be included continuously in the work of the kindergarten and a quality partnership requires them to be informed (by reading booklets, leaflets, communication on the internet, exchanging notes or documentation on the child, workshops, discussion groups etc.) and by doing so the parents are supported and empowered in their role as a parent (National Curriculum for the Preschool Education, 2014). Mutual informing is achieved by daily and informal talks between parents and teachers and by communicating through the corner for the parents (pinboard). The preschool teacher refers the parents of the new children to this pinboard with all the fundamental information until it becomes a habit, and the parents on their own get informed about the current events in the kindergarten. These pinboards for the parents give insight in the life and work of a preschool group, current events, notice and information. There can be also found letters of thanks for the parents, photographs of the meetings or get togethers etc.

For building a mutual trust the most contribution goes to the atmosphere in the institution which allows the parents to feel welcomed and where their involvement is being seen as important and valued for their child's welfare. If the parents feel welcomed it will have a positive impact on their children and it will contribute to the quality of the entire life in the kindergarten.

Pleasant environment and the feeling of being welcomed

Parents are the primary educators of a child "*and in a kindergarten – a learning community, they are the vital partners for creating complete understanding and knowledge of the children*" (Slunjski, 2008, pg. 209).

During the whole pedagogic year parents should be dear guests in the children's groups. Parents of different occupations can in a fun and educational way present their jobs (a police officer, a dentist, a doctor, a cook, a musician). It's good to have the meetings with parents, workshops or individual talks in the living room of the kindergarten group because that way the parents can get an insight about the space in which their child will be spending a lot of time in the future. This way, by observing the space the parents can already presume (based on knowing their child well) will their child be able to find something interesting for itself; that is, with the teacher they can arrange what could be in the centre of attention and interest for the child in those early days of going to the kindergarten. The living area of the room is divided into smaller centres of activities which originate by knowing the children well, their needs, capabilities and interests. "*A space transmits many messages, and the most important one is that adults organized this place for the children having in mind quality learning, and that they have organized it so it can give a sense of freedom and an opportunity to comfortably socialize, and with its instructive dimension it can encourage new explorations*"(Slunjski, 2001, pg. 37). The described space should be an indicator of the "life of the group", it should be a space that is enriched with incentive materials, children's work of arts, with their statements, constructions and all of the things that show us the presence of children in it. The author Slunjski (2008) addresses the importance that should be given to the parents when they come to the kindergarten every time. Parents should always feel welcomed in the kindergarten, they can spend time with their children and get to know their friends, participate or observe their children during activities, talk to the teachers or other parents. By including the parents in working on the kindergarten projects, the partnership bonds are becoming stronger among all of the educational process factors and the parents become equal participants of the educational process which their child goes through in kindergarten.

Individual talks

Modern goals of education are focused on the personal needs of the children and individual monitoring of every single child is an indicator that the reform guidelines of the early and preschool education are applied. The preschool teachers keep records in individual developmental folders for every child in their group so they can monitor their development and also as a tool for organizing activities for the child. Apart the preschool teachers it is also important the help of the parents while collecting the information about the child (basic information, photographs, anectodal notes, drawings from home). Individual parent – teacher talks allow the parents to have an insight into development and activities of the child in the kindergarten and also provide a much closer and more open conversation. Parents can ask anything about their child in this stage, resolve a possible concern and settle with the teacher a plan for further development and growth of their child. The documentation collected and gathered in the child's individual developmental folder allows the parents to observe different forms of educational activities in kindergarten and that is important for understanding the ways that their child is learning, building its knowledge and understanding, how it uses certain materials, how the child cooperates with the teacher and other children, what interests the child etc. It's interesting to the parents to see the child from another perspective different from the one that they are used to see in the family environment. Often a video, photograph or statements of the children about a certain ''problem'' can cause emotional reactions in parents. This type of communication with the parents requires a peaceful space and time so it is best to arrange a realization plan with the parents in the beginning of the pedagogic year. The parents are equal participants in the educating and raising their children and they are the main allies of the preschool teachers in accomplishing an overall quality life in the kindergarten. The individual developmental folders can be the foundation of the development of a strong partnership between families and preschool teachers and to the children they bring joy and are useful in the learning process. When the mentioned folders are placed in a visible place in the living area of the room and are available to the children in any given moment, then their existence has great value because it supports the process of their learning. According to the author Slunjski (2008) the level and the quality of parent's involvement in the educational process is relevant for the development of the child, but also for the institiution aswell.

Surveys for the parents

It is very useful to give out to the parents anonymous surveys about the work of the kindergarten in the beginning and in the end of a pedagogic year. The surveys can include questions about the parent's contentment with the kindergarten and also about their expectations, and the feedback can help the preschool teachers in making further educational plans and programs. A partnership relations with the parents develop, are build upon and last during the whole time that the child is in the kindergarten. It is necessary to include the parents in as many acitivities possible in the kindergarten and show them that their opinions are valid and important.

Workshops for parents and children

One of the possible forms in which the partnership can be generated are themed and/or educational workshops which are created by the preschool teachers once they have an insight in a family, that is, once they identify interests, wishes, needs, goals and possibilities of a certain family, and all of the above serves to enhance the quality of the child's life. In the creative workshops parents and children will spend quality and funfilled time which will have a positive impact on the child. In this type of situation the child can see the union between their parents and teachers and it can feel pleased and relaxed, proud, safe and accepted. That is the main reason why kindergartens often implement various types of workshops. It is possible to organize with the parents workshops and set a goal of configurating the space and material context of the preschool group. That way the parents feel that they are part of the entire kindergarten's curriculum, that their help is valued and important, and that they are inevitable participants of all the kindergarten's events. With the help of the parents there could be produced different plays in which the actors could be the parents; that will result with a pleasant and joyfull atmosphere, and with a great amount of contentment and joy for the children.

CONCLUSION

A child's cognitive, social, emotional and biological growth and development influence the interactions in the family-institution system bringing them to different levels of intensity, frequency and interactions between them (Ljubetić, 2014). A partnership with the parents is of crutial importance in acheiving the common goal – child's welfare, and the effects of these relations are: children adapt faster to the kindergarten, develop attachment to the preschool teachers, trust, openness and tolerancy. The partnership relations are more than a simple cooperation and for that to be achieved it is required a lot of effort, motivation and open conversations in both parties, but also a lot of competence of the teachers. A child's social, emotional and cognitive development will be easier if it is based on a continuity in the interactions and participation of the educational institution (kindergarten) and family (parents).

"*In a kindergarten – a learning community, parents are essential partners creating together a wholesome understanding and knowledge of the children. They are equal participants in the education of the children and the main allies of the preschool teachers in accomplishing a quality of life in the kindergarten*" (Slunjski, 2008, pg. 209).

A partnership between parents and the kindergarten will allow the parents to understand better their child, the ways in which it is learning, it is building its knowledge and understanding, how the child cooperates with other children and the teachers; also, it will give the parents useful information on how to act and motivate the child to develop overall in a family environment. Thanks to the partnership relations with the parents, the preschool teachers will get acquainted well with the parents, with their principles and opinions regarding the child's development, family environment in which it lives, family's habits etc. In the modern world many developed societies encourage more quality engagement of the parents in the life of the community, especially in the life of the educational institutions, by which they support critical reflection, analysis, creating opinions and democratic representation of the child's interests and their own (Ljubetić, 2012). A high level of partnership between the parents and the kindergarten results in high accomplishments in children, higher parenting competencies, and therefore the described partnership requires a lot of attention.

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PERCEPTION OF SECONDARY SCHOOL STUDENTS ABOUT LEARNING DIFFICULTIES AND MISCONCEPTIONS IN BASIC CONCEPTS OF CHEMISTRY

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ABSTRACT

The present study is designed to investigate gender discrepancy in learning difficulties and misconception among chemistry secondary school students in Pakistan. Instrument used in this study was a questionnaire, which addressed the misconceptions and learning difficulties. The validity was established by experts and reliability of instrument was determined by pilot testing. Stratified random sampling technique was used on 600 students from government, semi government and private schools. The results reveal that there certainly prevails gender discrepancy in learning difficulties and misconceptions. There is a strong positive relationship between learning difficulties and misconceptions. Males have more learning difficulties and misconceptions than females in chemistry. This study would be beneficial for curriculum designers, researchers, educationists, science teachers, students and for parents.

INTRODUCTION

To investigate students' gender discrepancy in learning difficulties and misconceptions in chemistry was a subject of curiosity for the researchers. A list of all possible factors of learning difficulties (i.e. lack of motivation, language and communication, working memory overload, prior knowledge, and lack of practical work) was made to investigate whether they are responsible in developing the misconceptions among males and females. Misconceptions related to basic concepts of chemistry were taken and their underlying reasons were explored. Basic chemical concepts act as keystones on which other complex chemical concepts are build, if students will have misconceptions in basic chemical concepts then they will certainly have misconceptions in complex chemical concepts as Nahum says that any misconceptions in the fundamental concepts will cause hindrance in the further learning (Nahum, Hofstein, Mamlok-Naaman & Bar-Dov, 2004).

Students' learning difficulties and misconceptions in science have been highly researched area for the past couple of decades (Horton, 2001; Temizkan, 2003; Shaheen, 2010; Bojezuk, 1982; Zoller, 1990; Tümay, 2016; Adesoji, Omilani & Dada, 2017; Lazarowitz & Lieb, 2006; Erman, 2016). In this study all possible causes of learning difficulties were listed and their relationship was analyzed with the misconceptions in the field of chemistry along with the gender discrepancy.

Misconceptions or alternative conceptions are the beliefs which are held by students which are at an orthodox with scientific concepts (Taber, 2001). Learning difficulties (i.e. Lack of motivation, Language and communication, Working memory overload, Prior knowledge, and Lack of practical work) develop misconceptions among students (Erman, 2016). Chui in 2005, examined students' misconceptions at different age levels, through his research, he came to know that sources, such as practical activities, reference books, teaching, language, representation of materials in textbooks or after-school programs effect student's learning in chemistry. Chiu also concluded that children misconceptions at different age levels obstruct the understanding of more complex chemical concepts (Chiu, 2005; Smith & Villarreal, 2015).

There are many sources of misconceptions, which include prior experiences, parents and family, reference materials, media and teachers (Thompson & Logue, 2006; Erman, 2016; Naah, 2015). All of these sources seem to be reliable to students and causes misconceptions among students. Misconceptions that are present at the age when students start studying chemistry in school persist in minds of learners till they enter university level (Horton, 2001).

Gender and gender stereotype have a significant role in the choice of scientific and technical vocations. Males and females are treated differently at homes and they have different roles and responsibilities in the society as well as they have hormonal and structural differences (Joel, Kamji & Godiya, 2016). In education, gender differences cause discrepancies in learning style preferences, attitudes and views about careers. Gender discrepancy has impact on teaching and learning of chemistry (Cousins & Mills, 2015). Demographic variables like gender and age are responsible for the development of misconceptions among students in chemistry (Chiu, 2005; Temizkan, 2003).

Prior study revealed main causes of misconceptions are poor pedagogy and badly chosen or ill-planned activities (Adejosi, 2008). Investigations claim that males and females both have misconceptions in chemistry, but females have more difficulties than their male counterparts in chemical problem solving (Adejosi, 2008). It is evident through literature review that the researches based on gender discrepancy found contradictory results (Adejosi, 2008; Cousins & Mills, 2015).

Gender discrepancies in mathematical abilities find out that these discrepancies which will affect how both gender learn the chemistry topics having mathematic aspects (Shaheen, 2010). Males have fewer misconceptions related to numerical concepts of chemistry than females. Males have more self-confidence in solving numerical problems in chemistry than females; males are also motivated to do so because they thought it would be fruitful for them in future. Gender discrepancies can be overcome by motivation (Bojezuk, 1982).

Objectives of the research
It is evident from literature review that chemistry has a bad image among students due to its abstract nature and its relationship with mathematics, hence it is considered as a tough subject (Chiu, 2005). The purpose of this study is to explore students' gender discrepancy in learning difficulties and misconceptions in chemistry. In addition to gender discrepancy, the relationship between learning difficulties and misconceptions is also investigated. The main objectives of this study are as follow:
1. To find out the link between learning difficulties and misconceptions
2. To find out the gender discrepancy in learning difficulties and misconceptions in chemistry.
3. To find out the influence of students' age on learning difficulties and misconceptions in chemistry.

Hypothesis of the research
The main hypotheses of research are as follow:
H_o1. There is no significant relationship between learning difficulties and misconceptions in chemistry.
H_o2. There is no significant impact of demographic variables (i.e. gender and age) on learning difficulties and misconceptions.

METHODOLOGY
The type of the research is quantitative. The participants of the study include lower secondary school students of Lahore who study chemistry have been taken who filled the questionnaire consisting of items related to learning difficulties and misconceptions. The data was collected personally by the researchers. The collected was then analyzed to review the correlation between learning difficulties and misconceptions.

Sample
The sample consists of 600 lower secondary school students who study chemistry. Stratified random sampling technique was used in the research. Sample including 300 males and 300 females were taken from age group ranging from 13 to 18 years, on the equal proportions from government, semi-government and private sector schools.

Instrumentation
The instrument used in the research was a close-ended Questionnaire. The questionnaire comprises of two parts: first part was used to collect the biographical include information of the participants including their gender, age, class, School category (government, semi-government and private). The second part of the questionnaire was designed by the researchers to investigate the learning difficulties and misconceptions on the basis of literature review. The survey items were constructed using Likert scales. The instrument consisted items relating to learning difficulties (Lack of Motivation, Language and communication, Working memory overload, Prior knowledge and Lack of practical work) and misconceptions narrating basic concepts of Chemistry e.g. matter, physical properties and periodic table.
The validity of the instrument was established by the experts. The reliability of the instrument was determined by pilot testing of the instrument. The data was collected from the lower secondary school students only, who study chemistry as an optional subject.

DATA ANALYSIS AND INTERPRETATIONS
Relevant data collected in relation to the study were analyzed by calculating correct responses percentage and applying t-test, correlation and one-way ANOVA (Analysis of Variance).

Correct response percentages for the factor of misconceptions on gender basis
From Correct response percentage (Figure 1) it is evident that there prevail slightly less misconceptions in females than in males. Females gave most of the correct responses about basic misconceptions in chemistry.
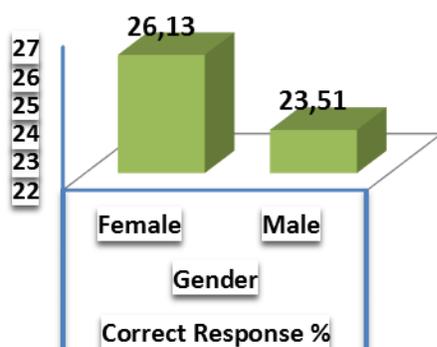
Figure 1. Gender and correct response percentage

Relationship between learning difficulties and misconceptions

H_{o1}: There is no significant relationship between learning difficulties and misconceptions among students in the subject of chemistry at secondary school level.

Table 1. Relationship between learning difficulties and misconceptions among students in the subject of chemistry at secondary school level.

Variable	N	Pearson r	Sig.
Learning difficulties and Misconceptions	600	0.72	0.00

Table 1 indicates that Pearson r-value (0.72) is significant at $p \leq 0.05$ level of significance so null hypothesis (H_{o1}) that is "there is no significant relationship between learning difficulties and misconceptions among students in the subject of chemistry at secondary school level" is rejected and it is concluded from the Pearson r-value i.e. 0.72 that there is a strong relationship between difficulties and misconceptions among students in the subject of chemistry at lower secondary school level.

Gender discrepancies in learning difficulties and misconceptions

H_{o2}: There is no significant mean difference of learning difficulties and misconceptions of males and females in the subject of chemistry.

Table 2. Independent sample t-test for mean difference of learning difficulties and misconceptions of males and females in the subject of chemistry.

Variables	N	Mean	df	t-value	Sig.
Male	300	3.38	570.40	2.94	0.00
Female	300	3.33			

Table 2 indicates that t-test value (2.94) is significant at the level of $p \leq 0.05$, so null hypothesis (H_{o2}) that is "there is no significant mean difference of learning difficulties and misconceptions of males and females in the subject of chemistry" is rejected and it is concluded that there is significant mean difference of learning difficulties and misconceptions of males and females in the subject of chemistry.
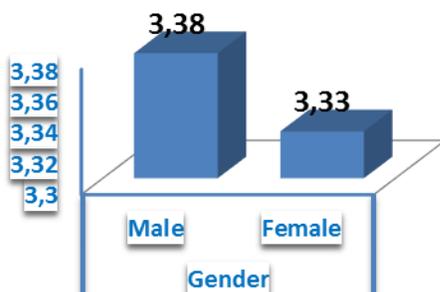
Figure 2. Gender differences and Learning difficulties and misconceptions

Means of learning difficulties and misconceptions obtained on the basis of gender (figure 2) represents that males have more learning difficulties and misconceptions than females.

Analysis based on the influence of age groups on learning difficulties and misconceptions

H_{o3}: There is no significant impact of age groups of students on learning difficulties and misconceptions among chemistry students.

Table 3. One-way ANOVA for impact of age groups of students on learning difficulties and misconceptions among chemistry students.

Sources of variations	Sum of Squares	df	Mean Square	**F-ratio**	**Sig.**
Between Groups	1.04	2	0.518	13.65	0.00
Within Groups	22.65	597	0.038		
Total	23.69	599			

Table 3 indicates that F-ratio =13.65 is significant at $p \leq 0.05$ level of significance, so null hypothesis (H_{o3}) that is "there is no significant impact of age groups of students on learning difficulties and misconceptions among chemistry students" is rejected so it is so it is concluded that there is significant impact of age groups of students on learning difficulties and misconceptions.

Table 4. Tukey post hoc for multiple comparisons of learning difficulties and misconceptions of chemistry students on the basis of age groups of students.

Age Groups	Mean difference	Sig.
13-14 Vs. 17-18	0.08	0.00
15-16 Vs. 17-18	0.12	0.00

From the Tukey Post Hoc Test of Multiple Comparisons (Table 4) it is evident that the mean difference of learning difficulties and misconceptions in the subject of chemistry between the students of different age groups is significant at the level of $p \leq 0.05$. Students in the age group 13-14 have more learning difficulties and misconceptions in the subject of Chemistry than students in the age group 15-16, which in turn hold more learning difficulties and misconceptions than students of the age group 17-18.

Mean of learning difficulties and misconceptions based upon age groups reveals that children of age group 13-14 have highest learning difficulties and misconceptions, children of age group 15-16 hold average and children belonging to age group 17-18 have least learning difficulties and misconceptions.
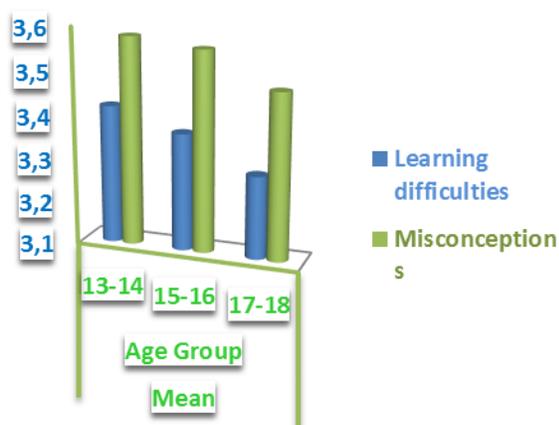
Figure 3. Mean of learning difficulties and misconceptions based upon age groups

DISCUSSION

Chemistry is considered as a difficult subject, as it requires additional concentration to immense variety of activities and skills (literacy, numeracy and experimental skills) as compared to other subjects of science. Chemistry has vast applications and utility in daily life, one cannot think to live without chemistry as one is so much dependent upon the products of chemistry. There is not even a single field which is not influenced by chemistry. Inspite of all these

utilities of chemistry, students are not willing to make their carrier in the field of chemistry. Its reason may be the abstract and numerical nature of chemistry which seems difficult to the learners (Chiu, 2005).

Through this study, researchers found that there is a significant relationship between learning difficulties and misconceptions. Researchers had made a list of all possible factors of learning difficulties (Lack of motivation, Language and communication, Working memory overload, Prior knowledge and Lack of practical work) and checked their relationship with misconceptions and reached at this conclusion that their persists a significant relationship between both. The results of this study are in consistency with the previous findings (Thompson & Logue, 2006; Chiu, 2005; Adejosi, 2008) who believe that: reference books, language and instruction, inappropriate interaction with practical activities, prior experiences etc. are sources of misconceptions among chemistry students. By analyzing gender discrepancies it is concluded that gender has a significant impact in developing learning difficulties and misconceptions among students in chemistry (Lin, Yen, Liang, Chiu & Guo, 2016). Demographic variables like gender and age are responsible for the development of misconceptions among students in chemistry (Chiu, 2005; Lin, Yen, Liang, Chiu & Guo, 2016; Luoga, Ndunguru & Mkoma, 2013; Azizoğlu & Geban, 2016; Gegios, Salta, & Koinis, 2017). Males have more difficulties and misconceptions than females. Age group of students also have a significant impact in developing learning difficulties and misconceptions among students in chemistry. Students in the age group 13-14 have more learning difficulties and misconceptions in chemistry than students in the age group 15-16, which in turn hold more learning difficulties and misconceptions than students of the age group 17-18. Gender and age of students have a significant impact on number of misconceptions held (Shaheen, 2010; Cetin-Dindar & Geban, 2017). Students of all ages hold a wide range of misconceptions (Canpolat, Pinarbasi, Bayrakceken & Geban, 2006). Misconceptions that are present at the age when students start studying chemistry in school persist in minds of the learners till they enter university level (Horton, 2001; Gurmu, 2016). So, the misconceptions must be cured at lower level in order to avoid them in upper level. Gender discrepancy in chemistry is a cross-national problem and it affects the career choices (Buccheri, Gürber & Brühwiler, 2011; Buser, Niederle, & Oosterbeek, 2014). Temizkan (2003) concluded from statistical results that gender difference is effective on students' misconceptions. He also observed gender difference on misconceptions of students. So, the results of this study are in agreement with all the above quoted researches.

From the study's result it is recommended that gender discrepancies can also be overcome by motivation. There should be no gender differentiation among students in classrooms by teachers. Teachers must use audio visual aids to teach chemistry. They should use charts and models to teach complex chemical concepts. And there must be some activities for students so that they can deeply understand chemistry and show interest in it.

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PERCEPTON OF ACADEMIC ADMINISTRATORS ON STRATEGIES FOR PROMOTING POSITIVE INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) COMPLIANT SCHOOL CLIMATE IN NIGERIA

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ABSTRACT

Information and Communication Technology (ICT) is a useful tool to find, explore, analyze, exchange and present information. It can be employed to rapidly access ideas and experiences from a wide range of people, communities and culture. It builds, promotes and strengthens positive organizational climate. Electronic media is playing an important role in transmitting communications. Telephones, handsets and media systems such as television, voice activated computers, multimedia software, fax machine and a host of other electronic devices are used to create more effective communication which in turn promote positive school climate and reduce or completely eliminate organizational conflicts. This study is guided by two research questions. A descriptive survey design was employed in the study. It sought to study the perception of both male and female lecturers on strategies that promote the use of ICT in Colleges of Education in Anambra State. A stratified random sampling technique was adapted for selecting the Heads of Department, Deans and Directors of programmes. The sample consists of twenty six respondents.
The instrument used for data collection was a questionnaire titled Strategies for Enhancing Information and Communication (ICT) use in Anambra State College of Education (SEIQ). The instrument is a 7 - item Likert-type instrument scored on a 4-point scale. The internal consistency reliability of the instrument using Cronbach Alpha was established at 0.93. Data collected was analyzed using mean score and standard deviation for answering the research questions. A score of 2.50 and above was taken to mean that the respondents is in agreement with the option while a mean of 2.49 and below showed disagreement to the items of the instrument. T-Test statistic was used at 0.05 level of significance to test the hypothesis. The results of the study showed that improved power supply ,training/retraining of staff and ICT resources made available with mean of 3.6154;3.3077 and 3.2692 are factors promoting positive ICT school climate and the rate of diffusion of ICT innovation in the colleges of education in south east and the reasons for that.
Key words: Positive school climate, Strategies and Information Communication and Technology

INTRODUCTION

We are living in a world with vast industrial and technological breakthroughs. Information and Communication Technology (ICT) is important in a changing world in which work and other activities are increasingly becoming complex and transformed by access to varied and developing technology. ICT is a useful tool to find, explore, analyze, exchange and present information. It can be employed to rapidly access ideas and experiences from a wide range of people, communities and culture. It builds, promotes and strengthens positive organizational climate.

Information and communication technology (ICT) is an umbrella term that covers all advanced technologies in manipulating and communicating information. It facilitates the management processes of planning, organizing, leading, controlling and coordinating the activities of the institutions. The use of ICT in both instructional and administrative service delivery in our colleges of education will help improve academic performance of students as well as the effective and efficient administrative capabilities of the administrators. However , there is evidence of poor academic planning in some colleges of education where a lecturer may be expected to teach, evaluate and manually mark theory scripts of two or three courses with a population of about four to six hundred students within a very short period of time.

Electronic media is playing an important role in transmitting communications. Telephones; handsets and media systems such as television, voice activated computers, multimedia software, fax machine and a host of other electronic devices are used to create more effective communication which in turn promote positive school climate and reduce or completely eliminate organizational conflicts. A positive school is an enabling atmosphere for learning. It includes the feelings people have about the school as a place where effective teaching learning can take place. Electronic mail (e-mail) as well as some other social networks like the face book are fast and cheap and can be used to send the same message to several people (Mormah, 2010). It is getting obvious as we head towards the

magical year 2020, that preventable information, communication and records management problems which appear to still be a nightmare to several school organizations due to lack of access to ICT facilities, basic knowledge of ICT usage and actual utilization of ICT facilities. Sapru, (2009) stated that the success of any organization is dependent upon many factors, but none is as important as the impact of its leader. Good Administration is often said to rest greatly in the hands of the school administrator whose sole responsibility is to effectively and efficiently coordinate the human and material resources within and outside his organization. One of the ways of achieving this goal is by inventing new strategies for promoting positive information and Communication technology compliant school environment that will enable him achieve the general organizational goals.

Akuegwu, Ntukidem and Ntukidem (2014), quoting Bamiro and Liverpool (2002) observed that the computer (ICT) has already invaded and dominated Universities in the developed world, while in Nigeria it has been painfully slow, hence most school organizations still process results manually.   This situation can be brought to halt by employing strategies for promoting positive Information and Communication Technology (ICT) compliant school climate. This study is akin to that of Cox, Preston and Cox (1999) who carried out an almost similar study on what motivates teachers to use ICT. The sample from which the questionnaire was administered consisted of 135 respondents. A total of 82 educators (60.7%) returned the questionnaire. A focus group of 20 teachers and other educators were used to review the results and more detailed explanations relating to the specific responses to questionnaire and other data was given. The findings show that the majority of teachers considered ICT to have improved the presentation of materials, make lessons more fun for the pupils and more interesting for the teacher, make administration more efficient, and give the teacher a greater awareness of its uses. The mean responses for negatively phrased items relating to pupil motivation, benefits for learning, and enjoyment of ICT use, were very low. Given this background, this study is poised to examine the strategies for promoting positive Information and Communication Technology (ICT) compliant school climate in Anambra State, South East Nigeria.

PURPOSE OF THE STUDY
The main purpose of the study is to ascertain the strategies for enhancing/promoting positive ICT compliant school climate by academic administrators.

 And also to ascertain the perception of academic administrators on strategies for enhancing the use of ICT facilities in the College of Education as a factor for promoting positive ICT compliant school environment with respect to gender.

SIGNIFICANCE OF THE STUDY
        The study will help to facilitate the use of ICT as a factor for promoting positive ICT compliant school climate. It will also help in achieving a positive perception of promoting an ICT compliant school climate among academic administrators.

SCOPE OF THE STUDY
        This study is a case study of a state college of education in South East Nigeria; Nwafor Orizu college of education, Anambra state. The study includes such variables as the factors constraining and promoting the use of ICT facilities in the college of education in South East Nigeria. The population of the study consist of all academic administrators in the state college of Education. The estimated population of the respondents to the questionnaire were 26 academic administrators and fifteen (15) participants in an interview session. Total population of respondents were forty one (41). Selection of respondents was based on purposive sampling technique.

RESEARCH QUESTIONS
        This study is guided by the following research questions:
   1. What are the strategies for enhancing ICT use as indicated by academic administrators in Colleges of Education?
   2. What are the strategies for enhancing ICT use as indicated by academic
        administrators in colleges of education with respect to gender?

HYPOTHESIS

H01   There is no significant difference between the mean rating scores on the perception of measures that would enhance the effective utilization of ICT facilities by female and male academic administrators of Colleges of Education.

METHODOLOGY

Descriptive survey design was employed in the study. It sought to study the perception of both male and female lectureres on strategies that promote the use of ICT in Colleges of Education in Anambra State.

The Study was conducted in Nwafor Orizu College of Education in Anambra State. Anambra State has only one State College of Education. A stratified random sampling technique was adapted for selecting the Heads of Department, Deans and Directors of programmes. The sample consisted of twenty six respondents.

The instrument used for data collection was questionnaire titled Strategies for Enhancing Information and Communication (ICT) use in Anambra State College of Education (SEIQ). The instrument is a 7 item Likert-type instrument scored on a 4-point scale of (SA) Strongly Agree (A) Agree (D) Disagree (SD) strongly disagree. The instrument has two sections namely: Section A is concerned with personal data of the respondents while Section B contains of 14 -item statements in two clusters on strategies for enhancing ICT use.

The instrument was face validated by two experts from Educational Administration and Planning and Measurement and Evaluation from College of Education Agbor. The internal consistency reliability of the instrument using Cronbach Alpha was established at 0.93

The researcher administered the instrument directly and retrieved same from the respondents.

Data collected was analyzed using mean score and standard deviation for answering the research questions. A score of 2.50 and above was taken to mean that the respondents are in agreement with the option while a mean of 2.49 and below showed disagreement wth the items in the instrument using the t-test hypothesis tested at 0.05 level of significance.

RESULTS

The results of the analysis for answering the research questions and testing the null hypothesis that guided the study are presented in the tables 1 ,2 and 3

Table 1
Mean response of heads of departments, Deans of Schools and Directors of programmes on ((SEIQ) in Nwafor Orizu college of Education Anambra State .

	STATEMENTS	N	MEAN	SD	DECSION
1	Improve power supply	26	3.6154	.6373	ACCEPTED
2	Training/retraining of staff on ICT	26	3.3077	.7883	ACCEPTED
3	ICT resources Awareness campaign to be carried out by the school management	26	3.2692	.6038	ACCEPTED
4	ICT resources should be made accessible to all the users	26	3.2692	.6038	ACCEPTED
5	Increase time usage of ICT resources	26	3.3077	.6177	ACCEPTED
6	Finance/ imprest should be made available for purchase of bandwidth/maintenance of ICT resources.	26	3.1154	.9519	ACCEPTED
7	Adequate provision of spaces to accommodate ICT facilities.	26	2.9615	1.0763	ACCEPTED

Source: Field work

Table 1 showed that the mean perception of the academic administrators for all the strategies for promoting positive ICT compliant school climate were all above the bench mark of 2.5. This is an indication of the fact that they are all in agreement with the strategies for promoting positive ICT compliant school climate.

Table 2
Mean response of heads of departments, Deans of Schools and Directors of programmes on (SEIQ) in Nwafor Orizu college of Education Anambra State with respect to gender.

-	STATEMENTS	FEMALE				MALE			
		N	MEAN	SD	ACCEPTED	N	MEAN	SD	ACCEPTED
8	Improve power supply	12	3.6667	.4923	ACCEPTED	14	3.5714	.75593	ACCEPTED
9	Training/retraining of staff on ICT	12	3.4167	.9003	ACCEPTED	14	3.2143	.69929	ACCEPTED
10	ICT resources Awareness campaign to be carried out by the school management	12	3.5000	.52223	ACCEPTED	14	3.0714	.61573	ACCEPTED
11	ICT resources should be made accessible to all the users	12	3.3333	.65134	ACCEPTED	14	3.2143	.57893	ACCEPTED
12	Increase time usage of ICT resources	12	3.3333	.49237	ACCEPTED	14	3.2857	.72627	ACCEPTED
13	Finance/ imprest should be made available for purchase of bandwidth/maintenance of ICT resources.	12	3.1667	.93744	ACCEPTED	14	3.0714	.99725	ACCEPTED
14	Adequate provision of spaces to accommodate ICT facilities.	12	2.6667	1.07309	ACCEPTED	14	3.2143	1.05090	ACCEPTED

Source: Field Work

From the table 2 above, the mean responses for the strategies for promoting positive ICT compliant School climate are all above the mean criterion of 2.50. This implies that there responses are in agreement with the seven strategies.

Table 3; T-test Analysis of Mean Response scores of Male and Female academic administrators perception on strategies for promoting ICT compliant school climate

T-Test

GENDER	N	Mean	Std. Deviation	DF	Teal.	SIG	DECISION
FEMALE	12	3.297	0.5457				
MALE	14	3.2345	.5392	24	.295	.771	ACCEPTED

Table 3 showed that the t-calculated .295 (df=24) is not significant at .05 level of significant. Hence, the null hypothesis, which states that there is no significant difference between the mean rating scores on the perception of measures that would enhance the effective ICT compliant school climate by female and male academic administrators of colleges of education is accepted.

From the table 3 above, there is no significant difference between the mean rating score of perception of male and female academic administrators to the strategies of promoting ICT compliant school climate in Nwafor Orizu college of Education, Nsugbe Anamabra State.

DISCUSSION

The findings of this study confirmed that administrators can contribute to promoting positive ICT compliant school climate by employing the strategy of improving power supply in their schools, training & retraining their staff, ICT resources Awareness campaign to be carried out by the school management, ICT resources should be made accessible to all the users, Increase time usage of ICT resources, Finance/ imprest should be made available for purchase of bandwidth/maintenance of ICT resources and Adequate provision of spaces to accommodate ICT facilities.

This study is line with Enaohwo (2000) who recommended constant plant/facility improvement and renewal to meet present needs of users. This can only be done when school administrators have plans and strategies to achieve success and the government adopts measures of promoting positive school climate through provision and maintenance audit to audit ICT and other facilities in schools.

The result of this study portray reality based on the interview with the fifteen participants in which they expressed their disatisfaction with the state of ICT use in the instition.

Sapru, (2000) concurring with Enaohwo's view stated that the success of any organization is dependent upon many factors, but none is as important as the impact of its leader's ability to mobilize the human and material resources within his organization. The study is also akin to that of Cox, Preston and Cox (1999) who carried out an almost similar study on what motivate teachers to use to use ICT.

The findings show that the majority of teachers considered ICT to have improved the presentation of materials, made lessons more fun for the pupils and more interesting for the teacher and made administration more efficient.

It is also noted that both male and female did not differ in their perceptions.

CONCLUSION

This study is set to identify the perception of academic administrators on the strategies for promoting positive ICT compliant school climate in South East Nigeria. The findings in this study confirmed that administrators can contribute to promoting positive ICT compliant school clmate by employing these strategies.

RECOMMENDATIONS

On the basis of the findings and conclusion of the study, the following recommendations are made:
1. Power supply should be improved in our educational institutions
2. School management should carry out training and retraining of academic staff on ICT.
3. ICT resources should be made available to all users.
4. Finance/imprest should be made available for purchase of bandwidth/maintenance of ICT resources and there should be adequate provision of space to accommodate ICT facilities

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PERFORMANCE-BASED TASKS AS A MEAN TTO ASSESS THE SPEAKING SKILLS OF LEARNERS OF ENGLISH AS A FOREIGN LANGUAGE

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ABSTRACT
Performance-based tasks enable students' to demonstrate their learning progress in authentic ways. They also provide foreign language teachers with opportunities to challenge their students to use the language and therefore, assess the development of their skills. Acknowledging the advantages that these activities provide, this work aims at suggesting a set of performance-based tasks to evaluate the speaking skills of students of English as a Foreign Language. Examples of performance-based tasks that have been implemented with Spanish speakers learning English illustrate how these tasks can be put into practice. For the development of the work, the authors conducted a review and analysis of articles, texts and other sources that included relevant information to the subject, including theoretical foundations, educational policies on evaluation, and examples of performance-based tasks. Suggested performance-based tasks include oral presentations, discussions, debates, demonstrations, among others. Both literature and the authors` experience indicate that performance-based tasks boost students` confidence and

motivation towards speaking. Most performance-based tasks for assessing students' oral skills are collaborative in nature. Nonetheless, they can be also adjusted to individual assessments.

Keywords: Student evaluation, speaking skills, language teaching, EFL, Ecuador.

INTRODUCTION

The goal of making changes within the public educational system in most parts of the world demands among other transformations, the adoption of teaching-learning approaches that incorporate suitable strategies aimed at stimulating students' linguistic and cognitive development as well as knowledge construction in real-life-like situations. This intention also requires the adoption of other forms of assessment to appraise students' performance throughout their learning process. Said forms of assessment are different to the traditional paper-based tests applied at the end of a course.

For example, the Ley Organica de Educación Intercultural (Law of Education of Ecuador, mostly referred as LOEI) (LOEI, 2011a) defines students' assessment as an ongoing process that includes a set of steps such as observing, valuing, and registering data from the teaching-learning process. This data is expected to reflect the students' achievement. It should provide a guide for giving students the necessary feedback they need to help them improve their academic performance at the appropriate time. Likewise, students' evaluations should include evaluation tools in different formats and not only the traditional written exams (LOEI, 2011b).

When assessing the language knowledge/skills development of individuals who have to learn a foreign language as a requirement of their school curriculum, teachers have to consider several factors. For instance, most learners do not feel motivated to learn the language and even less to be evaluated by means of traditional tests. The only place where the majority of students have access to practicing and using the language, as well as receiving feedback on their language skills improvement is in the classroom. With this in mind, foreign language teachers should seek for alternatives to evaluate their students in a way that they have the possibility of demonstrating their skills development in-use. Therefore, the purpose of this work is to suggest a set of performance-based tasks to evaluate the speaking skills of students of English as a Foreign Language. Examples of some of the strategies in-use accompany the activities proposed.

ASSESSMENT OF LEARNING

Overview

Assessment is referred to as a process that entails obtaining information which is of interest to a person through the application of a series of continuous and considerable methods (Bachman, 2004). In a scholastic environment, teachers are to make decisions about their instructional practices as well as how students' achievement should be graded or reported. These decisions have to be grounded on the results obtained from evaluations to the level of progress students' have gained within a study period with respect to the learning goals set by the teacher (Cheng, Rogers, & Hu, 2004). Consequently, students should be assessed consecutively enabling teachers to reflect upon the assessment outcomes and to use them as a filter to improve the teaching-learning process (Fulcher & Davidson, 2007).

Many forms of assessments have been proposed throughout the years. To give an example, besides the classification of types of assessment by its purpose–instructional, predictive, diagnostic, and evaluative- that Caffrey (2009) establishes, he also points out two other types of assessment: formative and summative assessments. Caffrey defines formative assessments as "those that are used during the learning process in order to improve the curriculum and instruction" (p.7). On the other hand, "summative assessments are those that are used at the end of the learning process to "sum up" what students have learned" (Caffrey, 2009, p.7). The Ley Organica de Educacion Intercultural (LOEI, 2011c) states that formative assessment should be conducted in every class. It should have the purpose of determining the learning progress of the students so that teachers can reflect upon their teaching practice and adjust it to focus on promoting students' achievement. The data collected from formative assessments should reflect the students' level of achievement as well as provide a guide for feedback related to the students' needs to help them improve their academic performance at the appropriate time.

Performance-Based Assessment
Teachers from different parts of the globe have been concerned about the actual applicability of summative assessments when it comes to deciding whether or not the results obtained from them reflect the students' true learning. This concern has encouraged teachers to search for alternative forms of assessment. As a result, performance-based assessment, which is a type of authentic assessment that focuses on student's potential- has gained a place in foreign language classrooms (O'Malley & Valdez Pierce, 1996). This type of assessment enhances students' performance by using challenging and meaningful in-class-activities which promote the connection of students' previous knowledge of a topic with new content information (Herrera & Morales & Murry, 2013; O'Malley & Valdez Pierce, 1996).

Some of the specifics related to performance-based tasks are the construction of responses within a task, the promotion of higher order thinking, authenticity within the tasks, integration of language and cognitive skills, the evaluation of the process applied to get a product, and the in-depth demonstration of students' content learning (O'Malley & Valdez Pierce, 1996). Herrera & Morales & Murry (2013) also highlight that performance-based assessment are grounded in constructivist processes and enhance the real performance of a task, contributing to students` discover knowledge by themselves and the scaffolding of their learning in a natural and continuous pattern. Students' performance of hands-on activities or the use of realia to do an activity is a common means to complete performance-based tasks (O'Malley & Valdez Pierce, 1996).

Performance-based tasks for assessing students' speaking skills.
Countless are the activities that teachers can adapt for promoting and assessing students' speaking skills individually and cooperatively. Ellen (2002) suggests a set of assessment tasks that can be adapted for this purpose. These activities include:

- Constructed response: open-ended statement with which learner is asked to agree (listing example to justify the answer) or disagree (explaining what an alternative answer is and why it was chosen)
- Cooperative–group work: group project only is assessed; contributions by individuals are assessed as well as the group's' result; bonus points are given when certain members or when all members achieve; or individual points are added to form a total group score.
- Demonstration: illustration of a procedure with the performance of necessary steps and explanation of results.
- Display: poster, photo, chart, graph, etc., about a project, accompanied by verbal explanations.
- Draw and tell test: picture or diagram drawn as a model to represent a concept […]
- Problem-solving: staging of the hands-on problem to solve, accompanied by a verbal explanation. […]
- Student conference/oral interview: discussion about activities, interests or experiences between students and teacher and/or other adults. […]
- Exhibitions: … real-world demonstrations not only of what students know but also of what they are able to do with their knowledge … the student must exhibit the products of his learning…what may be required of students: demonstration, use of information, research skills, descriptive skills, communication skills, imaginative skills, verbal explanation, defense of work, convincing arguments, fielding of questions, explanations of how and why […] (p. 80-83)
- Class presentation: select different tasks for class production. […]
- Debate team: select, research, and present opposing viewpoints. […]
- Group investigation: take on a specific role within a group and prepare projects, research or report to share with the class.
- Interviewing: form questions, interview someone, record answers and organize a report; paired interview […]
- List of concerns: generate a personal list of concerns, questions, and ideas about a topic and share/compare with another learner. […]
- Panel discussion: select a moderator and present a topic for the class; panel of experts: develop a set of questions and answers about a topic, they assume roles of moderator, quizzer, judge and recorder for their group […]
- Personal picture: respond, with a personal solution to an open-ended problem by role-playing.
- Tell/retell: tell ideas to a partner, then tell another pair each other's idea, then join another four and retell only the ideas not previously told, ending with a group recap of all eight ideas. (p. 114-116)

Furthermore, Herrera (2010) also provides a handful set of hands-on activities and manipulatives that teachers can take advantage of to enhance and assess the students' written and spoken skills. Hands-on activities based on Herrera's Biography Driven Instruction method include:

Hearts Activity	Cultural Quilts
Word Walls	Dots Chart
Vocabulary Quilt	Linking Language
Multidimensional Square	U-C-ME
Mind Maps	Pic – Tac – Tell
Reflection wheel	IDEA

The activities proposed by Wlodkowski & Ginsberg (1995) as alternatives to tests can also be adapted to enhance and evaluate the speaking skills of English language learners. These alternatives involve:

Performing a movie script	Report current events as a news show
Developing a music video […]	Developing an audiotape […]
Explaining an advertisement […]	Inventing song lyrics […]
Performing a play script […]	Directing a videotape

The activities suggested here can provide teachers with a canvas of opportunities to promote and assess the development of language learners` oral skills. First, teachers can encourage students to work cooperatively or individually on performing the tasks in a written form so that they can have some time for preparation and then motivating them to produce the outcome orally.

Performance-based tasks in practice
In this section, we provide examples of performance-based tasks in practice. These tasks were developed with A1 proficiency level students enrolled in a government-funded university in Ecuador. The learners of the examples were taking level-one ESP classes, according to their majors - Business Management and Hotel and Tourism. The main purpose of their ESP courses is the development of learners' speaking skills. Therefore, throughout the course, students worked in a variety of performance-based tasks that allowed the accomplishment of this aim in an authentic way. Even though the performance-based tasks described in the next paragraphs were developed with ESP students, they could certainly be developed individual taking regular EFL classes (we should keep in mind that the learners of these examples held an A1 proficiency level of English).

Role-plays

Role-play is a communicative activity in which students apply vocabulary and expressions related to a specific field in a real-life context. On the picture above, we see an example of a role-play developed by students from the career of Hotel and Tourism in a public university. In this activity, learners are practicing how to order, take orders, and serve food in the target language. Before participating in the dialogues, they familiarized themselves with words and expressions related to the restaurant context by reading a passage, doing some vocabulary exercises, listening to a dialogue or watching a video, and writing. While role-playing, the teacher observes and evaluates their performance

with a rubric. At the end of the activity, students receive feedback. The feedback promotes the improvement of students' oral production each time they participate in this activity.

In this other picture, we can see a group of students performing a Business Talk Show. The core concept of the Talk Show was associated with the content students had learned in one curricular unit - Customer Care. Students were expected to show what they had grasped along the unit (key vocabulary and key concepts), enabling their teacher to assess not only how much the students had learned in four weeks but their speaking skills as well. The assessment of students' content knowledge and speaking skills by means of this performance-based task provides a clear example of a summative evaluation in which the teacher did not resort to traditional paper-and-pencil tests.

Group investigations

In these two pictures, we observe the outcome of a group investigation. The performance-based task presented here was the end-of-semester task assigned to students majoring in Business Management. The task consisted in students' creation of a digital newspaper with eight news. The news was based on the results reported in scientific articles about Human Resources. Students selected the papers themselves, allowing freedom of choice. They recreated the scenario of the news considering key points such as the people who were part of the investigation, place, year, data collection methods, results, and other aspects contemplated by the students. Their products were then reported to the class.

Interviewing

In this case, we have two scenes of English language learners participating in interviews. In the first picture, the students are performing a job interview. This scene did not require any other resources but the students themselves. One of the students pretended to be the human resources manager of a company and the other one the applicant for a job position. The students asked and answered questions to each other, completing the task successfully. In the second picture, we see a more elaborated scene. Students showed their creativity by producing a piece of news report interview in which the interviewee answered questions about employment laws.

Oral presentations

Oral presentations provide teachers with a canvas of opportunities to promote and assess their students' speaking skills. In the first picture, a student performed an oral presentation in which she explained the situation presented in a video. The student had to do her presentation based on what they saw in the video, even though she did not understand much of it because of her English proficiency level. What was important here was how she managed to explain what she saw throughout the video. In the second picture, the student is performing an oral presentation about safety equipment. She described and talked about the importance of each safety equipment piece seen in the picture.

Video-based oral presentations

Weekly Video Log #11

Technology open doors to the development and assessment of students' speaking skills out of the classroom walls. The production of video-based oral presentations such as the weekly video log presented here is one example of it. In this performance-based task, the student recorded herself explaining the content learned in the previous week classes. In the weekly video log, the student defined key concepts, key vocabulary, and illustrated them with examples or the description of pictures associated with them. Students developed one video-based oral presentation per week, allowing the ongoing evaluation of students' language knowledge and speaking skills.

In all the activities presented in this section, the oral production of students was assessed by using either a rubric or a checklist.

CONCLUSIONS

Getting EFL learners utter or write their first words in English is gratifying but hearing them expressing their thoughts about a topic more fluently is definitely rewarding, especially when one achieves this with students whose biggest source for English immersion and practice is their classroom environment. This work intended to give EFL teachers an opportunity to review different strategies to achieve and assess oral production in their students. Learning how performance-based tasks can help them to assess and promote their students' oral skills in an authentic and meaningful form will help EFL teachers to improve their teaching practice, therefore, benefiting their students day to day.

Performance-based tasks assist EFL teachers to meet their students' needs as they apply their knowledge working on authentic tasks and consequently demonstrate their progress. In addition, applying performance-based tasks, as a form of assessment give EFL teachers the opportunity to engage their students in cooperative activities so that they can feel more confident and motivated when being assessed in this language. Most performance-based tasks as collaborative in nature. Finally, by completing activities aimed at language usage in real life situations as well as activities adaptable to their sociocultural context, this type of assessment enables EFL teachers to challenge their students to use the language skills they have acquired throughout the teaching-learning process while at the same time evaluate their students creatively.

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PHYSICAL EDUCATION AND SPORT TEACHER CANDIDATES' EDUCATIONAL INTERNET USE SELF-EFFICACY BELIEFS*

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This study aims to examine physical education and sport teacher candidates' educational ınternet use self-efficacy beliefs in terms of their gender and class level. This study is a descriptive study carried out as survey model. The study group consists of 192 students who are studying at the department of physical education and sport of a Turkish university. The data were collected through "Educational Use of Internet Self-Efficacy Beliefs Scale" and "Teacher Candidate Personal Information Form". The analysis of the data was used SPSS for Windows 22.0 program. As a result of working; participants in the educational use of the internet to research her faith concluded that high levels of self-sufficiency. Participants in the educational use of the internet to research belief in self-sufficiency scores average does not show significant difference in terms of the gender variable, while the class variable with respect to the difference in favor of meaningful fourth-graders found. The findings were discussed in light of the literatüre.

PHYSICAL EDUCATION WITH THE ICT FOR CONSTRUCTIVIST LEARNING

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Keywords

Constructivist Learning, Physical Education, ICT, Assessment, Problem Solving

ABSTRACT

ICTs, especially personal computers, are good at analyzing and calculating. Therefore, it tended to be utilized for analyzing the movement and accumulating the results in Physical Education. Although it was seemed that it was effective in behaviorist learning, it is thought that it does not fit constructivist learning. For getting over this difficulty, we devised a method of utilizing ICT based on constructivist learning in Physical Education. The research was carried out by action research to lead the theory in practice.   ICT utilization was sorted out through trying to become better practices. Then, they classified into three application settings: activity presentation setting, problem solving setting, and assessment setting. Various methods were developed for use in this application setting. As a result of arranging those methods, it became clear that ICT was a creation tool, a group tool, and a curriculum tool. In other words, ICT was not used personally, it was used in cooperation with others. It became clear that it played the role of feed forward more than feedback. Also, it became clear that the ICT tool was a tool to promote learning scaffolding in constructive learning. That was not a tool for refining and improving movements, but that was effective as a tool for creating movements and coming up with idea through exercises. In other words, the ICT changed from a tool for refining movement to a tool for urging awareness. ICT is an effective tool to promote change in learning in Physical Education where the transition to the concept of constructivist learning hardly progresses.

BACKGROUND

Traditional Learning in Japanese PE has been carried out the skill centered approach (Shimizu, 2015). This approach is based on a behaviorist learning perspective, which shares similar assumptions with structuralism and essentialism. In actual, the skill centered approach unfolds as a process of Drill-Drill-Drill-Main activity. Most of the learning is assumed to transpire through drills, which consume the most of the lesson time.

Constructivist Learning, however, has already been a mainstream of educational theory in Japan since 1990s. Kubota (2003) asserted that the theory on the Constructivist Learning extended to educational area in accordance with the progression of Information Communication Technology (ICT). There, however, is a paradox between the reality and the ideal still now. On the other hand, 1998 course of study(MEXT,1998) described "integrating body and mind" as the assumption of teaching on the purpose of PE. 2008 course of study (MEXT, 2008) was changed the contents based on the constructivist learning. 2017 course of study (MEXT, 2017) was described the active learning as the ways of learning. These shows the constructivist perspectives on the national course of study. That is, it seemed that PE lesson has been changed for good. It was harder for teachers to change their mind to new perspectives.

A representative alternative approach is Teaching Games for Understanding (TGFU: Bunker &Thorp, 1982). This approach is based on constructivist learning theory, which concentrates on learners and games. The assumption is that learners learn how to play through the game. The lesson format is: Game-Practice-Game. Most of the lesson is dedicated to playing the game and learning from the game. As with the skill centered approach, PE teachers intend to teach students how to play the game, although TGFU also emphasizes learning across games; the tactical principles that apply in transferrable ways to different games. That is, learners progress based on their tactical awareness while enjoying playing a game.

PURPOSE

Changes in the national course of study and the research that is ensuing in Japan lead everyone to believe that the future of PE will be defined more by a student-centered approach than a teacher-centered approach. Other important changes are also underway, which suggest Japanese PE is transitioning from a sport-based curriculum. UNESCO (2017) proposed the Competency-based curriculum. Suzuki (2008) emphasized on the Leisure-based curriculum, and breathed beyond school walls. That is, learners progress based on their awareness while enjoying playing. This idea has been spread out all over Japan.

As the society has been changed dramatically, the educational theory has been changed. Especially, ICT has become significant teaching and learning tools since 1995 (See Figure.1). For instance, technology in PE has been utilized to take a video of movements for skill executions. That is, technology in PE is a tool for analyzing. Therefore, teachers often have used it on educational gymnastic. This utilization might be based on the behaviorist learning. Suzuki made an application for teaching an educational gymnastic with FM-Towns including Windows 3.1 in 1997. That application software was awarded by Saitama Prefecture because that was very simple and very easy to use it. Suzuki (2003) published same idea on High jump unit in Junior High School. The way to utilize it was to show the sample movements and to encourage understanding how to move. That was used as digital material instead of document card on which there were pictures. Also, students or teachers took a video of movements and analyze how to move and how to improve it comparatively.

Fig1. Past PE for implementing ICT (1998)

Nowadays has passed more than 20 years since then. Still, this is a common utilization for technology in PE now. That is, there is no change to incorporate the ICT into PE. Many teachers have become to understand the constructivist learning and to teach students with it. There is a description of utilizing the ICT in PE on the course of study (MEXT,2017). Ministry of Education has asked teachers to implement the ICT positively and appropriately. Many subjects implemented new strategies on the instructions. PE had also been implemented so.

Their teaching style, however, might be back to the past teaching style when they tried to incorporate the ICT into the PE lesson. So, the purpose of this practical research is to establish the ICT in PE which is based on the constructivist learning.

PROCESS of STUDY

In-service teachers and professors organized special task force team for implementing the ICT in PE. They were considering of utilizing the ICT in PE. They made a concept for using the ICT based on the constructivist learning. Then, they made their idea while doing the pilot lesson and the reflection. As a result, they have led three viewpoints that teachers should think about when implementing the ICT (Suzuki,et.al, 2017).

> 1) Teachers should implement the ICT based on needs which learners want to use, not based on duty which learners should use.
>
> 2) Teachers should implement the ICT for promoting the exercise time, not reducing it.
>
> 3) Teachers should implement the ICT for enhancing the awareness for movement, not improving movements.

Based on those basic idea, task force team made a research team with practitioners. There were 2 teams for elementary school PE and secondary PE. Practitioners includes 9 elementary school teachers and secondary teachers. This research method was the action research. The researchers and practitioners cooperated to make better PE lesson with ICT based on the constructivist learning. Then, they had repeated meetings for plan and reflection while sharing their practices. There were many practices idea and screened those under the above three viewpoints. After that, those ideas were classified into same category focusing on the way of using. Then, those setting was labeled appropriately. Those characteristics was led on creating to implement the ICT for constructivist learning.

FINDINGS & DISCUSSIONS

By classifying ideas used in lessons while analyzing the teachers' and / or students' behavior for implementing the ICT, it was possible to divide those into three settings. First, it was an activity presentation setting that utilizes ICT to present information by teacher directly or indirectly utilizing video etc. from teacher. Secondly, it was a setting where problems were solved by utilizing ICT. Problem solving was united with an assessment strongly. But those that were used immediately were considered as problem solving setting. Thirdly, it was an assessment setting which was an information gathering process accompanied by value judgment. Stakeholders included not only teachers and children, but also various people such as guardians were involved in the assessment process.

[Activity Presentation]
Presenting activities to be done from now on images all at once, or by presenting them individually made it easier to have a prospect than describing with words. Also, students scheduled learning positively by presenting previous learning to all or individuals. Furthermore, it was possible to interact with the body while exercising through information and develop learning.by visualizing heart rates and so on in real time. Thus, students were more active without reducing activity time and being unmotivated.

Fig.2 Examples of Activity Presentation

[Problem Solving]

Students recorded and saved their learning outcomes with typing, video and sound voice. Those were so helpful for them to solve the problems.

Students took videos and discussion their performances while looking back at the records for problem solving. As a result of that, they had a prospect for problem-solving. Also, it was possible to make problem solving easy by writing down their ideas on digital board and recording those. Because they shared their ideas with others on it and looked back at previous their ideas. Working on digital board gave them led to the road for heading to their targets. It was so significant meanings even to take a video to solve the problem. Because students thought how to take a video for good. That is, they often changed angle for collecting good data. That thought led them to good observation for learning. The ICT was very effect as mediator between students and activities. In addition, it was possible to share information with various other people via the network. The way of sharing was the direct dialogue before. They had a new communication online. This was an exactly active learning. Students posted their outcomes and collected feedback from other persons positively. Or students got many information through seeing many posts. Moreover, their awareness was promoted by "visualizing" what "cannot be visualized". That is, the ICT made their learning easier.

Fig.3 Examples of Problem Solving

[Assessment]

The object of assessment was recorded and saved. Generally, learning outcomes pass away in an instant in PE. Therefore, they are hard to remain in the memory of the assessors.   ICT, however, saved that information and provide them anytime.

Assessment of cognitive domain might be difficult. It might be often assessed by the performance in discussion or the contents of report card. It was so difficult to grasp it and assess it. It, however, was used for teaching and learning by utilizing ICT. Students were recording the discussion activities and saving it as assessment data. Likewise, descriptions to learning work sheets are often used for assessment of cognitive domain, however it takes time to describe. Therefore, students saved the time by recording voice information and were finished same things in a short time. In addition, Learning assessment of cognitive domain that was difficult to assess, could be made easy since it is possible to add what students were thinking while taking a video in addition to the image. It was easy to visually confirm the changes in the performance. They understood their progression appropriately with implementing the ICT. At that time, the assessment behavior of selecting what to keep was very important self-assessment in developing learning.

Fig.4 Examples of Assessment

In this study, an authentic PE with ICT was developed. The ICT was mainly analyzing tool for improving their movement and strategy on the behaviorist learning. That is, the ICT was used for checking the success of result. Students and teachers, however, implemented the ICT as a creating tool for finding and developing new things based on the constructivist learning. Also, ICT made a big bridge between students. That is, ICT did not help individual learner but help to make learner groups. Then, students worked in a learning community which the ICT bridged. Moreover, the ICT connected between lessons. Because the ICT provided information to students and teachers. They looked back at the past learning and looked forward the future learning. On the above, concept of implementing the ICT was shifted.
  1) The ICT is not analysis tool but creation tool.
  2) The ICT is not individual tool but group tool.
  3) The ICT is not lesson tool but curriculum tool.

CONCLUSION

This study was done to shift the ICT, a teaching tool that has inhibited constructivist physical education learning, to an authentic tool. The research was carried out by action research to lead the theory in practice.   ICT utilization was sorted out through trying to become better practices. Then, they classified into three application settings: activity presentation setting, problem solving setting, and assessment setting.

Various methods were developed for use in this application setting. As a result of arranging those methods, it became clear that ICT was a creation tool, a group tool, and a curriculum tool. In other words, ICT was not used personally, it was used in cooperation with others. It became clear that it played the role of feed forward more than feedback. Also, it became clear that the ICT tool was a tool to promote learning scaffolding in constructive learning.

In this study, conclusions were led by the case studies of constructivist learning with the ICT. From now on, based on this study result, establishing teaching method is a challenge. In addition, it is important to verify the possibility of ICT as a teaching tool from the relation with learning outcomes.

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POLITICAL VALUE MAP OF TURKEY:A FIELD STUDY ON THE RELATIONSHIP BETWEEN POLITICS AND VALUE

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ABSTRACT

When the determinant of politics in the contemporary societies is considered, the response of the following question 'What are the political opinions, preferences and decisions of individuals are affected?' is gaining critical importance. At this point, values as socio-psychological-based measures that people use to assess events and themselves, to draw a boundary between good and bad, or right and wrong, are closely related to politics. Knowing the values that give important clues to the understanding of the mind structure of a society and how they are determined are very important in understanding and directing the decisions and behaviours of the individual. This study aims to determine which values are effective in the political decision-making process of Turkey's voters, a field research will be made to determine the political value repertoires of Turkish society. This research aims to investigate what is the value of political preferences and decisions that are effective in decisions over the preference of Turkey, which has not changed in recent years, value repertoire will be determined in political decisions in 2000s Turkey. In accordance with this purpose, a Voter Value Scale will be developed to determine the political preferences of voters and the values that affect voting behaviour. This scale, which will help to identify the similarities and differences between the values that stand out in political communication studies and the values that voters consider in politics, will be applied to Turkey representative sample. Thus, the answers to questions such as which values are influential in the political preferences of the electorate, what discourse is addressed to which values are persuasive in voting behavior, and what are the criteria for correct and incorrect answers in political decisions will be sought.

POSSIBILITIES AND RISKS OF USING LITERARY TEXTS IN SECOND LANGUAGE TEACHING

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Perhaps the hardest job in the world is to have a language and use it. Because language is not only a system that represents the most creativ a direction of a person but a complex communication structure at the same time. The acqusition of the mother tongue occurs within a period of the socialization through mimetically(imitation) during a wide range of time. This is a difficult process. But acqusition of a second language is much more diffucult. Because, contrary to acusition of the first language, second language learning is the result of a conscious effort. Is it possible to use literary texts in second language learning? For this purpose, what are the possibilities provided by literary texts and what are the handicaps they carry? We will discuss them in this presentation. Undoubtedly, the most creative product of a language is literary texts; it is the comprehension of the metaphors and phrases of the language. Whether it is the mother tongue or the second language, literary text provide a path for a language to be exactly and truly learned. This can only be found in literary texts. Furthermore, literary texts possess factors such as fiction and rythm that can be effective in language learning. In second language teaching, it can be said that literary texts have features that facilitate and improve language learning if appropriate texts are selected and used at appropriate stages (levels).

POSTGRADUATE COURSES ON A VIRTUAL CLASSROOM PLATFORM

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ABSTRACT

Advances in technology have enabled educators to move further from the physical limitations of a classroom atmosphere. Integration of usual classroom courses into distance learning modules has been carried out worldwide. However, these distance learning modules generally consist of offline courses prepared in advance. There are also many educational institutions where courses are offered via interactive web-based platforms. Still, these courses are designed for undergraduate levels and there is not much research concerning the potential for integration of post-graduate studies into online courses. In this study, researchers investigated students' attitudes towards a PhD course which was administered interactively via distance learning. Findings show that the experience led to positive effects along with operational adversities which sometimes made the lesson flow unfeasible. The outcomes are discussed in light of relevant studies.**Keywords:** post-graduate study, online learning, distance learning, Web 2.0

INTRODUCTION

Living in a technologically surrounded world requires people to adopt the changing nature of the daily life needs. In almost all aspect of our lives we can clearly witness the dominant use of technology. Being a member of an information society has transformed our lives into a world in which we can create a virtual presence anywhere and anytime. As Negroponte's (1995) predictions are coming true, we have become individuals living in a post-physical age where all solid things are melting into bits.

Web-based services, which provide users interactive information have spread all over the world in an unbelievable pace. These services, also known as Web 2.0 tools, allow users to combine and interact among audial, visual and textual elements (O'Reilly, 2005). In particular, social networking sites are quite popular and serve as state-of-the art by enabling people to reflect their presence on a virtual environment in which they can

carry on their daily needs. To name a few, Facebook, Youtube, Google+ and Twitter are very common networking sites. In terms of educational use, Adobe Connect allows users to carry out real-time video conference options. The participants can be physically distributed anywhere in the world but they intervene and lead conversations synchronously. They can also send text messages and share their files with others. Features on this software permit to share presentations and other documents with other attendees together with their live footage. Participants can view, edit and interact with all files smoothly.

The popularity of social networking sites have created a big interest and enthusiasm among people from various disciplines to take part in this stunning world and we have reached to a point that whether as a human or as company, we are trying to show our existence as virtual bodies. This novel approach inevitably has affected educational environments as well. The potential of these sites for educational purposes has been investigated by many researchers all over the world. It is stated that social networking sites have expected requirements and outcomes of an official education and they suit well with the needs of today's digital native students (Mason, 2006; Hockly, 2011; Illes and Akcan, 2017).

The interactive nature of social networking has gained a new epoch to online learning. Traditionally, online learning is viewed as a transmission of knowledge via synchronous or asynchronous web portals. This kind of learning was not very different from watching a video about a particular lesson in which learners did not have opportunity to participate. Thanks to the successful integration of all visual elements, online learning has become the North Star of education. Educational authorities have been making a considerable amount of investment on online learning. In 2011, it was estimated that no less than 35.6 billion dollars was spent on online learning. It is an industry with more 55.2 billion dollars and it is expected to double in upcoming years (E-learning Magazine, 2013).

A meta-study conducted by the US Department of Education in 2009 stated that older learners who learn in online conditions performed modestly better than those learning the same material through tradition face-to-face instruction. This empirical evidence also suggests that blended course have greater impact on learning (Means, Toyama, Murphy, Bakia & Jones, 2009). As we can see, the popularity of online learning is increasing day by day together with the increase in the use of social media. The efficacy of these social networking sites for educational purposes has been expressed by numerous researchers (Baird & Fisher, 2005; Chan & Cmor , 2009; Akçay & Arslan, 2010; George & Dellasega, 2011; Cullen, Kullman & Wild, 2013).

Studies reveal a big interest in the integration of social media for educational use. However, current studies in literature mostly deal with language teaching and undergraduate courses. We can hardly see researchers interested in the feasibility of this social media in terms of graduate aspect. Graduate students need online courses far more than other students. In some places, they tend to be working people who shoulder academic life and business life together. In other places, they can be academicians commuting incredible distances to attend courses from different universities. This creates a huge time and space constraints for graduate students.

Interestingly, the profiles of graduate students match very well with the expected outcomes from online education. Previous educational experiences of these learners create a backbone and pave the way to reach the expectancy of the courses. This prior knowledge is an important compensation to negate the criticisms that underestimate online learning for having low quality. For example, Koenig (2010) states this fear by expressing

online learning as not meeting the standards of a good official education. However, graduate students are self-regulated learners and they show high degree of self competence to achieve learning goals of the course (Grow, 1991). They are also expected to be more intrinsically motivated to learn as they have chosen to go on an advanced degree.

A study by George and Dellasega (2011) is worth mentioning regarding students' attitudes towards interactive social media tools integrating real-time dialogues via Skype with other sites. The researchers conducted two pilot studies about graduate-level medical courses in the US. In order to promote student learning, social media tools were integrated into the humanities curriculum. Students gave high favourability ratings in both courses. It is stated that social media can augment learning opportunities within the humanities curriculum in medical schools. Social media applications, especially Skype and YouTube, provided a ground in which new experiences of learning could occur. Students were able to reach external experts and new educational context via real-time dialogues with instructors.

It can be seen that with the advance of technology, the attempts of applications of new technology and programs to education seems to be attractive.

METHODOLOGY

Objectives of the Study

The central purpose of this study is to identify the weaknesses and the strengths of using Adobe Connect for an online PhD course of English language Teaching Department. In other words, in this study the effectiveness of utilization Adobe Connect for academic purposes has been examined and clarified.

The study addresses the following research questions:

1. What are the strengths of using Adobe Connect for academic purposes?

2. What are the weaknesses of using Adobe Connect for academic purposes?

3. Is it useful to utilize Adobe Connect for academic purposes? Why or why not?

Participants

In order to collect the needed data on the utilization of hangout for academic purposes, an ELT professor and four PhD students of English Language Teaching Department at Çukurova University participated in this study. The students attended ENG 816 SLA Research for Language Teaching course for the spring semester of 2014 by connecting through Adobe Connect from three distant cities (Adana, Diyarbakir and Gaziantep). In other words, the data needed for this study were gathered from four PhD students who were working in different universities as foreign language teachers in Turkey. The demographic data on the participants is presented in Table 1:

Table 1: *The Demographic Data on the Participants*

The participants	Age	Sex	University	Department	City	Years of working experience
The Professor	-	-	-	-	-	-
Student 1	26	female	Çukurova University	English Language Department	Adana, Turkey	5
Student 2	28	male	Gaziantep University	School of Foreign Languages	Gaziantep, Turkey	6
Student 3	26	male	Adana Science & Technology University	School of Foreign Languages	Adana, Turkey	5
Student 4	30	male	Dicle University	School of Foreign Languegs	Diyarbakır, Turkey	8

As understood from Table 1, it can be seen that one of the participants is female and the rest are male. Their average age is 27.5. Additionally, the average of their years of working experience is 6 years.

Data Collection and Analysis Procedure

So as to answer the research questions given above, the needed data were gathered by the help of the reflections of the participants on the PhD course of "ENG 816 SLA Research for Language Teaching" offered by Prof. Dr. Erdogan Bada at Çukurova University. The course was an online one which was organized by connection of the participants through using conference program Adobe Connect.

On the first week of the session, the syllabus of the course was presented on a blog by the professor to the students. So each week one of the participants made a presentation on the week's topic, which had been appointed on a blog before the session. In order to clarify the situation, the snapshots of the syllabus were presented below:
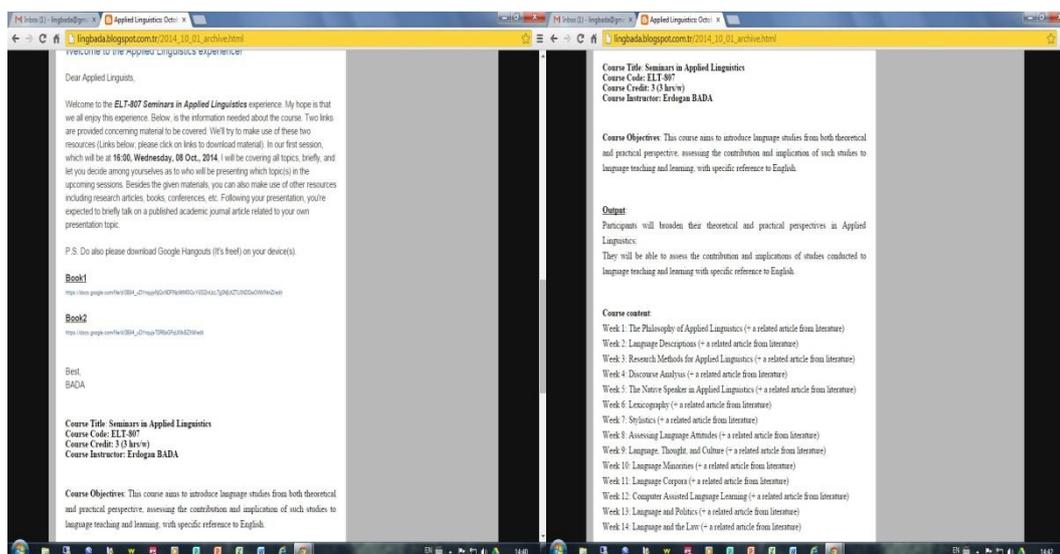
Figure 1: The snapshots of the syllabus

At the end of the semester the participants were asked to reflect their ideas on the weaknesses and the strengths of using Adobe Connect for such academic issues. In the light of the reflections expressed by the participants on the experience they had, the research questions were answered. In other words, within the data analysis procedure, a content analysis of the reflections was carried out to elicit the participants' perceptions on how effective Adobe Connect for utilization of such purposes and being familiar with their insights on this software.

Reflections on Virtual Learning Experience

Four PhD students from three distant cities (Adana, Diyarbakir and Gaziantep) attended ENG 816 SLA Research for Language Teaching course for the spring semester of 2014 through video conferencing program called Hangout. The course covered 14 weeks. At the first session, the participants of the course introduced themselves to each other and the professor, Dr. Bada, provided the participants with the syllable including the course title, code, credit, objectives, and content. After a brief introduction of the course content, the topics to be covered were appointed to the participants so that they could present and share a related article throughout the semester; in this way, it was made clear what to expect from each session. Also, it was stated that each participant would prepare a PowerPoint presentation on one of the relevant articles concerning the week's topic and put them on the professor's blog beforehand so that others could study before the session.

FINDINGS

At the beginning of the semester, the participants' first impression was that it was a unique experience and an opportunity to attend a PhD course without travelling long distances. Although unease to some extent was felt due to its being the first time to attend an academic course, it disappeared thanks to the opportunities the program offered and, more importantly, thanks to the well-established structure of the course. The computer program, Adobe Connect, is also integrated with such elements as messaging and file sharing that is why during the sessions further notes could be exchanged. The program also made it possible for a presentation to continue smoothly when there are questions to ask others while not interfering with the presentation made at the time of speaking. Through the end of the semester, it was mentioned that the course encouraged the participants, who are

also full-time instructors of English or research assistants at ELT departments at universities, to integrate technology in their own classroom more.

One common difficulty shared with all participants was the low connection speed at times. Depending on the locations of the participants, different connection speeds were experienced. Some of the participants attended the sessions with no problem throughout the semester, whereas some presentations were hardly heard and even connections were lost from time to time. Participants also stated that due to this problem, question-answers during the session were sometimes not successful enough. As another outcome of the low connection speed, video quality was also poor, which made it difficult to follow the presentations. From these notions, it was clear that when A PhD course is attended by motivated graduate students, who are also experienced teachers, it does not cause management problems; however, common concern is the effectiveness of it in a possible undergraduate level course – it is estimated that serious participation problems may occur.

Another problem stated by participants was related to eye contact. Since eye contact can sometimes be hard to sustain – and thus the attention on the screen may be distracted by some other windows or webpages – it was stated that it might be terribly difficult for any participant to be all ears to what is being said or displayed on the window powered by Adobe Connect

One suggestion by some participants is that besides its many benefits, at least one or two sessions could be carried out in a physical classroom to help participants to get to know each other and maintain a friendlier atmosphere throughout the semester.

DISCUSSION & CONCLUSION

The present study is about an Adobe Connect-oriented PhD course which was joined by four students and one Professor. In this experience, it was revealed that Adobe Connect presents both positive and negative outcomes in terms of sustainability. As Mason (2006) acknowledged, online education system is more advantageous than face-to-face courses. In particular, the stress-free environment and the physical and acoustic comfort experienced by the participants outweigh the advantages provided by conventional educational settings. What is more, as Akçay & Arslan (2010) stated, the sense of enjoyment disseminated throughout the online courses is perceivably more pleasurable to the participants.

Having said these, there exist some irreversible drawbacks to the use of online systems as a replacement for conventional settings. Among these, the diehard role of the Internet is of prime importance as long as the interplay between the Internet and distance learning is sustained. Although endorsed as a "flexible and creative" tool (Baird & Fisher, 2005), web-based education systems, in their own sakes, require substantial connection power when it comes to providing a life-like venue for education. In a similar vein, George & Dellasega (2011) argue that it is highly likely that the effect of online tools will remarkably increase in the future, which, they think, will bring about an escalation of internet-induced problems.

In light of these notions, we conclude by stating that Adobe Connect is an effective tool to be used in online education systems although it requires substantial broad-band internet connection for a smooth lesson flow.

This study has several limitations. Initially, the group size was remarkably small; the students comprised PhD students only, and no programs other than Adobe Connect were used for comparison.

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PRACTICAL NETWORK MODEL OF AMBIDEXTERITY IN HIGHER EDUCATION: UNIVERSITAS INDONESIA EXPERIENCE IN INNOVATION ACTIVITIES

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The concepts of ambidexterity have been widely used in the corporation contexts in term of innovation activities. However, their application in educational services especially in higher educations still very rare. This study develops a practical model of how network ambidexterity implemented in higher education, with Universitas Indonesia case. The model will identified and improved the capacity of learning activities to innovate in the University by collecting data from three level action : network level, university level and process level in The study used a qualitative approach and data collected through in-depth interviews. Informant selected with specific criteria. The result showed that actors involved in every level are important since they are leveraging the innovation activities. According to network model of ambidexterity, we can identified and analyzing the key factors and analyzing the constraints that influence the innovation activities in systematic way. The University will have a better learning process to innovate if they collaborate with others external actors in network context. Universitas Indonesia showed a a stronger relation with external actors at the University level rather than individual level.The strategic implication of this study is feedback from every actors involved in this co-creation knowledge to enhance the effectiveness of University management strategies.

PREDICTING E-LEARNING READINESS OF LEARNERS WITH DATA MINING TECHNIQUES

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The aim of this study is to determine whether learners are ready for e-learning, by using data mining classification and clustering techniques. For this purpose, analyses are performed with C4.5 decision tree algorithm and k-means algorithm, respectively. As model evaluation technique, 5-fold cross validation is preferred. Then a hybrid model, which combines both clustering and classification methods, is built. Dataset is labeled according to clustering results. Finally, these new class labels are compared with the reference values, in this way performances of classification and clustering analyses became comparable. Accuracy value, error rate, sensitivity, specificity, positive predictive value and F-Measure are calculated as model performance evaluation measures. According to the results of this study, the highest accuracy value (0.831) is obtained with C4.5 decision tree algorithm. While students, who agree and strongly agree with "My studying/research area is appropriate for e-learning", are classified as ready to attend an e-learning course; students, who disagree with "My studying/research area is appropriate for e-learning", are also classified as not ready to attend an e-learning course. Students, who strongly disagree with "My studying/research area is appropriate for e-learning" and "E-learning is better than face to face learning", are also classified as not ready to attend an e-learning course. Furthermore, "My studying/research area is appropriate for e-learning" is at the top of the obtained decision tree which indicates that it is effective and directly related attribute with the student opinions about attending an e-learning course.

PREDICTING SEXUAL SATISFACTION BASED ON MARITAL CONFLICTS, ATTACHMENT STYLES, AND COGNITIVE SCHEMAS IN WOMEN VICTIMS OF SPOUSAL ABUSE IN SAVOJBOLAGH- IRAN

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ABSTRACT
satisfaction with marital relationships is one of the most underlying parts of a common life that can be affected by various factors; in this regard, this study was conducted to examine role of marital conflicts, attachment styles and maladaptive schemas in Sexual Satisfaction in Women Victims of Spousal Abuse in Savojbolagh- Iran**.**
this is a descriptive-correlational study and its statistical population consisted of all women referring to healthcare centers in Savojbolagh during February 2017-May 2017. 100 women victims of domestic violence screened and selected using Spouse Abuse Questionnaire then they filled out Sexual Satisfaction Questionnaire, Marital Conflict

Questionnaire,Collins and Reid Adult Attachment Scale, and Schema Questionnaire. The obtained were analyzed through SPSS Software using multiple regression method.

results of stepwise multiple regression analysis showed that variable of marital conflict could predict 34.4% of sexual dissatisfaction in studied sample (P>0.05); whereas, two variables of attachment styles and cognitive schemas could not predict sexual dissatisfaction (P<0.05).

marital conflicts play a vital role in predicting sexual dissatisfaction; hence, specialists and therapists should consider this variable when treating sexual problems and teach conflict resolution methods to couples.

INTRODUCTION

Spouse abuse is an aspect of domestic violence that occurs in privacy of family among persons who are in relation because of intimacy or legal and blood connection. This kind of violence is usually committed by men against women (Aghakhani et al., 2000).

The conducted studies show that 28% of women in developed countries have been abused by their husbands at least once during their marriage; the mentioned rate is about 18-67% in developing countries (Ahmadi & Nasery & Shams, 2008). This rate obtained to 65% in Iran during 2008 (Dolatian et al., 2010).

Spouse abuse may affect various aspects of life leading to psychological disorders such as anxiety and depression (Ghahari et al., 2009 & 2017), reduced self-confidence in women, low self-esteem, high anxiety, marital conflicts, and sexual dissatisfaction among women victims of spouse abuse (Raisi, 2010).

Marital conflict is a negative and harmful element to families so that the interactions between spouses will be reduced when they find their conflicts unsolvable (Gottman, 2014).

Lambert & Engh & Hasbun & Holzer (2012) concluded that high levels of marital conflicts are related to sexual dissatisfaction. Lack of healthy sexual relationship between spouses causes leads to increased conflicts as well as communicational-behavioral problems between spouses.

According to conducted studies, some other factors such as psychiatric disorders (Dosch et al., 2016), lack of suitable relationship with spouse (Oleary & Heyman, 2005, and organic, cultural, psychological factors lead to sexual dissatisfaction.

In this regard, Epstein and Baucom introduced schemas as a kind of cognitions that are significant in marital relationships (2005).

Yung et al. (2005) defined early maladaptive schemas as self-harming emotional and cognitive patterns formed in kind at the beginning of growth then repeated in sexual relationships that can effect on experiences and relationships. Such schemas in persons with complicated personality may cause more risks such as emotional disorders or other kinds of psychological disorders (Yung et al., 2003).

Findings imply that specific cognitive schemas can effect on sexual satisfaction of persons (Khosravi & attari& Rezaei, 2011). There is a relationship between sexual satisfaction in women and 4 schemas including emotional deprivation, distrust, rejection and abandonment, and failure and shame (Manzary, Mackvandi&khajevand,2014).

Attachment styles are other effective psychological factors in sexual dissatisfaction. Results obtained from various studies indicate that anxiety and avoidance attachment styles are in relation with low sexual satisfaction considering sexual and emotional dimensions (Camilla & Qverp & Smith, 2017). There is a relation between these attachment styles and watching pornography films (Gouvernet et al., 2016) and risky sexual actions (Trub & Stark).

According to the results obtained from study of Margolis (2003), 40% of women have experienced sexual dissatisfaction during their marital life. Iranian experts believe that 50-60% of divorces are because of sexual disorders and problems (Forootan, 2007).

Accordingly, this study was conducted to examine the role of attachment style, cognitive schemas, and marital conflicts in predicting sexual satisfaction of women victims of spouse abuse in Tehran, Iran regarding importance of sexual satisfaction and its effects on family and limited studies conducted in this case.

METHODOLOGY

This is a descriptive-correlational study that its statistical population consisted of all women referring to healthcare centers in Savojbolagh from February 2017 to May 2017. 100 women victims of domestic violence were screened and selected using spouse abuse questionnaire.

It should be mentioned that the goal of study was explained to all of participants and they were free to choose participate in study or not. Moreover, it was announced that private information and names of participants are confidential and obtained data are analyzed in categories.

All sample members filled out Sexual Satisfaction Questionnaire, Marital Conflict Questionnaire, Collins and Reid Adult Attachment Scale, and Schema Questionnaire. The obtained were analyzed through SPSS Software using multiple regression method.

INSTRUMENTS

Data collection instruments in this study consisted of demographic questionnaire, Spouse Abuse Questionnaire of Ghaharri et al. (2005), Marital Conflict Questionnaire, Reid and Collins' Adult Attachment Scale, Inventory of Sexual Satisfaction, and 90-item Yung's Early Maladaptive Schemas Questionnaire.

Demographic Questionnaire: this questionnaire consists of 15 items including age, background, spouse's job, marriage duration, education level of spouses, number of children, etc.

Ghahari Spousal Abuse Questionnaire   : this questionnaire consists of 44 items and three components of physical abuse, emotional abuse, and sexual abuse. Physical abuse such as beating and any kind of physical harm; emotional abuse such as humiliation, not meeting economic and mental meets, mocking and any kind of disruptive behaviors; sexual abuse such as any action that is uncommon within a sexual relationship such as violent sex or forced sexual relationship. Internal validity and reliability of this questionnaire obtained to 0.92 and 0.98, respectively (Ghahari et al, 2008, Ghahari et al,2009).

Marital Conflict Questionnaire: this is a 42-itemms instrument to measure marital conflict based on experiences (Saadoddin, 2008). This questionnaire evaluates 7 dimensions of marital conflicts including reduced collaboration, reduced sexual relationship, increased emotional reaction, increased demand for children's support, increased personal relationship with relatives, reduced family relations with relatives and friends of spouse, and separating form each other financially. Each item is scored based on a 5-point Likert scale so that higher score is equal to higher conflict and reverse. Reliability of this questionnaire obtained to 0.94 using Cronbach's alpha in a study conducted by Afkhami, Bahrami, and Fatehizadeh (2007).

Reid and Collins' Adult Attachment Scale (RAAS): this scale was designed by Collins and Reid (1990). This questionnaire consists of 3 components and 18 items that are scored based on 5-point scale. Components include secure attachment style, avoidance attachment style, and anxiety attachment style; Cronbach's alpha coefficient obtained to 0.81, 0.78, and 0.85 forsecureattachment style, avoidance attachment style, and anxiety attachment style, respectively and reliability coefficient reported to 0.95 (Wu, Zhang, Liu, 2004). Khojasteh et al (2014) conducted a study in which, Cronbach's alpha of anxiety and avoidance attachment styles obtained to 0.70 and 0.52, respectively; its simultaneous validity coefficient (divergent) withSimpson Secure Attachment Scale obtained to (<P 0.061)-0.20 and (<P 0.104)-0.51, respectively.

Inventory of Sexual Satisfaction (ISS): this inventory was designed by Hadson et al. (1981) to evaluate satisfaction levels of spouses consisting of 25 items. Responses are scored based on 5-point scale so that minimum and maximum scores obtained to 25 and 125, respectively. High score in this scale indicates sexual satisfaction. Reliability coefficient of Cronbach's alpha and retest (within one week) reported to 0.91 and 0.93, respectively (Nomejko & Dolinska-Zygmunt, 2014). This scale has an appropriate differential validity in determining couples with and without sexual problems and content validity of this scale with subscale of Enrich's sexual satisfaction scale obtained to 0.74 . Cronbach's alpha coefficient of this scale obtained to 0.94 and its reliability reported to 0.85 using split-half method (Teimourpoor, 2010).

Early Maladaptive Schema Questionnaire: self-report questionnaire of early maladaptive schema consists of 90 items and 18 scopes of early maladaptive schemas including   Emotional deprivation, Abandonment/ Instability,Mistrust/mistreatment, Social isolation/ alienation, Defectiveness/ unloved, Failure to achieve, Dependence/ practical incompetency, Vulnerability to harm and illness, hardship, obedience, sacrifice, emotional inhibition, unrelenting standards, entitlement/ grandiosity, insufficient self-control/ self-discipline, approval-seeking, negativity/ pessimism, punitiveness. Each scale consists of 5 items that measure early maladaptive schemas, Yung, Norman, Schi, and Thomas (1995) reported validity of this questionnaire to 0.95 and 0.81 using internal consistency and retest methods.
This version was standardized in Iran by Yoosefi, Etemadi, Bahrami et al. (1999). Confirmatory Factor Analysis of differential self-inventory (DSI-2) indicated high validity of this instrument.

RESULTS

Demographic data of women victims of spouse abuse are described in table1. 100 women victims of spouse abuse participated in this study. Results of study indicated prevalence (89%) of illiteracy among women victims of spouse abuse and 92% among their husbands. Job status of women victims of spouse abuse was examined within 4 categories of unemployed, worker, employee, and other jobs. The obtained results showed that majority of these women (65%) and their husbands (49%) were workers, 22% of these women and 14% of their husbands were unemployed (without income).

Mean and standard deviation of variables showed that mean score (83.27) of sexual satisfaction of participants has an indirect relation with early maladaptive schema (298.73) while mean score (60.56) of secure attachment style has a direct relation with sexual satisfaction.

Table 1. Demographic information of women victims of spouse abuse (frequency and frequency percent)

		N	frequency	frequency percent
education	below diploma	100	45	45
	diploma		44	44
	BA and above		11	11
job	unemployed	100	22	22
	worker		65	65
	employee		8	8
	others		5	5
spouse's education	below diploma	100	68	68
	diploma		24	24
	BA and above		8	8
Spouse's job	unemployed	100	14	14
	worker		49	49
	employee		12	12
	others		26	26

Table 2. Mean and SD of research variables

	N	Mean	Std. Deviation
Marital conflicts	100	143/89	28/803
Sexual satisfaction	100	83,27	15/857
Attachment style	100	60/56	12/159
Early maladaptive schema	100	298/73	68/121

To examine correlation rate between research variables, Pearson Correlation Coefficient was used and since this coefficient should be below 0.7, results described in table 3 indicates correlation between studied variables at level of $P < 0.05$.

Results obtained from ANOVA and statistical values of regression between mean of criterion variable (sexual satisfaction) and predictor variables showed that the calculated F value (96.3) -18.3 is significant for variable of marital conflict ($P < 0.001$) and this variable can explain 0.35 of variance changes related to sexual satisfaction ($r^2 = 0.35$).

Results of stepwise regression analysis indicated that variable of marital conflict that is a predictor variable is capable of predicting sexual satisfaction that is criterion variable while other variables had no sufficient predicting ability and excluded from regression equation. The results described in table 5 imply that one unit increase in score of marital conflictleads to 0.635 decline in sexual satisfaction; hence, it is a robust predictor. Therefore, it can be stated that marital conflict can predict ($P>0.05$) sexual dissatisfaction in studied population while two variables of attachment style and cognitive schemas cannot predict sexual dissatisfaction.

Table 3. Correlation matrix of variables

4	3	2	1	Variable
			1	Sexual satisfaction
		1	-0/597**	Marital conflicts
	1	0/562**	-0/335**	Early maladaptive schema
1	0/519**	0/531**	-0/249	Attachment

Table 4. Summary of regression model between sexual satisfaction, marital conflicts, attachment, and schema

SD error	R2Adjusted	R2	R	Model
12/781	/3500	/3570	/5970	1
12/847	/3440	/3570	/5970	2
12/842	/3440	/3640	/6030	3

Table 5. ANOVA of significance of the whole regression model ofsexual satisfaction, marital conflicts, attachment, and schema

Sig	Standard			Non-standardized	Predictor variable	Model
	t	Beta	Standard error	B		
0/001	19/95		6/54	130/59	Fixed value	
0/001	-7/37	-0/597	0/045	-0/329	Marital conflicts	1
0/001	18/59		7/023	13/57	Fixed value	2
0/001	-6/076	-0/598	0/054	-0/329	Marital conflict	
0/991	./012	0/001	0/023	0/001	Schema	
0/001	16/77		7/603	127/54	Fixed value	3
0/001	-6/06	-0/635	0/058	-0/35	Marital conflicts	
0/754	-0/315	-0/033	0/024	-0/008	Schema	
0/303	1/036	0/105	0/132	0/137	Attachment	

DISCUSSION AND CONCLUSION

Results of this study showed a negative and significant correlation between marital conflict and sexual satisfaction in women victims of spouse abuse; accordingly, among predictor variables (marital conflict, attachment style, and early maladaptive schemas), marital conflict is the only viable that can predict criterion variable of sexual dissatisfaction in women victims of spouse abuse. Moreover, regression analysis clarified the fact that marital conflict is the stronger predictor variable in relation with sexual satisfaction among women victims of spouse abuse compared to other variables. This finding is in line with results obtained byShakerian et al. (2014, Gano, 2001, Modanlou, Ziaee, and Rabiee (2005), Movahed and Azizi (2011). The mentioned result can be explained in this way that dissatisfaction with marital life in marriage may inhibit or surpass sexual feelings making individuals deal with sexual issues using avoidance methods (Teimourpoor, 2010) Unmet sexual needs are the most significant factors in marital conflicts (Hayes et al., 2008). Lack of attention to sexual needs leads to weak marital relationships between couples (Salarifar, 2006) then increased conflicts between them causes sexual satisfaction (Tadayoan & Ahamadi, 2015).

Such dissatisfaction may lead to troubles in relationships between couples, hatred,annoyance, jealousy, competition, sense of revenge, feelings of humiliation, lack of self-confidence, etc. these issues may be worsen due to tensions and conflicts in marital relationships deepening the gap between couples (Christofer & Sprecher, 2000) so that it may lead to marital dissatisfaction and other problems in marriage and family (Shamloo, 2008).

The reverse case can be defined in which, lack of sexual satisfaction leads to marital conflicts. Results obtained in study conducted by Saadodin (2008) introduce lack of sexual satisfaction of couples as one of main factors for marital conflicts (Asgari, 2001). High-level sexual satisfaction increases quality of marital life and reduces communicational problems between couples; this issue also can reduce instability of marital life and divorce rate. According to the results of this study, variables of attachment style and maladaptive schemas cannot predict sexual dissatisfaction in studied sample. This result is not matched with findings obtained by Kamila et al. (2017), Khosravi et al. (2011), and Manzari et al. (2014); they found that attachment style and early maladaptive schemas can predict sexual satisfaction. In fact, it can be stated that anxiety and avoidance attachment styles are related to low sexual satisfaction regarding emotional and physical dimensions (Gouvernet et al., 2016). They also indicated that emotional deprivation, mistrust, abandonment and alienation, defectiveness and shame are related to sexual satisfaction in women and those couples who have maladaptive schemas experience more conflicts and may separate from each other most likely but these schemas may affect sexual satisfaction of person reducing problem solving ability and exposing person to conflicting situations.

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PREFABRIKE YAPILAR: TEK KATLI MAFSALLI BIRLEŞIMLERIN YARI MAFSAL HALE GETIRILMESI

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ÖZET

Alttan ankastre üstten mafsallı betonarme prefabrike yapılarda kolonların konsol davranışı etkisi nedeniyle çok büyük öteleme problemleriyle karşılaşılmaktadır. 2007 Deprem yönetmeliği öncesinde Taşıyıcı sistem davranış katsayısı R=5 iken, 2007 Deprem yönetmeliğinde alttan ankastre üstten mafsallı betonarme prefabrike yapıların taşıyıcı sistem davranış katsayısı R=3 olarak verilmiştir. Bu değişiklik deprem yükünde 5/3 oranında artış demektir. Bu çalışmada tek katlı farklı yüksekliklere sahip 1 ve 4 açıklıklı çerçeveler incelenmiştir. Bu çerçevelerin mafsallı bağlantıları çelik profillerle farklı ölçülerde güçlendirilmiştir. Burada kullanılan profil bağlantıları mafsallı düşünülerek, profil elemanlar çekme ve basınç kuvveti etkisindedirler. Mevcut durum ile güçlendirme sonrası durumlardaki rijitlik değişimleri çıkarılmıştır. Bu tarz güçlendirme sistemi mevcut prefabrik yapıların güçlendirilmesine bir alternatif olmasının yanı sıra yeni yapılacak prefabrike yapılarda da benzeri uygulamalarla daha ekonomik çözümler sunabilir.
Anahtar Kelimeler: taşıyıcı sistem davranış katsayısı, konsol, mafsal

GİRİŞ

Alttan ankastre üstten mafsallı tek katlı betonarme prefabrike yapılar ülkemizde birçok alanda kullanılmaktadır (Arslan ve diğ., 2008; Bayülke, 19899). Bu yapıların tercih edilmesinde maliyet ve hız avantajları oldukça önemlidir. Çelik yapılara göre %20-30 civarında maliyet avantajı, yerinde dökme betonarme yapılara göre hız avantajları vardır. Bu yapıların bu avantajlarının yanı sıra deprem performansı açısından çeşitli dezavantajları vardır. Sistemin hiper statiklik derecesinin düşük olması, kolon diplerinin plastikleşmesiyle mekanizma durumuna gelmesine sebep olmaktadır. Ters sarkaç tipi bu yapılar deprem kuvvetlerini maksimum seviyede deplasmana çeviren ve yeterli önlem alınmadığında hasara sebebiyet veren davranışa sahiptirler (Ersoy ve diğ., 1993; Paulay & Priestley, 1992; Karadoğan, Yüksel & İlki, 1997).

PREFABRİKE BETONARME BİNALAR İÇİN DEĞİŞEN TDY2007 KOŞULLARI

Afet Bölgelerinde Yapılacak Yapılar Hakkında Yönetmelik (2007), prefabrike yapılarla ilgili aşağıdaki değişiklikler yapılmıştır.

Deprem yüklerinin tamamının üstteki bağlantılarının mafsallı olduğu tek katlı binalarda taşıyıcı sistem davranış katsayısı 1998 yönetmeliğinde 5 iken 2007 yönetmeliğinde 3 olarak alınması gerektiği bildirilmiştir. 2007 yönetmeliğine göre bu tür tek katlı binaların içinde, planda binanın oturma alanının %25'inden fazla olmamak kaydı ile, kısmi tek bir ara kat yapılabilir. 1998 yönetmeliğinde ise kısmi arak at ile ilgili bir koşul verilmemiştir.

Göreli kat ötelemelerinin sınırlandırılmasında 1998 yönetmeliğinde $(\Delta_i)_{max}/h_i \leq 0.0035$ şartı varken, 2007 yönetmeliğinde sadece $(\Delta_i)_{max}/h_i \leq 0.02 / R$ şartı söz konusudur. Bu durumda söz konusu üstten mafsallı tek katlı binalar için 2007 yönetmeliği yatay deplasman sınırını %90 arttırmıştır. Betonarme taşıyıcı sistem elemanlarında S420'den daha yüksek dayanımlı olmayan donate çeliği için deneysel olarak bulunan ortalama kopama dayanımı, yine deneysel olarak bulunan ortalama akma dayanımının 1.15 katından daha az olmayacaktır. 1998 yönetmeliğinde bu katsayı 1,25 olarak alınmaktaydı.

Kaynaklı olarak yapılan mafsallı bağlantılar, depremden oluşacak bağlantı kuvvetlerinin en az 2 katını, diğer mafsallı bağlantılar ise en az 1.5 katını taşıyacak dayanıma sahip olacaklardır. 1998 deprem yönetmeliğinde bu katsayılar sırasıyla 1.5 ve 1.2 olarak verilmişti. Ayrıca birleşim hesaplarında emniyet gerilmeleri en fazla %15 arttırılabilir.

GEÇMİŞ DEPREMLERDE PREFABRİKE YAPILARDA RASTLANAN YIKIM TÜRLERİ
Geçmiş depremlerde alttan ankastre üstten mafsallı betonarme prefabrike yapılarda iki tür yıkıma rastlandı
1-Kirişler mesnetlerinden yanlamasına devrilerek yere düşmeleriyle oluşan yıkımlar
2-Kirişler uçlarından kırılarak uzunlamasına yönde bir uçlarındaki mesnetten düşmesiyle oluşan yıkımlar (Şekil-1).

Depremde gözlenen bir diğer önemli hasar çerçeve kolonlarının alt uçlarına yakın yerlerde betonda eğilme çatlaklarıdır. Bu hasar kolonların alt uçlarında elastik moment taşıma gücünün aşıldığının göstergesidir.
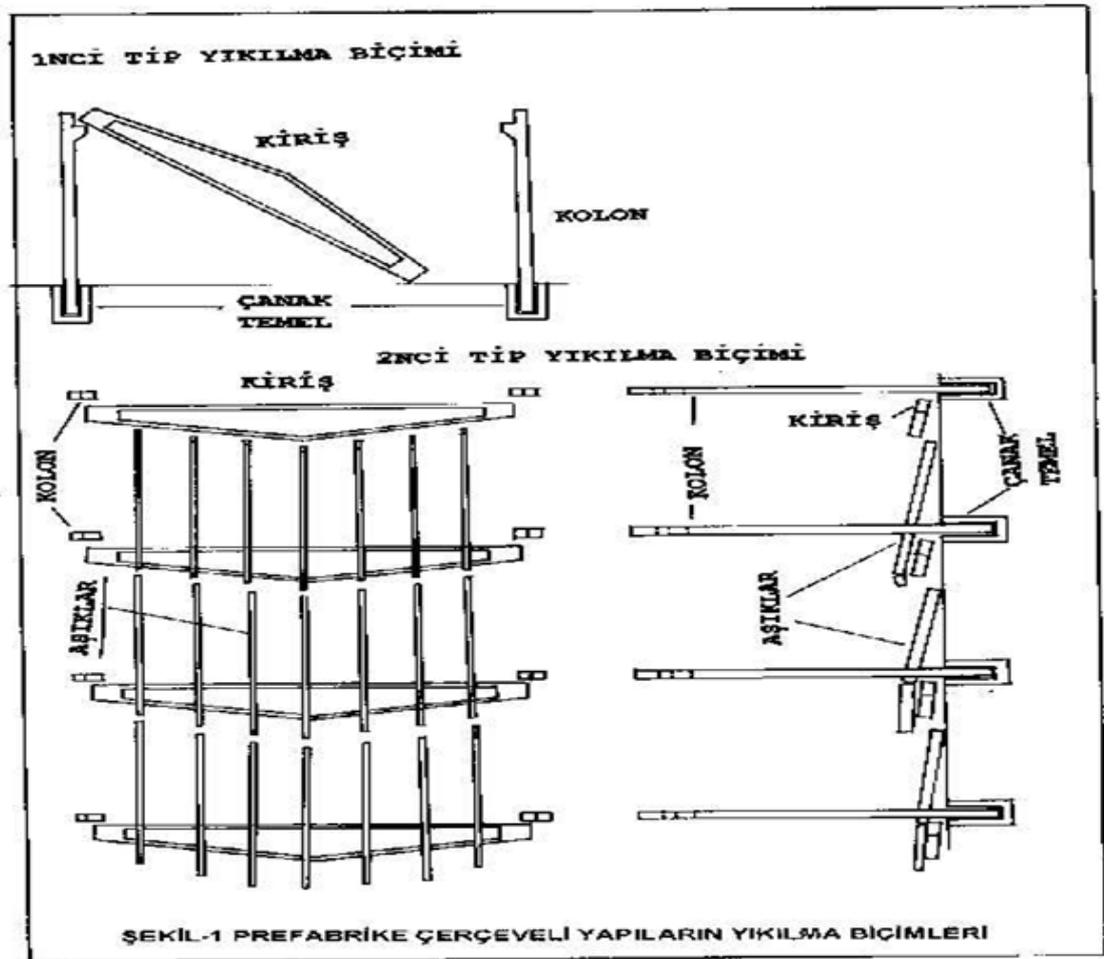
Şekil 1.

GÜÇLENDİRME ÖNERİSİ

Şekil 2, Şekil 3, Şekil 4 de önerilen güçlendirme önerisinde sistemin üstteki bağlantılarında kullanılan çelik profiller, sistemi üstten mafsallı halden yarı mafsallı hale getirmektedir. Burada kullanılacak çelik profillerden makaslara aktarılacak yükler dolayısıyla oluşacak kesme kuvveti ve eğilme momentleri kiriş kapasitelerini aşmamıştır. SAP2000 sonlu elemanlar programı kullanılarak yapılan çözümlerde sistemde yanal ötelemelerin önlenebileceği görülmüştür.

PLAN

Şekil 2

X-X YONU

Şekil 3

Y-Y YONU

Şekil 4

CERCEVE YONUNDE GUCLENDIRME

Şekil 5

Y—Y YONUNDE GUCLENDIRME
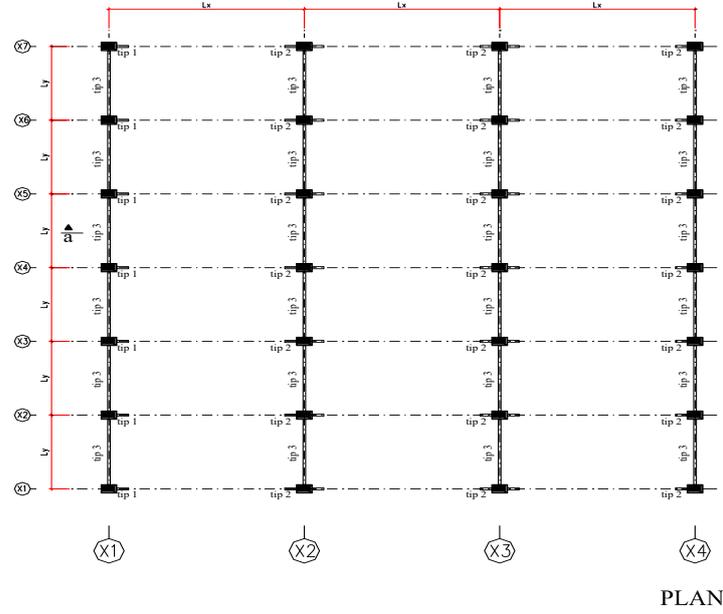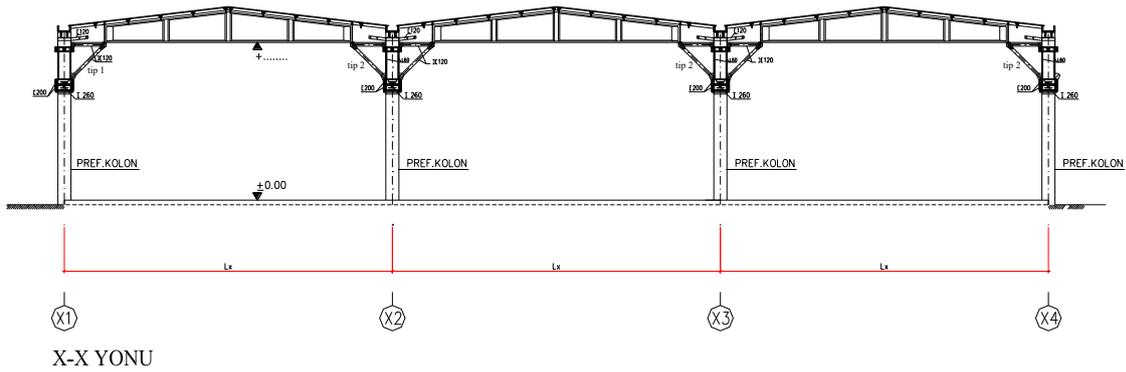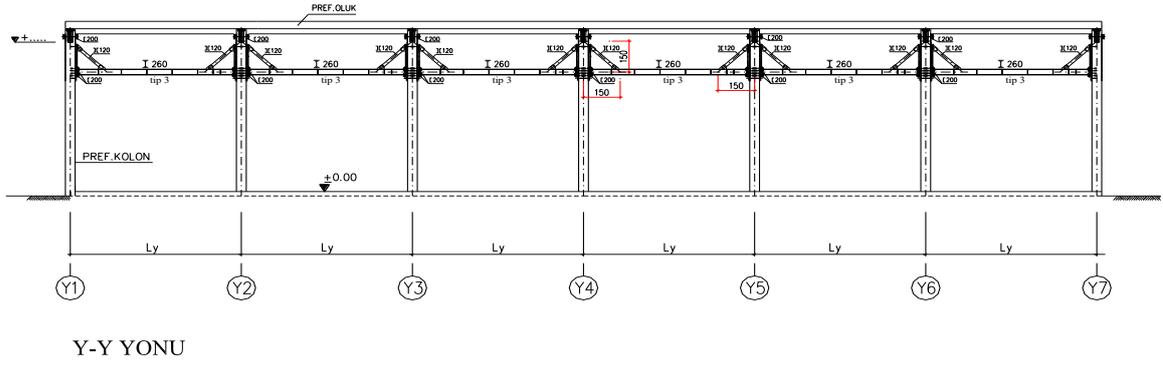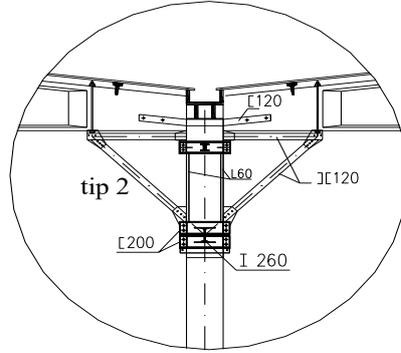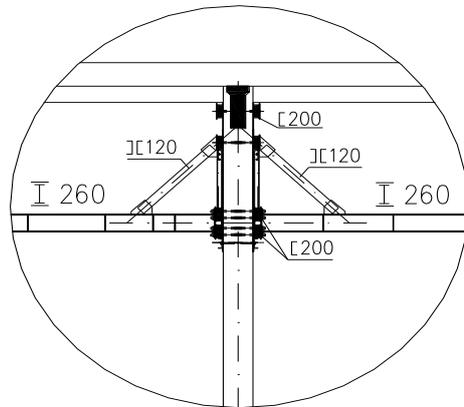
Şekil 6

SONUÇ VE ÖNERİLER

Joint	OutputCase	CaseType	U1	U2	U3	R1
Text	Text	Text	m	m	m	Radians
34	DEPREMEX	LinStatic	0.014305	0.000036	1.018E-17	
34	DEPREMEY	LinStatic	-0.000003072	0.014744	1.579E-17	

Güçlendirilmemiş Durum için Ötelemeler

Joint	OutputCase	CaseType	U1	U2	U3	R1
Text	Text	Text	m	m	m	Radians
34	DEPREMEX	LinStatic	0.003653	0.000007126	-0.000001245	
34	DEPREMEY	LinStatic	-0.000000565	0.003815	1.579E-17	

Güçlendirilmiş Durum için Ötelemeler: Yukardaki SAP2000 programından elde edilen sonuçlardan, yapılan güçlendirmenin aynı yatay yükler için ötelemeleri azaltarak yatay rijitlik artışını sağladığı görülmüştür. Bu sistem mevcut sistemlerin iyileştirilmesinin dışında yeni yapılacak prefabrike yapılarda da kullanılarak daha ekonomik çözümler sağlanabilir.

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PREPARING AN INSTRUCTIONAL DESIGN BASED ON SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS (STEM) APPROACH ON THE TOPIC OF "CHEMISTRY EVERYWHERE" FOR 10TH GRADE STUDENTS

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ABSTRACT

This paper is a report of the study whose purpose is to prepare an instructional design for "Chemistry at Home" subjects in the "Chemistry Everywhere" unit of 10th grade students, based on STEM approach and compare the effects of the implementation of the prepared material on students' academic success and creativity with students who are educated with the traditional education approach. A test developed by the researcher which consists of 32 questions whose validity and reliability tests have been carried out will be given as pre and post test.

The study was carried out with 32 students, 15 in the study group, 17 in the control group. The students in the study group were steered towards STEM education in their classes and it was made possible for the students to use the existing knowledge in a manner to develop their creativity and problem solving skills rather than acquiring it passively. They were given help in terms of team work in the laboratory, participating in extracurricular activities and developing their self-esteem. The classes of the students in the control group were continued to be made in accordance with the traditional education approach, the experiments in their textbooks were carried out with the instructions of the teacher. In the tests in which measured the academic success and creativity of the students in the study group, it was determined that these students were more successful and the obtained data was statistically more significant.

INTRODUCTION

The increase in the competition between countries in economic, scientific and technological fields has caused the search for the understanding of quality education to increase. The main purpose of education is to raise qualified individuals and to realize an innovative instructional design based on the principles of science teaching. Keeping pace with the rapid changes taking place in science and technology is very important for the advancement of the countries. The United States being the foremost among other improved countries rapidly continue investing in engineering and innovation (Akgündüz et. al, 2015) It has been thought that science and engineering education need to start to be implemented in primary and secondary education institutions and that engineering will create a good environment for the applications of mathematics, science, and technology, thus the applications of Science, Technology, Engineering and Mathematics (STEM-FeTeMM) have begun to develop rapidly and become widespread. In Turkey, FeTeMM which the abbreviation of science, technology, engineering, and mathematics is used for STEM (Çorlu, 2014).

Increasing unemployment and global economic problems have led the 21st century's focus to innovation. Developed countries, mainly the US, invest in innovation with the purpose of encouraging economic growth. The growth of innovation requires having knowledge in the fields of science, technology, engineering, and mathematics and it requires improvement in these disciplines. This is why there is innovative STEM labor competition between countries (Çorlu, 2014).

The skills of STEM are defined as multi-disciplinary process-product that transcend disciplines. Today, STEM education is very significant. The purpose of STEM is to raise innovative, searcher, and creative generations with inquiring mentalities. In our country as well, there are studies conducted in order to integrate the current curriculum to STEM education and for it to be applicable and the reflection of this can be seen in the new

effectuated curriculums (MEB High School Chemistry Teaching Program, 2017). When the subjects in the curriculum are associated with real life, the meaningful learning of students will take place (Çorlu, 2014).

STEM education which is considered as one of the biggest educational movements of the late years is a multidisciplinary approach aimed at training students to integrate their disciplines in science, technology, engineering, and mathematics. In this approach, the four disciplines are not taught separately and with different subjects, but instead, together and at the same time in the real life situations.

The implementation rate of STEM education in the schools in Turkey is pretty low. However, in the last years, with the increase of the importance of STEM, it has started to become widespread. Only a small percentage of students studying at specific private schools encounter STEM applications at international standards. The students in these schools have placed our country in the top 10 ranking in international Mathematics and Physics Olympiad competitions. However, the randomly chosen Turkish students are under the 60% slice in mathematics and physics classes in the international ranking. When the performances of private schools and public schools are examined separately, it is seen that there is a significant difference in the results of private school students in mathematics and science (Çorlu, Capraro, 2014). According to these findings, the majority of students in Turkey do not receive quality STEM education. While it becomes more and more important each day that economy is knowledge based, the countries need STEM educated teachers who adopt the innovative approach. This way, teachers who are equipped with the knowledge and skills will teach innovative students in STEM fields (Akgündüz et al., 2015).

It is seen extremely important to raise expert individuals in science, technology, engineering, and mathematics disciplines who will play a part as human labor for a country to overpower in the scientific and economic fields and continue to overpower and to support STEM education. Accordingly, in the last years, in the field of science and education, there has been a rapid advancement period in the organization of programs based on STEM education. Murphy and Mancini- Samuelsen (2012) stated that this education is mainly aimed at high school students but in the recent years, it has started to focus on secondary school students as well.

The after school activities in STEM education has an important place. Individuals participating in after-school activities can produce solutions to problems presented in a simple context in their daily life. At first glance, after-school programs are associated with visits to places such as science clubs, museums, zoos, planetarium, and natural parks. Apart from these, after-school programs also involve robotics, science project exhibitions, science and mathematics Olympiads. While the after-school activities contribute to students getting higher success in sciences, it also motivates them to work together, share their ideas, experiences, and knowledge with each other (Şahin, Ayar and Adıgüzel, 2014).

The skills of the 21st century, together with constantly developing science and technology, are accepted as creativity, critical thinking, collaborative work and problem-solving. In our country, it is foreseen that process of education in primary, middle and secondary school will be renewed and improved based on these skills. In Turkey, the interdisciplinary practices can be added to the current curriculum and STEM education can be integrated with a solution based approach to the problems of life which also does not limit the education to the class hours and the school environment. In such practices, students must be given the same quality education without taking into account any exam success, socioeconomic status or gender.

In summary; STEM education, which aims to have the individuals look at problems from a multidisciplinary point of view, to have them gain knowledge and skills, which prepares the students to get ready for the developments of 21st century and have them gain the 21st century skills is important in the sense that it gives opportunities to students from all levels to become experts in the fields of Science, Technology, Engineering and Mathematics (Meyrick, 2011). It is thought that the students who have an interest in STEM disciplines being supported is possible with the regulation of the programs underlined with this approach (Ceylan, 2014).

STEM education can be defined as ' Science, technology, engineering and math education programs that are aimed to be supported and strengthened with priority, from middle school to secondary school to university including the adulthood period'. The renewed high school Chemistry curriculum has aims suitable to the implementation of STEM education and constructivist approach. With directing students to this education, it is aimed that the students are educated in the direction of improving their creativity and problem-solving skills instead of having them receive the information passively. It is also aimed to improve students' self-management and self-confidence through teamwork practices. STEM education will also help students make better decisions in choosing a profession in university as it will help them recognize their abilities and skills.

It is aimed to have all the students from all levels to look at problems with a multidisciplinary point of view, earn them knowledge and skill, get them prepared for 21st-century developments and earn them 21st-century skills. The purpose of this study is to analyze the 'Chemistry at Home' subjects that appear in the unit 'Chemistry Everywhere' in the 10th-grade Chemistry class, to see the effects of the implementation of the instructional design that is based on Science, Technology, Engineering and Mathematics (STEM) on the academic achievement of students, creativity and problem-solving skills, to analyze the same topic with the comparison between education implementations based on the current Sciences education programs and the implementations of the supported constructivist approach and to receive opinions of the students on the topic of STEM education.

THE STUDY

In this study, the effect of the instructional design developed on the basis of STEM education on the cognitive skills of the student has been investigated as well as its effect on skills such as researcher, collaborative work, technological literacy and, social communication. There has been looked for an answer to the question: "Is there an effect of the instructional design based on Science, Technology, Engineering and Mathematics (STEM) Education of 'Chemistry at Home' subjects that appear in the unit 'Chemistry Everywhere' in the 10th-grade Chemistry class on the academic achievement of the students and the improvement of the 21st century skills?" In addition to this, it has been analyzed if there is a statistically significant difference before and after the study between the academic achievement of the students in the experimental group and the academic achievement, creativity, and problem-solving skills of the control group students who were applied the constructivist approach supported by the teaching practices based on the existing Chemistry curriculum. There have been included the findings on the classroom observations of the students in the experimental group, their studies and their assignments that is named as out school activities and at the end of the study, the opinions on the STEM practices.

34 students who receive education in a private science high school in Istanbul in 10th grade in the 2nd semester of 2016-2017 academic year, have attended to the study. 13 of these students have been in the experimental groups. The remaining 21 students have constituted the control group. Even though high school education is planned according to the constructivist approach supported by teaching practices based on the current Chemistry curriculum, teaching students who aim to be successful in the university entrance exams remains to be more traditional. This situation causes the students to increase creative ideas by combining sciences and engineering. 10th grade, second-semester Chemistry units have suitable subjects for students to perform applications by using science, technology, engineering, and mathematics (STEM) together and create projects.

In the applications and improvement of the instructional design system prepared for 'Chemistry at Home' subject, the steps of Analysis, Design, Development, Implementation, and Evaluation which are in the ADDIE instructional design model are taken as the basis.

In the analysis step, the student characteristics and materials to be used are determined. While determining the subject outcomes, the outcomes of STEM are added to 10th-grade Chemistry Everywhere units designed by MEB (The Ministry of National Education in Turkey).

> ➢ For the technology discipline, there are examples given about the technological advances and implementations of medicines, cleaning products, cosmetic products, convenience food and polymers that are in Chemistry at Home subject.

> ➢ For the mathematics discipline, there are the interpretations of the tables and graphs developed in the interpretation of the projects and researches developed by the students.

> ➢ For the engineering discipline, they are asked to create research projects for the products that can be developed alternatively to the cosmetic products.

In order to determine the materials to be used in the instructional design, MEB 10th-grade Chemistry book is grounded on. In addition to this, for preparedness, initial test, and final rest practices, the reference books allowed by MEB are benefited from. In the design of the experiments, while giving priority to the experiences in the MEB 10th-grade Chemistry class experiences, practices from the book called SAILS Inquiry and Assessment Units are also used.

In the instructional design developed on the basis of STEM education, the disciplines of science, technology, engineering, and mathematics are united with the 5E learning model of constructivist approach. The subject contents for these disciplines have been determined.

➢ According to science discipline; medicines, cleaning products, cosmetic products, convenience food, and polymers, as well as their daily use and experimentation are taught together.

➢ According to technology discipline; videos, animations or simulations about these subjects in the internet that MEB approves are used.

➢ Tseng et al. (2011) carried out a study about the effect of project based education on STEM education. In this direction, according to the engineering discipline, they are asked to develop alternative project ideas to the cosmetics with the aim of find solutions to the problems students face in their daily lives.

➢ According to the discipline of mathematics, on the project ideas the student will develop and the researchers the student will realize, the graphic and table creation and interpretations are urged on.

The developed instructional design has been applied in the classroom and science laboratory for 3 weeks, 9 hours.

FINDINGS

The study is carried out with the subject 'Chemistry at Home' from the 'Chemistry Everywhere' unit. At the beginning of the subject, a measuring tool with 32 questions composed of true- false, filling the blanks, open ended questions and test questions to be able to test the preparedness of students and compare the pre test and the post test was used. According to the test analysis method prepared by the assessment and evaluation department of the high school, the following results were obtained for the experiment and control group.

ÖZEL EVYAP MÜRÜVVET FEN LİSESİ

DERS : KİMYA	ŞUBE : 10A	SINIF MEV.: 13	SINAVA GİREN ÖĞR: 13	TARİHİ : 2.5.2017	SINAV ADI : 2. DÖNEM	1. YAZILI

* Sonuç bilgilerinin oluşması için **Öğrenci No** ve **Adı Soyadı** bilgilerinin eksiksiz girilmesi gerekmektedir.   2.DÖNEM 1.YAZILI

SORULARIN KONUSU -->

Column subjects (1–25): HAZIR GIDALAR VE KATKIM MADDELERİ, HAZIR GIDALAR VE KATKIM MADDELERİ, TEMİZLİK MADDELERİ, TEMİZLİK MADDELERİ, TEMİZLİK MADDELERİ, TEMİZLİK MADDELERİ, TEMİZLİK MADDELERİ, POLİMERLER, POLİMERLER, KOZMETİK MALZEMELER, KOZMETİK MALZEMELER, İLAÇLAR, İLAÇLAR, İLAÇLAR, KOZMETİK MALZEMELER, TEMİZLİK MADDELERİ, HAZIR GIDALAR VE KATKIM MADDELERİ, HAZIR GIDALAR VE KATKIM MADDELERİ, POLİMERLER, POLİMERLER, POLİMERLER, İLAÇLAR, İLAÇLAR, KOZMETİK MALZEMELER, EVDE KİMYA GENEL. TOPLAM PUAN.

SIRA	NO	ADI	SINIF	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	TOPL. PUAN	YUV.
		SORULARIN PUAN DEĞERİ -->		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	3	3	3	24	100	100
1		HASAN BATUHAN ALTUNDAĞ	10F	3	3	3	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	3	3	3	0		20	87	87
2		FATMA ŞEYMA TAN	10F	3	3	3	0	3	3	3	3	3	0	3	3	3	3	3	3	3	3	3	4	3	3	3	3		24	94	94
3		SAMETCAN TURAN	10F	3	3	3	3	3	3	3	3	3	0	3	3	3	3	3	3	3	3	3	4	3	3	3	3		24	97	97
4		NİSA ÖZEN AYDIN	10F	3	3	3	0	3	0	3	3	3	0	3	0	3	3	0	3	3	3	3	4	3	3	3	3		20	81	81
5		SERAY ÇELİK	10F	3	3	3	0	3	0	3	3	3	0	0	3	3	3	3	3	3	3	3	4	0	0	3	24			85	85
6		CENGİZHAN BÜYÜKDAĞ	10F	3	3	3	0	3	0	3	3	3	0	0	3	3	3	3	3	3	3	3	4	0	0	3	0		24	79	79
7		AHMET AKYILDIZ	10F	3	3	3	0	3	3	3	3	3	0	3	3	3	3	3	3	3	3	3	4	3	3	0			20	87	87
8		BUĞRAHAN GÜN	10F	3	3	3	3	3	3	3	3	3	0	0	3	3	3	3	3	3	3	3	4	3	3	3	24			94	94
9		DOĞA SEÇKİN	10F	3	3	3	3	3	3	3	3	3	0	3	3	3	0	0	3	3	3	3	4	3	3	3			20	87	87
10		FURKAN SAİD DURKAYA	10F	3	3	3	3	3	3	3	3	3	0	3	3	3	3	0	0	3	3	3	4	3	3	3			20	87	87
11		İREM ALTUNTAŞ	10F	3	3	3	3	3	3	3	3	3	0	0	3	3	3	3	3	3	3	3	4	0	0	3	0		24	82	82
12		NİDA YILMAZ	10F	3	3	3	3	3	3	3	3	3	0	3	3	3	3	3	3	3	3	3	4	3	3	3			20	93	93
13		FATİH SAİD DURAN	10F	3	3	3	0	0	3	3	3	3	0	3	0	3	3	3	3	0	3	3	4	0	0	3	3		24	79	79

Figure 1: Experimental Group Pre Test Scores

Soru için alınan puanların toplamı	39	39	39	21	36	30	39	39	39	3	30	27	36	39	39	30	33	36	39	39	52	27	27	39	27	288	0	1132	1132
CEVAPLAMA BAŞARI ORANI (%)	100	100	100	54	92	77	100	100	100	8	77	69	92	100	100	77	85	92	100	100	100	69	69	100	69	46		83,7	84
SORULARDAN ALINAN PUANLARIN ARİTMETİK ORT.	3,00	3,00	3,00	1,62	2,77	2,31	3,00	3,00	3,00	0,23	2,31	2,08	2,77	3,00	3,00	2,31	2,54	2,77	3,00	3,00	4,00	2,08	2,08	3,00	2,08	22,15		87,1	87
SORULARDAN TAM PUAN ALANLARIN SAYISI	13	13	13	7	12	10	13	13	13	1	10	9	12	13	13	10	11	12	13	13	13	9	9	13					
SORULARDAN SIFIR PUAN ALANLARIN SAYISI	YOK	YOK	YOK	6	1	3	YOK	YOK	YOK	12	3	4	1	YOK	YOK	3	2	1	YOK	YOK	YOK	4	4	YOK					

BAŞARI ANALİZİ
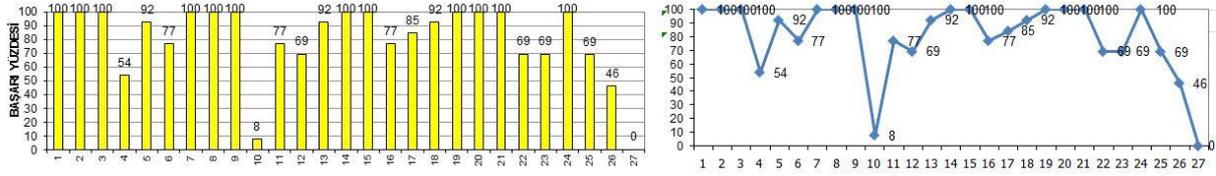
SINAVA GİREN ÖĞRENCİ SAYISI	:	13
SINAVA GİRMEYEN ÖĞRENCİ SAYISI	:	0
BAŞARILI ÖĞRENCİ SAYISI	:	13
BAŞARISIZ ÖĞRENCİ SAYISI	:	0
SINIF MEV.GÖRE BAŞARI ORTALAMASI	:	%100,0
EN YÜKSEK ALINAN NOT	:	97
EN DÜŞÜK ALINAN NOT	:	79
SINIF NOT ORTALAMASI	:	87

SINIFIN NOT DAĞILIMI VE BAŞARI YÜZDESİ

NOTLAR		ÖĞR.SAY	BAŞARI %
0-49 ARASI ALAN (GEÇMEZ)	:	0 KİŞİ	% 0
50-59 ARASI ALAN (GEÇER)	:	0 KİŞİ	% 0
60-69 ARASI ALAN (ORTA)	:	0 KİŞİ	% 0
70-84 ARASI ALAN (İYİ)	:	4 KİŞİ	% 31
85-100 ARASI ALAN (PEKİYİ)	:	9 KİŞİ	% 69
TOPLAM	:	13 KİŞİ	% 100

SINIFIN GENEL BAŞARISI

Başarı %100
Başarısızlık %0
0%
100%

Figure 2: Experimental Group Pre Test Success Analysis

ÖZEL EVYAP MÜRÜVVET FEN LİSESİ

DERS :	KİMYA	ŞUBE :	10A	SINIF MEV.:	21	SINAVA GİREN ÖĞR:	21	TARİHİ :	2.5.2017	SINAV ADI :	2. DÖNEM	1. YAZILI

* Sonuç bilgilerinin oluşması için **Öğrenci No** ve **Adı Soyadı** bilgilerinin eksiksiz girilmesi gerekmektedir.   2.DÖNEM 1.YAZILI

SIRA	NO	ADI	SINIF	1. SORU	2. SORU	3. SORU	4. SORU	5. SORU	6. SORU	7. SORU	8. SORU	9. SORU	10. SORU	11. SORU	12. SORU	13. SORU	14. SORU	15. SORU	16. SORU	17. SORU	18. SORU	19. SORU	20. SORU	21. SORU	22. SORU	23. SORU	24. SORU	25. SORU	26. SORU	27. SORU	TOPL PUAN	YUV.
		SORULARIN PUAN DEĞERİ -->		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	3	3	3	3	24		100	100
1	118	ÇELİK EGE ERMAN	10A	3	3	3	0	3	3	3	0	3	0	3	3	3	3	3	3	3	4	0	0	3	3	12						73	73
2	127	S.EGE YILMAZ	10A	3	3	3	0	3	0	3	3	3	0	3	0	3	3	3	3	3	3	4	3	3	3	20						84	84
3		F.CEYDA CİHAN	10A	3	3	3	0	3	0	3	3	3	0	3	3	3	3	0	0	0	0	0	0	3	3	20						62	62
4		BAŞAK MARABA	10A	3	3	3	0	0	0	3	0	3	3	0	3	3	3	0	0	3	3	4	3	3	0	0	12					61	61
5	107	SENA SUNBUL	10A	3	3	3	0	3	3	3	3	3	0	3	3	3	3	3	3	3	3	4	0	0	3	12						76	76
6		EMİR ASAL	10A	3	3	3	0	3	3	3	3	3	0	3	3	3	3	3	3	3	3	4	3	0	0	24						88	88
7		MİNA MUSTAFAZADE	10A	3	0	3	0	3	0	3	3	3	0	3	3	3	3	3	3	3	4	0	0	3	3	12						70	70
8	198	TEOMAN YILDIRIM	10A	3	3	3	0	3	3	3	3	3	0	3	3	3	3	3	3	3	4	3	3	3	0	8						75	75
9		SENA BAYRAM	10A	3	0	3	3	3	3	3	3	3	0	3	3	0	3	0	3	3	4	0	0	3	3	12						70	70
10		BEGÜM ZEYNEP ONUR	10A	3	0	3	3	3	3	3	0	3	0	3	0	3	0	3	3	3	4	0	0	3	3	12						70	70
11	188	TAHA YİĞİT ERDOĞAN	10A	3	3	3	0	3	0	3	0	3	3	0	3	3	0	0	0	0	0	0	0	3	3	16						58	58
12	182	CEREN TANKA	10A	3	3	3	0	3	3	3	0	3	0	3	3	0	3	0	0	3	3	4	3	3	3	16						84	84
13		AYÇA AYTEKİN	10A	3	3	3	3	3	3	3	0	3	0	3	0	3	3	0	0	3	3	4	3	3	3	16						74	74
14		Y.EMRE PULATOĞLU	10A	3	0	3	0	0	0	3	0	3	0	3	3	3	3	0	0	3	3	4	3	3	0	16						65	65
15		NUH MEHMET İŞÇİMEN	10A	3	3	3	0	3	3	3	3	0	0	3	3	3	0	0	3	3	3	4	3	0	0	20						78	78
16		K.EREN ÖZBARUTÇU	10A	3	0	3	0	3	3	3	0	3	0	3	3	3	3	3	3	3	4	3	0	3	0	16						80	80
17		ZÜBEYİR KAVURMACI	10A	3	3	3	3	3	3	3	0	3	3	3	3	3	3	3	3	3	4	3	3	3	3	16						89	89
18		DENİZ E.AYDIN	10A	3	3	3	0	3	0	3	3	0	3	3	3	3	3	3	3	3	4	3	3	0	3	20						84	84
19		ARDA ÇAKMAK	10A	3	3	3	0	3	3	3	0	3	0	3	3	0	3	0	3	3	4	0	0	3	0	8						63	63
20	191	BULUT ÖZEN	10A	3	3	3	0	3	3	3	0	3	0	3	0	3	3	0	3	3	0	4	3	3	3	16						74	74
21		A.TARIK ATEŞ	10A	3	3	3	0	3	0	3	3	3	0	3	3	3	3	0	0	3	3	4	3	3	3	16						77	77

Figure 3: Control Group Pre Test Scores

Soru için alınan puanların toplamı	63	42	63	15	54	42	63	51	63	9	63	42	63	51	63	27	42	57	54	57	76	39	39	45	48	324	0	1555	1555
CEVAPLAMA BAŞARI ORANI (%)	100	67	100	24	86	67	100	81	100	14	100	67	100	81	100	43	67	90	86	90	90	62	62	71	76	64		76,4	76
SORULARDAN ALINAN PUANLARIN ARİTMETİK ORT.	3,00	2,00	3,00	0,71	2,57	2,00	3,00	2,43	3,00	0,43	3,00	2,00	3,00	2,43	3,00	1,29	2,00	2,71	2,57	2,71	3,62	1,86	1,86	2,14	2,28	15,43		74,0	74
SORULARDAN TAM PUAN ALANLARIN SAYISI	21	14	21	5	18	14	21	17	21	3	21	14	21	17	21	9	14	19	18	19	19	13	13			1			
SORULARDAN SIFIR PUAN ALANLARIN SAYISI	YOK	7	YOK	16	3	7	YOK	4	YOK	18	YOK	7	YOK	12	7	2	3	2	2	8	8					YOK			

BAŞARI ANALİZİ

SINAVA GİREN ÖĞRENCİ SAYISI	:	21
SINAVA GİRMEYEN ÖĞRENCİ SAYISI	:	0
BAŞARILI ÖĞRENCİ SAYISI	:	21
BAŞARISIZ ÖĞRENCİ SAYISI	:	0
SINIF MEV.GÖRE BAŞARI ORTALAMASI	:	%100,0
EN YÜKSEK ALINAN NOT	:	89
EN DÜŞÜK ALINAN NOT	:	58
SINIF NOT ORTALAMASI	:	74

SINIFIN NOT DAĞILIMI VE BAŞARI YÜZDESİ

NOTLAR			ÖĞR.SAY	BAŞARI %
0-49 ARASI ALAN	(GEÇMEZ)	:	0 KİŞİ	% 0
50-59 ARASI ALAN	(GEÇER)	:	1 KİŞİ	% 5
60-69 ARASI ALAN	(ORTA)	:	4 KİŞİ	% 19
70-84 ARASI ALAN	(İYİ)	:	14 KİŞİ	% 67
85-100 ARASI ALAN	(PEKİYİ)	:	2 KİŞİ	% 10
TOPLAM		:	21 KİŞİ	% 100

SINIFIN GENEL BAŞARISI

Başarı %100
Başarısızlık %0
0%
100%

Figure 4: Control Group Pre Test Success Analysis

Students were asked to develop their project ideas while working with the 'Chemistry at Home' subject with the experimental group. Thereby, it is aimed to create a work plan that can improve creativity, problem-solving, collaborative working skills. Two students from the school's Project Club have developed a project idea, taking advantage of what they have learned in the club. As a result of their research, they did a bacterial count by creating a project plan about using the powder of Sodium Bicarbonate alternative to cosmetics to reduce the odor of sweat. The students have determined the experimental method themselves. They accomplished each step of the experimental method they set out in the high school laboratory on their own. They created a table as the result of bacterial counting.

Fotoğraf 1
Fotoğraf 2
Fotoğraf 3
Fotoğraf 4
Fotoğraf 5
Fotoğraf 6
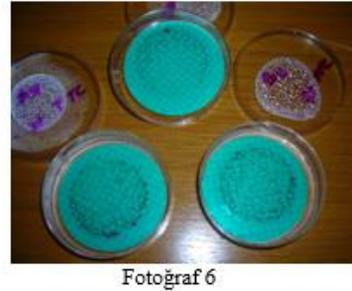
PARAMETRE	I. GÜN			
	I. ÖĞRENCİ		II. ÖĞRENCİ	
	A₁	B₁	A₂	B₂
Toplam Heterotrofik Bakteri (kob/ öğrenci)	6500	11500	150000	210000
Fecal Streptecocci (kob/öğrenci)	100	150	400	2500
	II. GÜN			
Toplam Heterotrofik Bakteri (kob/ öğrenci)	4250	65000	52500	119000
Fecal Streptecocci (kob/öğrenci)	250	1200	225	300

Tablo 2

(A= Sodyum Bikarbonatlı koltukaltı, B= Sodyum Bikarbonatsız koltukaltı, kob= Koloni oluşturan birim)

Figure 5: Example from the Project of the Students

Students in ite School Environment Club have prepared a survey about Genetically Modified Organisms (GMOs). By conducting their research in school, they determined the statistics of the knowledge about GMO foods of students, teachers, and staff, using the SPSS program on the computer. At the end of the survey, they created pie charts and column graphics.

The survey includes the following questions;

	Yes,I have heard.	Partially I have heard.	No,I have no idea.
Genetically modified(engineered) GMO or GEO: Have you ever heard about these kind of products?			

	Radio-TV	Newspaper-Internet	Local	Conference	Educational seminar
Where did you get the information about GMOs?					

	Yes	No
Would you like to learn about GMOs?		

Figure 6: Example questions of Survey about GMOs
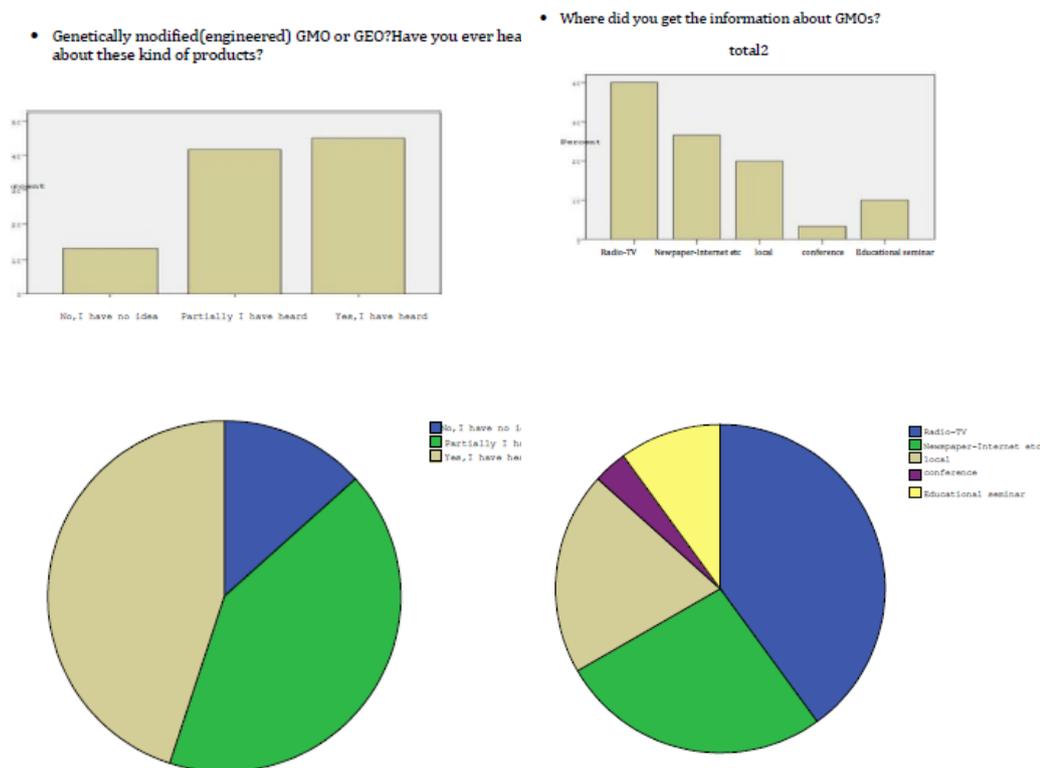
Figure 7: Example graphics of survey about GMOs

Figure 8: Example graphics of survey about GMOs

Laboratory experiments were one of the most important parts of the study. Experiments on the polymers used in everyday life were followed with interest from the point of view of the students. Instead of the classical experimentation guidelines, via benefiting from the book called SAILS Inquiry and Assessment Units, edited by Finlayson O. et al, suitable practices for STEM were developed.

On the other hand, with the control group students, the classes in accordance with the constructivist approach supported by the education applications based on the current Chemistry education program. Students in each group are tested at the end of the subject. The following results were obtained for the experiment and control

group according to the scale including the same questions asked in the pre test.

Figure 9: Experimental Group Post Test Scores

Figure 10: Experimental Group Post Test Success Analysis

Figure 11: Control Group Post Test Scores

Figure 12: Control Group Post Test Success Analysis

CONCLUSIONS

When the questionnaire of students on their opinions on the STEM practices is looked at, it is observed that when the subject is on 'Chemistry at Home', the students attend the lesson with more interest. They have stated that they have observed that they can use what they learn in outside of school activities in their daily lives. When the post test cases of the experimental group and the control group are compared, it is possible to say that the number of incorrectly answered questions in the experimental group has decreased and in the control group, there is no significant change. It can be said that the subject of 'Chemistry at Home' being taught with STEM education can contribute very positively to the 21st-century skills of students. In order to improve the results of this study, there can be an analysis based on gender. There can be achieved a result by comparing the results of the performance value in the applications between the girl and boy students.

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PRESCHOOL TEACHERS´ BELIEFS IN PRACTICES WITH 2-YEAR OLD CHILDREN

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ABSTRACT

Enrolment of 2-year old children in preschool has generated disputes among professionals and parents in the Czech Republic. This study tests two hypotheses: (1) Preschool teachers who teach 2 year old children have higher scores on pedagogical beliefs in the care area than on other areas. (2) These teachers have higher scores on pedagogical beliefs in the care area than those who teach children of ages 3-6. Two samples of teachers from the eastern part of the Czech Republic were recruited: those who teach 2-year old children and those who teach 3-6 year old children. A self-rate questionnaire was used to assess the level of beliefs. The data revealed that teachers in both samples have very high level of pedagogical beliefs. Those who teach 2-year old children believe that care is the strongest component in their practices in classes (hypothesis 1 supported), however, their scores on care does not prevail over teachers who teach 3-6 year old children (hypothesis 2 not supported). Teachers who teach 3-6 year old children significantly prevail over their colleagues who teach 2-year old children in self-help, autonomy, and cognitive learning.

INTRODUCTION

Preschool attendance of children aged 3-6 has a long tradition in the Czech Republic. The preschool curriculum emphasises children´s learning and development in cognitive, social, emotional and physical domains, which should be accomplished in a safe and healthy classroom environment. However, due to occupational needs of mothers it is recommended that preschools accept also children as young as 2 years – on condition that they are cognitively and emotionally mature to enter the preschool setting. This brought many issues, among them which teacher practices should be used in classes of this age group. This investigation examines preschool teacher´s beliefs in care and educational practices with 2 year old children and compares them with beliefs of those preschool teachers who educate 3-6 years old children.

The key concept in this study is *teacher belief*. Teacher beliefs are convictions that dispose or guide teachers' thinking and action. They are implicit assumptions about their work, learning, children, curriculum, and even their roles as a teacher (Clark, 1988; Kagan, 1992; Pajares, 1992). There are a number of more elaborate definitions of teacher beliefs, which show different underlying aspects used by particular authors. Pajares (1992) claims that differences in definitions may be attributed to confusion between teacher beliefs and teacher pedagogical knowledge. The two are different concepts. Beliefs are more experience-based, while knowledge is more theory-based (Mansour, 2009). However, a teacher must have pedagogical knowledge – in addition to classroom experience – in order to generate professional beliefs. Without pedagogical knowledge a teacher would act in an amateur way and her classroom behaviour would be inefficient. Belief is situated, knowledge is more abstract. Beliefs are more evaluative and affective than knowledge. The relationship between teacher beliefs and teacher pedagogical knowledge is interactive. These teacher characteristics affect each other.

Another point of dispute is an implicit versus explicit quality of beliefs. On this point authors´ opinions vary. If beliefs are implicit, they affect teacher practices in an uncontrolled way. This may be true because in many other situations people´s actions are influenced unconsciously, or with low degree of awareness. However, more realistic position is that implicitness/explicitness varies according to the particular instructional situation. In some of them – e.g. if a teacher witnesses disruptive behaviour of the child – a teacher may activate consciously her beliefs, whereas in other situation she does not. Also, researchers argue whether beliefs are static or dynamic. Both views are supported by research evidence and have implications for research and practice. As Fives and Buehl (2012) describe in their review article, many researchers have described beliefs as relatively stable and resistant to change after some form of intervention (e.g., self-efficacy beliefs). Others have found that teachers' beliefs do change over time (e.g., beliefs about classroom practices, management, and children).

In this study we refer to teacher beliefs as *personal theories* of a teacher on teaching, learning, children, parents and the context of preschool. Teacher beliefs constitute a system (belief system) the elements of which are well integrated. Mansour (2009) describes it as an idiosyncratic unity of thought about objects, people, and events, and their characteristic relationships that affect teacher planning and interactive thoughts and decisions. Despite the widespread agreement that teachers beliefs exist in a system, few empirical investigations have examined beliefs as a complex entity (Fives & Buehl, 2012).

Many studies compared teacher self-rate belief data with observation of teacher practices to identify whether teacher behaviour is in accord with recommended teacher practices. These studies have demonstrated mixed results. Wilcox-Herzog (2002) found that in a group of preschool teachers there was no relationship between teacher beliefs and her actions. Vartuli (1999) and Stipek and Byler (1997), on the other hand, found that beliefs of preschool, kindergarten, and first grade teachers were consistent with the teacher practices. Kim (2011) found high agreement between these two variables in a group of teachers. Other studies concluded that teachers have better developmentally appropriate beliefs than they have developmentally inappropriate practices, i.e., they believe they teach better that they actually behave in the classroom (Charlesworth et al., 1991; Charlesworth et al., 1993; McMullen, 1999).

The differences between findings in studies may originate from several sources. Fang (1996) suggested that there may be inconsistencies between teachers´ beliefs and practices due to the complexities of classroom life, which may constrain teachers´ abilities to follow their beliefs and provide instruction that is aligned with their theoretical beliefs. Another source of mismatch may be attributed to self-rate belief questionnaires in which teachers tend to express professionally demanded responses rather than authentic responses. Teachers responded as they were expected rather than how they actually teach. They exaggerated some qualities in order to make a more favourable picture of themselves. Another explanation is that what they expressed in questionnaires is "conventional wisdom", i.e. generally accepted ideas and behaviours.

THE STUDY

This investigation compares beliefs in pedagogical practices of two groups of teachers: those who teach 2-year old children and those who teach children of 3-6 years. It was expected that the two groups differ in the degree of beliefs in childcare rather than in cognitive and social learning of children. The assumption behind this stance is that younger children need more care because of their vulnerability and lack of self-serve skills while the older children are more independent and can be taught more cognitive and social skills.

Two hypotheses were tested: (1) Preschool teachers who teach 2 year old children have significantly higher scores on the Care area than on other pedagogical areas. (2) Preschool teachers who teach 2 year old children have significantly higher scores on beliefs in the Care area than those who teach children of ages 3-6.

Methods

The Preschool Teacher Beliefs was developed in the following steps. First, the researchers theoretically derived five areas that they considered relevant for pedagogical practices in preschool. The areas are: 1) Care; 2) Cognitive development; 3) Social skills; 4) Self-help skills; and 5) Autonomy. Then they agreed on how to conceive the concept of teacher beliefs and how the items should be worded. By this manner a bank of sixty items was generated. In the next step, items that were duplicate or did not fit the professional beliefs were eliminated. 48 items that left were administered to teachers of the sample. The data were factor-analysed to check the structure and fit of the items with pedagogical areas. Principal components method of analysis was used with Varimax rotation and factor loading of .50 and higher. The best solution were three factors that accounted for 63 % of variance. The first factor *Activity* contained 11 items with Alpha of .930, the second factor *Communication with children* had five items with Alpha of .786 and the third factor *Dealing with parents* had

three items with Alpha of .656. The first factor was problematic. Though it had excellent reliability it contained a broad range of topics and, as such, it was unusable for a fine-grained assessment of teacher beliefs. Thus we resorted to an alternative option. We used the initial five pedagogical areas and performed item-total correlations. Items with sufficient correlation were retained, others were eliminated from the particular area. In this way we received pedagogical areas with good internal consistency. The description of pedagogical areas is as follows:

1. *Care* covers teacher´s protection of health and safety of children, and emphasis on frequent physical activities outdoors. Four items have Alpha of .848.
2. *Cognitive development* covers facilitation of cognitive abilities, language, literacy and creativity. Eight items have Alpha of .756.
3. *Social skills* concentrates on facilitation of cooperation and peer communication. Five items have Aloha of .803.
4. *Self-help skills* concern skills and rules for eating, dressing, and use of toilet. For item have Alpha of .848.
5. *Autonomy* concentrates on facilitation of independence in behaviour and decision of the child. Five items have Alpha of .648.
6. *Communication with parents* – creating possibilities for conversations with parents, getting information about the child from parents and informing parents about the progress of the child in learning and development. Five items have Alpha of .685. As this area does not concern teaching practice in a classroom, it will not be dealt with in this study.

Scale range was 1 (strongly disagree) – 5 (strongly agree). The total number of items in the questionnaire is 31. Overall Alpha is .901.

Sample

Two samples of teachers were recruited: those who teach 2-year old children (sample A) and those who teach 3-6 year old children (sample B). The two samples come from both rural and urban areas in the eastern part of the Czech Republic. The demographic characteristics of the samples are in Table 1. All subjects were female.

Table 1 Demographic composition of samples

		Sample A	Sample B
n		120 (41.1 %)	152 (55.9 %)
Highest qualification	Second. school degree	80.3 %	73.3 %
	Bachelor´s degree	9.8 %	16 %
	Master´s degree	9.8 %	10.7 %
Years of practice	M	20.6	20.4
	Range	1 - 41	1 - 40

Findings

As Table 2 shows, the mean scores on all pedagogical areas of sample A teachers are relatively high; they all exceed the midpoint of the five-point scale used. This indicates that teachers are rather confident and self-assured about aims and components of the preschool programme. They do not consider preschool an institution that concentrates on care only, rather they assume its impact is on all-rounded development of children. This includes enhancement of a child´s social development, self-care learning, and promotion of a child´s autonomy. Arithmetic means decrease from the care area to the cognitive area, which indicates differing emphases on these dimensions of their practices. As expected, the cognitive area had the lowest mean score, differing from care by 1.13 points.

All differences between the scores on care and other pedagogical areas were statistically significant, thus supporting hypothesis 1 (Table 2). Teachers who teach 2-year old children believe that care is the strongest component in their pedagogical practices in classes. This is no surprise as young children require, first of all, intense care and only after this has been secured other teaching components come forward. Beliefs in physical skills development, especially gross motor coordination, were included in the care area as they are important part of most learning and play activities in preschool. Teachers believe that they must be responsive to children´s needs, provide appropriate safety for learning and rest. They also believe children require secure relationship with the preschool staff to nurture the social and cognitive development and learning. They are confident in their role in supporting a child to be an autonomous individual, with particular wishes and desires.

Table 2 Teachers beliefs in five pedagogical areas. Sample A

Teaching areas	n	M	SD	Comparison with Care	
Care	118	4.82	0.45	**Z**	**Sig.**
Social	110	4.48	0.53	-6.340	0.00**
Self-care	118	4.31	0.76	-6.728	0.00**
Autonomy	115	4.28	0.53	-7.736	0.00**
Cognitive	109	3.69	0.60	-8.650	0.00**

Sample A: teachers with 2-year old children. Scale used: 1 (strongly disagree) – 5 (strongly agree); Wilcoxon test, ** sign. < .01

In the second part of the investigation pedagogical beliefs of the two teacher samples were compared. Table 3 shows that mean scores of teachers in sample B express a trend identical with sample A. The highest mean score is on the care area, followed by the social and autonomy areas. The cognitive area scored the lowest. This indicates that pedagogical beliefs of teachers of both samples demonstrate an equal pattern. Teachers in both samples believe that pedagogical practices in the five areas, which were explored, are important in all age groups in preschool. Both samples believe in creating environment for an all-round education to all children in preschool. Social and cognitive skills as well as autonomy and self-help are not only essential classroom skills but they also transcend beyond the classroom walls.

We hypothesized that sample A teachers would prevail in the care area over sample B, that is, they will score higher on care, though not on other pedagogical areas. The findings did not support our assumptions. There was no statistically significant difference between the samples on the care area, thus hypothesis 2 was not supported. Statistically significant differences were found in pedagogical beliefs between sample A and B in three other areas, i.e., self-help, autonomy, and cognitive areas. The scores were in favour of sample B teachers. This can be explained by the fact that sample B teachers, who teach older children (3-6 years), put more emphasis on the development of these skills in children, which resulted in higher beliefs when compared with sample A teachers.

Table 3 Comparison of pedagogical beliefs between teacher samples

Pedagogical areas	Sample	n	M	SD	U	Sig.
Care	A	116	4.82	0.45	7843.5	0.12
	B	148	4.89	0.26		
Social	A	110	4.48	0.53	6716.0	0.65
	B	141	4.61	0.38		
Self-help	A	118	4.31	0.76	6826.0	0.05*
	B	144	4.59	0.49		
Autonomy	A	115	4.28	0.58	6222.5	0.00**
	B	147	4.52	0.46		
Cognitive	A	109	3.69	0.60	4627.5	0.00**
	B	144	4.11	0.46		

Sample A: teachers of 2-year old children; sample B: teachers of 3-6 year old children. Mann-Whitney U-test; ** sign. < .01; * sign. < .05

Teacher beliefs have been characterised above as a kind of *personal theories* of a teacher that affects her practice in classrooms. They affect her planning of activities, interaction in classes and self-reflection on it. It is not quite clear how professional beliefs develop and which variables influence it. It is assumed that duration of teacher practice may be one of such variables because teachers generate their practical professional knowledge within rich situations in classrooms. To confirm this assumption we divided our samples into two groups, i.e., novice teachers (1-5 years of practice) and expert teachers (20-30 years of practice). Table 4 (merged samples A and B) shows that not only expert teachers but also novice teachers have very high scores on all pedagogical areas. However, statistically significant differences were only in care and autonomy areas, in favour of expert teachers. This again shows the dominant position of the care area in the system of teacher beliefs.

More experienced teachers consider this area more important than novice teachers. As concerns the autonomy area, it can be hypothesized that it is more difficult for less experienced teachers to concentrate on facilitation of independence in behaviour and decision of the child, which is the core of his pedagogical area.

Table 4 Pedagogical beliefs of novice and expert teachers

	Novices		Experts		Difference	
	M	SD	M	SD	U	Sig.
Care	4.81	.29	4.95	.11	442.5	.012*
Social	4.47	.45	4.59	.42	456.5	.226
Self-help	4.43	.65	4.46	.66	563.5	.703
Autonomy	4.32	.53	4.58	.37	403.0	.029*
Cognitive	3.97	.58	3.96	.56	589.5	.952

Mann-Whitney U-test; * sign. $< .05$

CONCLUSIONS

This study aimed at investigating pedagogical beliefs of preschool teachers who teach two groups of children, i.e., 2-year old and 3-6 year old children. In both groups relatively high scores were detected on the beliefs questionnaire, indicating that teachers have high confidence in the specific pedagogical practices in all five pedagogical areas investigated: care, social learning, self-help skills, autonomy and cognitive learning. In sample A, there were statistically significant differences between care area and other pedagogical areas indicating the dominant role of care of children in the preschool classroom. When samples A and B were compared, there were statistically significant differences in favour of sample B on self-help, autonomy, and cognitive areas. No statistically significant differences between the two samples on care and social areas indicate that they place equally much emphasis on these areas, irrespective of age of children. No difference in scores between novice and exert teachers suggest that professional beliefs is a complex variable that needs a more sophisticated exploration.

The benefit of the study was in providing important data on thinking of preschool teachers in the Czech context. In the Czech Republic there have been fierce discussions among professionals whether or not attendance of 2-year old children in preschool is developmentally sound. This study could not resolve this issue because it was targeted on teachers rather than on children. However, the data show that teachers believe in all-round education of children even if theory are 2-year old. Though care is a dominant component of their beliefs, it is accompanied with other pedagogical areas as well.

There are several limits of this investigation. The samples were locally anchored (eastern part of the Czech Republic) and bring findings that are important for this region. However, they do not allow extrapolation to the Czech population. Second, professional belief appeared as a personal characteristic that needs more subtle investigation including the use of interviews or other qualitative research methods. Third, it is necessary to find out how teacher beliefs are associated with teacher practices in classrooms. Previous studies provided inconclusive findings on this issue, therefore, more research is needed to reveal associations between these two teacher characteristics.

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PRE-SERVICE KINDERGARTEN TEACHERS' CONCEPTIONS OF PLAY, ART, MUSIC, DRAMA AND SCIENCE

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A well-supported finding is that many activities in which small children learn. What it means for a teacher to these activities, the practice of these activities is important. For this reason theoretical and practical lectures of the activities were preschool teacher education program. This study aims to investigate views and awareness of 4. grade pre-service preschool teacher from University of Kocaeli about play, art, music, drama, science and the integration of these activities. A study using both qualitative and quantitative methods was conducted to examine the pre-service teachers' conceptions of play, art, music, drama, science and education. An open-ended questionnaire with six parts was used. From the first to five parts were related to play, science, art, music, drama and educational implications, while the six part dealt with the integration of these activities.

PRE-SERVICE TEACHERS' VIEWS ON INTERNET SUPPORTED LEARNING

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Having knowledge of computer hardware is one of the skill sets of computer teachers that allows them to understand and predict hardware problems in advance. Therefore, computer hardware courses are often added as required courses in pre-service teacher curricula in Instructional Technology Departments. This study aimed to understand the effectiveness of one such course by the integration of internet technologies. 44 students enrolled in this course in a western public university in Turkey. Students used an online learning environment in addition to a traditional face to face classroom setting for 14 weeks during the 2015-2016 Fall Semester. Participants were divided into two groups. One of the groups, which was called Bloggers, wrote all their learning experiences and outcomes in their blog postings. The other group, which was called Websiters, designed a website to share their knowledge. Both groups also shared new technologies which might help them to improve their professional skills. During the 14-week explanatory case study, data were collected from students` reflection paper, forum postings, researcher's journal and learning outcomes. Data were analyzed by following content analysis strategies. The results show that for the majority of students, integrating internet technologies into traditional classroom settings motivated them to engage more during the course. However, some of students who created websites noted that the additional responsibilities were overwhelming. Creating a website and maintaining it were challenges for them. On the other hand, students who were blogging their learning experiences noted that they had fun during the course. They also highlighted that writing comments for each blog posting helped them to learn more by sharing their knowledge. Both groups thought that they enriched their content knowledge during the course. They believed that this course prepared them for their professional lives.

PROJECT-BASED LEARNING, REAL PRACTICE AND AUGMENTED REALITY. DIARIO DE LAS BELLAS ARTES. PRINTED AND NEW MEDIA NEWSPAPER

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ABSTRACT
"Diario de las Bellas Artes". Diario de Teruel. It is a collaboration between *Diario de Teruel* and the *Grado en Bellas Artes* of *Universidad de Zaragoza*. In a pioneer manner –for the third consecutive year– photographs of all the news of the day are replaced by illustrations made by students and teachers of the degree, incorporating enhanced reality, animations and interactivity inside the pages.

"Diario de las Bellas Artes" seeks innovation in traditional newspapers, through new technologies and multimedia. In agroundbreaking way, it incorporates interactive, multimedia and augmented reality news in written press. You can get access to the interactivity of the paper issue by using internet from your smartphone, tablet or computer.

The three previous editions of *"Diario de las Bellas Artes". Diario de Teruel* are available in the following link:

http://diariodelasbellasartes.blogspot.es/

INTRODUCTION
Real experience: communication, information and technology.

- *Diario de las Bellas Artes. Diario de Teruel*. Collaboration project between *Diario de Teruel* –one of the main local newspapers of the city– and the Bachelor in Fine Arts of Zaragoza University. In a pioneering and innovating manner, newspaper pictures are replaced by illustrations made by students and professors of the degree for the third year in a row. Moreover, their creations include augmented reality, animation and interactivity.

  o The project is developed within the academic context of the Bachelor in Fine Arts. It is a cross-disciplinary and cross-curricular activity, although there are some courses more involved such as graphic design, illustration and engraving. Besides, it allows the implication of other disciplines like sculpture, performance, audiovisual and animation, among others.

The third *Diario de las Bellas Artes. Diario de Teruel* editions can be consulted in the following link:

http://diariodelasbellasartes.blogspot.es/

- The two first covers are shown on screen. The first one consisted of a spread double-page artistic cover, while the second one was an informative cover.
- The third edition was published on 5th May 2017. For the first time, the cover had no headline, so all the information is given by the illustration which is, at the same time, a tribute to Tintin comics.

There is only one similar preceding work, which was done by the French newspaper *Libération*, on the day Hergé was deceased in 1983. They made a whole edition of their newspaper illustrated by Tintin comics

THE STUDY

- **OBJECTIVES AND ACADEMIC CONTEXT**

  o Enterprise + University + City

  o Coexistence between paper newspaper and ICT

  o Teamwork. A total of 110 people have collaborated to publish the two editions of [03/26/2015] and [04/21/2016]: more than 15 professors, 75 students and 22 professionals.

  o Increasing Bachelor in Fine Arts visibility, its disciplines and capabilities by real practice. Contact with working world and students' experience. Acting as acquired knowledge integration support.

- **TEACHING METHODOLOGY**
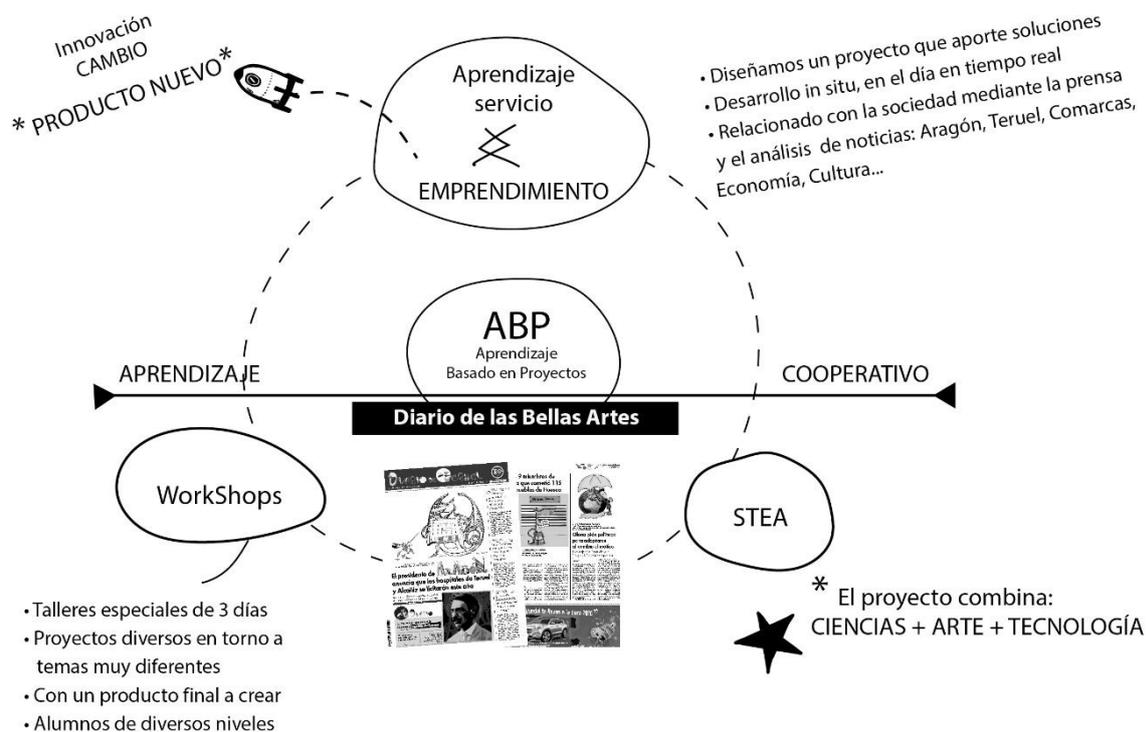
-
- Picture 1: Schematic representation of the various active methodologies carried out in the project *Diario de las Bellas Artes*.

This initiative is set within the context of the 'Active Methodologies'. We depart from the methodology of the project-based learning (PBL), reinforced by a strategy of self-evaluation and constant improvement. Interactive methodology is also considered, strongly marked by teamwork: enterprise coordination, communication between students and professors/editors and support, communication and collaboration with other professionals. A graphical representation of the teaching methodology can be explained as it follows:

The design of this PBL with *Diario de las Bellas Artes* consists of an integrating project where acquired knowledge at University courses turn into a real, innovative and differentiating final product. The base of the whole idea can be summarised by John Dewey's theory 'Learning by doing': the best learning is experiencing, learn by practice. Below, we analyse the diverse methodology applied:

- Innovation: at the end, we have a new product which has a different way of spreading information throught art, gathering together paper and ITC. Innovation, investigation and change have a strong influence during the process.

- Service-learning and Entrepreneurship: Work and social media communication are strongly related by several factors. They are closely connected to reality and, at the same time, they address the news in an active and thoughtful way. In addition, it is structured by an idea of entrepreneurship and novelty as changing agent.

- STEA: Combination between Science, Technology and Art. Students develop a real-problem solving project during a complex, meaningful and interesting process thanks to the combination of knowledge in a wide range of disciplines: illustration, computer graphics, audiovisuals, 2D and 3D animation, image processing and art history, among others. Besides, it implies an exhaustive analysis of media and the latest news, as well as making round-table discussions in class about how to graphically express news information and evolution.

- Collaborative learning: Students work in teams to achieve the final result. They start by making an analysis of the news, and then they elaborate proposals and sketches to, finally, lean toward a solution. The key of the project is its interdisciplinary nature, because many of the competences developed in the practice come from a variety of courses. Crosswise work is also present, as it is usual that, for instance, they begin to work using one painting technique to finish it either with digital illustration or by incorporating interaction or animation.

- Workshops: daily news illustrating practice, learning is self-directed in a real scenario. Students know competently their knowledge and what to do with it. To achieve this goal, we have previously organised 3-day workshops with the following content: 'Analysis of media, news and their pictorial representation'; 'Concept creation'; and 'Fast illustrating techniques and graphic resources'. During these workshops we combine the best part of lectures with problem-solving based practice.

- The result is an analysis of news showing the solution throughout the final product.

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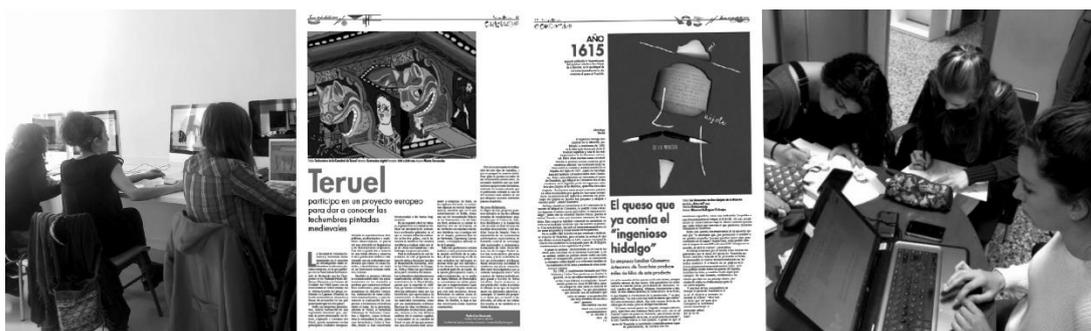
Image 2: Students of 3rd and 4th year of the Degree in Fine Arts working on the edition of the Journal of Fine Arts. The photographs are taken during the work session of 04/25/2016 in the Graphic Design Room of the Fine Arts Building (left) and in the headquarters of *Diario de Teruel* (right). In the center are some pages of the Diario de las Bellas Artes.

- **SUPPORTING ITC**

  o Regarding information and communication media, we have followed up printed and digital newspapers, as well as other sources such as TV, radio, Facebook or Twitter. Afterwards, we made a brainstorming session in the classroom about international, national and local latest news. Also, we made an analysis of press images, graphics and illustrated news.

  o Regarding software, we use augmented reality with Vuforia y Unity; Bidi codes; Animations with Photoshop and Flash. Image processing programs: Photoshop and Illustrator. Code image generation: Processing. Layout design programs: InDesign/QuarkXPress. Recording and editing audiovisuals: IMovie, Adobe Premiere. Broadcasting: Youtube.

- **TRANSFER OF RESEARCH RESULTS**

  o Most of the technological applications have been taken from a previous research project entitled 'Design, Engraving and Illustrating. New media: digital books', financed by Antonio Gargallo University Foundation of University of Zaragoza.

o Here you can see an illustrated scheme where the four researching areas of the project are represented: digital books and museum interactivity, digital natives, classroom digital books and digital books factory.

o This is an animation made by Vuforia, where the images is, at the same time, a code, thanks to the creation of an app.

o Here another example of interactivity is shown, where the access to the video is made by a Bidi code. In addition, we apply teaching resources, as the video is also made with the teaching methodology of 'visual thinking'.

Image 3: Some examples of access in newspaper interactivity with digital content. (Right.) Página de Diario de las Bellas Artes with interactivity using QR code printed and by code-image. (Left)

- **INNOVATIVE NATURE**

  o The project consists of a real practice, where students acquire knowledge and learn professional working methodology, working together with journalists. Students attend to the newspaper headquarters at 11 am, where they celebrate the first editing meeting, as well as news assignation, according to students' interests or the previous weeks work they have been following up –economy, international affairs, Aragon regional news, etc. Next, they have a meeting with the journalist in charge of writing the news so that they can exchange impressions about the perspective and different aspects of it. In some cases, students even accompany the journalist to the press conference to cover the news. From then on, the work gets more and more intense, as the illustrations have to be handed over before 9 pm. Students work either at the newspaper headquarters or at the University Fine Arts building under their professors' supervision.

  o In a pioneering manner, a newspaper –*Diario de Teruel*– and a University –Zaragoza University– work together to tell daily news from a different point of view. The objective is not to produce an special edition of the newspaper, but to entirely illustrate quotidian news maintaining information rigour and communication media speed thanks to the graphic reflection made by the students. Thus, typical press photographies are substituted by images and illustrations of students and professors of Bachelor in Fine Arts.

  o Printed edition binds together with new technologies. This way, throughout its pages, images show interactivity thanks to augmented reality, animations, etc., developed with Bidi codes or graphics made by Apps.

  o From teaching innovation point of view, this activity means a common project between disciplines of the Bachelor, transfer of research technology aspects both to the classroom and the enterprise, and real practice.

- **IMPROVEMENTS IN STUDENTS' LEARNING PROCESS**

  o The key to promote learning: developing a real ptoject

  o Motivation: curriculum, social acknowledge

  o Most important factor: personal satisfaction for a well-done work

- **SUSTAINABILITY AND TRANSFERABILITY**

  - Individual practice and student learning process: illustration, animation, augmented reality, design, etc. are transferable to professional scope: not only to editorial sector by extension, but also to graphic design. However, the project as a whole –coordination, image creation process with a tight one-day deadline and innovation and interactivity incorporation in some of them– implies a high level of implication.

  - To make this project continuous and sustainable, it is basic that we have an active group of collaborating professors, as well as participating students.

- **CONCLUSIONS**

  - The project has been awarded by Banco Santander Chair and University of Zaragoza with the title 'VIII Edition of the award in good teaching practices supported by ITC. 2017'.

  - The project has lead to both a qualitative improvement of knowledge and a motivation practice.

  - *Diario de las Bellas Artes. Diario de Teruel*, has been an instrument to develop students of Bachelor in Fine Arts employability.

  - The project has a continuity character, empowering quality strategies, creativity and innovation to achieve differentiating future results.

  - Time invested on teaching can be justified as curriculum viate builder. Thus, we have developed an strategy to foster project's visibility, acknowledgement and official registration as pioneers: teaching innovation project, website, publications, specialised and dissemination journals, congress communications, award participation, among others.

  - To journalism and communication fields, it has implied a different practical way of telling the news.

  - The print run of *Diario de las Bellas Artes. Diario de Teruel* doubles in number of copies and pages the regular format of the newspaper. Projects' repercussion and citizens' reception have largely exceeded the planned objectives, as it can be seen in the following section:

MEDIA IMPACT

- 20minutos http://www.20minutos.es/noticia/2415376/0/diario-teruel-publica-numero-extraordinario-ilustrado-por-alumnos-docentes-bellas-artes/
- ABC http://agencias.abc.es/agencias/noticia.asp?noticia=1825925
- La 2 Noticias https://www.youtube.com/watch?v=70Q8OEdnoO0
- TVE Aragón https://www.youtube.com/watch?v=6yvV6WbGNws
- Aragón Radio http://www.aragonradio.es/podcast/emision/el-diario-de-teruel-%E2%80%98cede-sus-paginas-a-los-estudiantes-de-bellas-artes/
- Aragón Radio 2015 http://www.aragonradio.com/diario-de-teruel-publica-un-numero-extraordinario-ilustrado-por-alumnos-y-docentes-de-bellas-artes/
- Aragón Digital http://www.aragondigital.es/noticia.asp?notid=143960
- El Periódico de Aragón http://www.elperiodicodearagon.com/noticias/aragon/venden-ilustraciones-diario-bellas-artes-banco-alimentos_1108193.html
- Blog La buena prensa http://labuenaprensa.blogspot.com.es/2015_03_01_archive.html
- http://labuenaprensa.blogspot.com.es/2016/04/excelente-repeticion.html

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PROMOTION OF ACTIVE LEARNING BY ALL FACULTY MEMBERS

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ABSTRACT
For more than fifteen years, National Institute of Technology (NIT), Gifu College has promoted the practice of education aimed at improving students' activeness through ICT equipment. We have been making educational materials used in active learning (AL) classes based on the viewpoints of our college graduates who have worked long for companies, and has established a system where students who have learned the educational content can gain "practical engineering credit point" (PECP) through extracurricular activities. Measured data has revealed that faculty's involvement in AL, faculty development (FD) and PECP has had students learn more actively and more voluntarily than before, both in the formal curriculum and in extracurricular activities.

INTRODUCTION
In our college, we have been promoting AL for more than 15 years, while supporting it with e-Learning and ICT. The past educational practices led to the acquisition of the "Acceleration Program for University Education Rebuilding (AP)" (2014) with six-year major financial support from the Ministry of Education, Culture, Sports, Science and Technology (MEXT). This enabled us to introduce various ICT equipment and systems useful for promoting AL. Specifically, we introduced a total of 257 tablet and notebook PCs for classroom use up to last year (162 tablet PCs (Toshiba), 50 notebook PCs (Fujitsu), 25 surfaces (Microsoft), 20 notebook PCs (Asus)). Also, the wireless LAN device was set up for use in all the 25 classrooms of all the years (from the first to the fifth year) of all five departments, so that the 257 PCs could be connected to the network under the control of MAC address. Moreover, we installed electronic blackboard systems in the 25 classrooms and introduced a server as well as various kinds of software for making educational materials which could be used in the systems. (Ogawa, Tokoro, Shimizu and Itoh, 2016, Ogawa, Tokoro, Shimizu and Kitada, 2015) With the aim for all faculty members to take full advantage of the educational environment, we are holding three kinds of FD sessions for all faculty members: (1) FD sessions related to AL (Bergmann and Sams, 2012, Bonwell and Eison, 1991, Brant, Hooper and Sugrue, 1991, Hake, 1998, Hoellwarth and Moelter, 2011, Khan Academy, 2006, Kapur and Bielaczyc, 2012, Lage, Platt and Treglia, 2000, Renkl, Atkinson, Maier and Staley, 2002, Westermann and Rummel, 2012) after a faculty meeting which is held seven times a year, (2) FD sessions held twice a year, one time in the first and second semester, respectively, (3) Pluriannual FD sessions held regarding special topics such as how to make lesson plans useful for AL and how to use new ICT equipment.
In our college, all faculty members are supposed to categorize their styles of AL classes into three levels at the beginning of an academic year. Specifically, when designing a syllabus, respective teachers are supposed to select the type of AL from among the three they will practice in each class, and describe the selected type in their syllabus.

We established a system of visualizing and evaluating students' activities outside the formal curriculum, that is, those in the quasi-curriculum as well as in the extra curriculum. They are not directly related to credits necessary for graduation. However, respective departments are encouraging students to actively work on the quasi and extra curriculum activities by giving their own incentives to students. The details are described below.

The formal curriculum, the quasi-curriculum and the extra curriculum
In our college, we are working on visualizing students' activities by classifying them including those outside the formal curriculum. The education classification is classified into three: the formal curriculum, the quasi-curriculum and the extra curriculum. The formal curriculum consists of subjects which are given credits necessary for completing the courses. The quasi-curriculum consists of subjects to which credits are to be given irrespective of completing the courses. The extra curriculum indicates students' autonomous activities authorized by our college, except for the formal and quasi curriculums. Our college set PECP for the quasi and extra curriculums, visualized students' activities, and developed a system to evaluate them.

The list of PECP
Our college established the "practical engineering credit point" system (the "PECP" system) and put it into practical use at a collegewide level. Respective departments discussed whether to give PECP or not, and the appropriate number of points if given, for students' various autonomous activities in the extra curriculum. After the process was completed, in the academic year 2015, our college determined the list of PECP (Table 1, 2) used throughout our college, where the names of authorized students' activities and the given number of points were described.

Table 1: The list of the practical engineering credit point (a common point of view of all departments).

Classification	Name	Management Organization	Practical Engineering Credit Point	Education Category Other Than Formal Curriculum		Category of Skills				
				Quasi-curriculum	Extra curriculum	Fundamental skills	Specialized skills	Versatile skills	Attitude and orientation (human power)	Comprehensive learning experience and creative thinking power
NIT	NIT Colleges Athletic Meeting	NIT	1-4		O				100%	
	English Presentation Contest for Students in Colleges of Technology	NIT	1-3		O	50%		50%		
	NIT Colleges Robot Contest	NIT	1-8		O		50%			50%
	NIT Colleges Programming Contest	NIT	1-3		O		50%			50%
	NIT Colleges Design Competition	NIT	1-3		O		50%			50%
	NIT Colleges 3D Printer Contest	NIT	1-2		O		50%			50%
	NIT Colleges Japanese Chess Tournament	NIT	1-2		O				100%	

	Activity	Institution	Points							
NIT, Gifu College	Off-campus practical work	NIT, Gifu College	1 for every 5 days	O			50%	50%		
	Training regarding literacy for creating products	NIT, Gifu College	1 for every 5 days and 30 hours	O			50%	50%		
	Award by President of NIT, Gifu College for class leaders	NIT, Gifu College	1		O				100%	
	Award by President of NIT, Gifu College for students with outstanding academic results	NIT, Gifu College	1		O	50%	50%			
	Award by Wakaayu-kai of NIT, Gifu College (except award by President)	NIT, Gifu College	1		O	20%	20%	20%	20%	20%
	Academic exhibition in college festival	NIT, Gifu College	1-2		O		50%	50%		
	Book report competition (free contribution, illustration, mascot character)	NIT, Gifu College	0.5-1.5		O	50%			50%	
	Book hunting	NIT, Gifu College	0.5		O	50%			50%	
	Board member of the student council	NIT, Gifu College	0.5-1		O				100%	
	Board member of the dormitory student council	NIT, Gifu College	0.5-1		O				100%	
	MS leaders	NIT, Gifu College	0.5		O				100%	
	Science volunteer	NIT, Gifu College	1 point for each case		O		50%		50%	
	Award by respective departments (credit certified by subject teachers)	NIT, Gifu College	1 point for each case		O		50%	50%		
	Voluntary learning outcomes of 45 subjects highly recommended by corporate engineers	NIT, Gifu College	1	O			50%	50%		

Category	Name	Organization	Num						
Technical senior high school	Mechanical Drawing Proficiency Test	NAPTSHS	1		O	100%			
	Calculation Skill Proficiency Test	NAPTSHS	2		O	100%			
	Information Technology Examination	NAPTSHS	1-3		O	100%			
	Computer Application Examination	NAPTSHS	2		O	100%			
Academic conference	Research paper	Respective academic conferences	2-8		O	100%			
	Conference presentation	Respective academic conferences	1-5		O	100%			
	Contest award in academic conferences	Respective academic conferences	Decision through deliberation each time		O	40%	20%	20%	20%
	Contest essay for high school students, Institute of Electrical Engineers of Japan	Institute of Electrical Engineers of Japan	1-4		O	50%	50%		
Basic subjects	EIKEN Test in Practical English Proficiency	Society for Testing English Proficiency	1-8	O		100%			
	TOEIC	Institute for International Business Communication	1-8	O		100%			
	TOEFL iBT	Council on International Educational Exchange	1-8		O	100%			
	English Technical Writing Test	Japan Society for Technical Communication	1-8	O		50%	50%		
	International Arithmetic and Mathematics Proficiency Test	Society for International Arithmetic and Mathematics Proficiency Test	1-3		O	100%			
	Practical Mathematics Proficiency Test	Japan Mathematics Aptitude Testing Foundation	1-3		O	100%			
	Practical Mathematics Proficiency Test, Winning of the Grand Prix	Japan Mathematics Aptitude Testing Foundation	Decision through deliberation each time		O	100%			
	Japan Kanji Aptitude Testing	Japan Kanji Aptitude Testing Foundation	1-5		O	100%			
	Japanese Language Aptitude Test	Association of International Education, Japan	1-4		O	100%			

Name	Management Organization	Credit Point	Quasi-curriculum	Extra curriculum	100%
Japan Science Testing	Japan Science Testing Foundation	1-2		O	100%
German Language Aptitude Test	Association for the Promotion of German Language and Literature	2-8	O		100%
Practical French Proficiency Test	French Language Education Institution	1-8	O		100%
Spanish Language Aptitude Test	Japan-Spanish Society	2-8	O		100%
Chinese Language Aptitude Test	Japan-Chinese Society	1-8	O		100%

Table 2: The list of the practical engineering credit point (an original point of view of respective departments).

Classification	Name	Management Organization	Practical Engineering Credit Point	Education Category Other Than Formal Curriculum		Category of Skills				
				Quasi-curriculum	Extra curriculum	Fundamental skills	Specialized skills	Versatile skills	Attitude and orientation (human power)	Comprehensive learning experience and creative thinking power
Specialized fields	Success in the first stage professional engineer examination	Institution of Professional Engineers, Japan	5		O		100%			
	Handling dangerous substances	Japan Fire Engineering Qualification Center	1		O		100%			
	Environmental Society Certification Test	Tokyo Chamber of Commerce and Industry	1		O		100%			
	CAD Use Engineer Examination	Computer Software Association of Japan	1		O		100%			
Mechanics	Mechanical Design Engineer Examination	Japan Mechanical Design Industry Association	5		O		100%			
Electronics	Licensed electrical engineer	Examination Center for Electrical Engineer	2-3		O		100%			
	Licensed electrical Communication engineer (transmission switching)	Japan Data Communications Association	2		O		100%			
	Licensed electrical Communication engineer (railway track)	Japan Data Communications Association	2		O		100%			

	Installation technician	Japan Data Communications Association	1-6		O		100%			
	Electrical worker	Examination Center for Electrical Engineer	2-4		O		100%			
	Amateur radio enthusiast	Japan Radio Institute	1-4		O		100%			
	Land radio technique professional engineer	Japan Radio Institute	1-8		O		100%			
	Land special radio technique engineer	Japan Radio Institute	1-2		O		100%			
	Marine special radio technique engineer	Japan Radio Institute	1-2		O		100%			
Information	Typing Skill Proficiency Test	e-typing Corporation	1-2		O		100%			
	IPA Examination (Information Technology Passport Examination, Basic Information, Applied Information)	Information-Technology Promotion Agency	1-8		O		100%			
	Digital Technology Certification	Practical Business Testing Foundation	1-3		O		100%			
	Information Proficiency Test	Association for Promoting Education at Special Training School	1		O		100%			
	CG Engineer Proficiency Test	Association for Promoting Image Information Education	1-2		O		100%			
	Image Processing Engineer Proficiency Test	Association for Promoting Image Information Education	1-2		O		100%			
	Multi-Media Proficiency Test	Association for Promoting Image Information Education	1-2		O		100%			
Civil engineering and Environment	Land surveyor & Assistant Land surveyor	Japanese Association of Surveyors	2-4		O		100%			
	Civil engineer	Japan Society of Civil Engineers	2		O		100%			
	Examination for Engineering Work Execution Process Supervisors	Japan Construction Training Center	2		O		100%			
	Pollution control manager	Japan Environmental Management Association for Industry	1		O		100%			
	Qualified Biotope Manager	Ecosystem Conservation Society - Japan	1-2		O		100%			

	3R Low-carbon Society Test	Executive Committee of 3R Low-carbon Society Test	0.5-1		O		100%			
Architecture	Real-estate transaction specialist	Real Estate Transaction Improvement Organization	6		O		100%			
	Color coordinator	Tokyo Chamber of Commerce and Industry	1-2		O		100%			
	Color Test	Color Test Association	2-3		O		100%			
	Coordinator of Welfare Dwelling Environment	Tokyo Chamber of Commerce and Industry	2-3		O		100%			
	Architecture CAD Test	Japan Architecture CAD Association	2		O		100%			
	Personal Computer Proficiency Examination (P-ken)	P-ken Association	2		O		100%			
	ICT Skills Proficiency Examination	Link Academy	2		O		100%			
	Exhibitions of excellent works created by students majoring in architecture/human life/arts, Gifu	Gifu, Tokai branch office, Architectural Institute of Japan	2-3		O		100%			
	High school Architecture Koshien	Japan Federation of Architects & Building Engineers Associations	2-4		O		100%			
	Design contest of Architectural Institute of Japan	Architectural Institute of Japan	6-10		O	25%	25%			50%
	Student contest of Aichi Architects Associations	Japan Federation of Architects & Building Engineers Associations	1-3		O	25%	25%			50%
	Second-class architect	Japan Architectural Education and Information Center	4-10		O	50%	50%			
	CAD engineer (Class 2)	Computer Education Institution	1		O		100%			
	3D CAD user engineer (Class 2)	Computer Education Institution	1		O		100%			
	Interior coordinator	Japan Interior Industry Association	4		O		100%			
	Interior architect (Class 2)	Society of Japan Interior Technology	4		O		100%			
	Interior Designer Certificate Test	Japan Design Planner Association	1		O		100%			
	Real-estate surveyor	Japan Real-estate surveyor Federation	5		O		100%			

Construction Managing Engineers Class 2 (architecture)	The Fund for Construction Industry Promotion	2		O		100%			
Condominium Manager	Condominium Management Center	1		O		100%			

The PECP system to give incentives

In the list of PECP, skills are categorized into five: Fundamental skills, Specialized skills, Versatile skills, Attitude and orientation (human power), Comprehensive learning experience and creative thinking power.

For example, PECP of "NIT Colleges Robot Contest" ranges from 1 to 8 (see the third box from the top, Table 1). When a student applies for a point after participating in the contest, then the faculty evaluate his or her activities and give the student 8 points (maximum) if evaluated "highly excellent", and only 1 point if "very poor". Also, the contest belongs to "Extra curriculum", not to "Quasi-curriculum". Moreover, both its "Specialized skills" and "Comprehensive learning experience and creative thinking power" are set as 50%. Thus, a student who participates in the contest and wins 5 points through the faculty evaluation will be given 2.5 points (50% of 5 points) as "Specialized skills" and also 2.5 points (50% of 5 points) as "Comprehensive learning experience and creative thinking power".

PECP, which is gained from activities in the quasi and extra curriculums, is not included in graduation requirements. Therefore, as shown below, respective departments set up their own incentive system to encourage students to gain more points. Each of them is in favor of those who have gained more.

✓ Incentives at the Department of Mechanical Engineering: Prioritizing students for graduation research laboratory and job recommendation
✓ Incentives at the Department of Electrical and Computer Engineering: Prioritizing students for course selection and graduation research laboratory
✓ Incentives at the Department of Electronic Control Engineering: Prioritizing students for a medium-scale experimental subject in the fourth year
✓ Incentives at the Department of Civil Engineering: Aggressive challenge for the first stage professional engineer examination and sharing the record of successful examinees
✓ Incentives at the Department of Architecture: Prioritizing students for lending a drawing board for the examination for class-2 architects, prioritizing students for internship placement, job placement and further education

According to aggregate results, the students at the Department of Electrical and Computer Engineering, which was the first to introduce the system among the five departments, tend to gain PECP in a positive manner, hoping to enter the course he or she wants to take when selecting a course. The other four departments, which are going to start full-scale operation in or after this academic year, are expected to show a similar tendency.

The 45 subjects highly recommended by corporate engineers

In this project, some senior graduates of our college selected 45 kinds of subjects from the viewpoint of corporate engineers who are/were playing a key role in Japanese high-tech industries, and after that, we, together with the graduates, created educational materials by using the educational content. The 45 subjects highly recommended by corporate engineers (45 SHRCE) were classified according to specialized fields such as "Liberal Arts", "Natural Science", "Practical Mechanics", "Electronics", and "Environment". For example, a specialized field of "Liberal Arts" corresponds to a subject in the formal curriculum. The subject ("Liberal Arts") contains several kinds of items, and each item corresponds to a class (lecture/exercise lesson) of the subject. Moreover, each of the 45 subjects has content of the introductory, intermediate and advanced levels. The 45 SHRCE was developed with students' voluntary learning in mind, and therefore, we adopted a function to manage their learning automatically. Also, we added the 45 SHRCE in the "PECP" system, as shown in Table 1. Moreover, we prepared exercises of CBT for each of the introductory, intermediate and advanced levels, and introduced a system to manage student performance.

CONCLUSIONS

The promotion of AL in our college is characterized in that all faculty members are practicing it. With respect to the subjects in the formal curriculum, respective teachers are visualizing their degree of AL by describing three levels of AL in each class in their syllabus. With respect to the quasi and extra curriculums, we are visualizing the degree of activity in students' AL by means of a server for visualizing the acquisition status of PECP. Japan is a technology-oriented nation, and its basis is manufacturing industries that possess world-class technology.

From this point of view, senior graduates of NIT colleges are regarded as irreplaceable human resources who, with problem solving experiences covering a wide range from creating products to company management, serve as the backbone of Japanese manufacturing industries. Our college is placing emphasis on education with the perspective of senior graduates who have problem-solving skills. We are promoting AL by improving students' active nature in each of the formal, quasi and extra curriculums. Our college started to give students credit points with the PECP system on a full scale, as a main pillar for visualizing learning outcomes of the quasi and extra curriculums in our college AL promotion project.

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PUBLIC SCHOOLS IN THE DEVELOPMENT OF A PARTICIPATORY GEOSPATIAL MAP IN QUEIMADOS

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This paper presents the development of research and extension studies conducted by   researchers, municipal departments and public schools in Queimados, Brazil. The methodology aims to offer an introduction to Georeferencing in the discipline of geography, improving skills and cognitive competences. For the development of this technological tool, the students have participated in the construction of a multifunctional registration for the use of the municipal managers. They also collaborate for the identification of local urban problems and contribute to the development of a database tool, with a capacity to promote an approach between citizens and policymakers. This research is founded by Faperj.

QUALITY STANDARDS FOR THE CONTENT OF THE PROGRAM AND ADMISSION TO THE STUDENTS IN SCIENCE EDUCATION TEACHER TRAINING PROGRAMS

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Teachers are the basic building blocks of the education system. Teachers play a leading role in the training of new generations, in the development of countries, and in the socialization of individuals who make up society. The aim of the study in this context is to determine what the quality standards should be in relation to the content of the program and student admission in science education teacher training programs. Screening (Survey) method was used in the research. As a data collection tool, a 5-point likert type scale consisting of 4 dimensions and 42 items, which is one of the quantitative data collection techniques and developed by the researcher, was used. During the development of the scale, exploratory and confirmatory factor analysis was used. The scale developed by the researcher was applied to a sample group of 1300 students of senior science students who are studying at various universities in Turkey. According to the results of the analysis, in the science education teacher training programs, the quality standards that should be found for the content of the program and for the admission of the students have been determined.

Close

QZONE WEBLOG FOR CRITICAL PEER FEEDBACK TO IMPROVE BUSINESS ENGLISH WRITING: A CASE OF CHINESE UNDERGRADUATES

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This study explores Qzone weblog for critical peer feedback (CPF) in Business English writing (BEW) among the Chinese undergraduates. A qualitative case study is conducted by Nvivo 8 to analyze the three research data of semi-structured interviews, BEW writing assignments, and CPF artifacts on Qzone weblog. Three research questions are focused to study the case participants' perception of this study, the strength and weakness of Qzone for critical peer feedback, and online features of Qzone affecting critical peer feedback in Business English writing. The study aims to explore how Qzone weblog affects critical peer feedback in the online environment. The findings indicate that Qzone weblog is a convenient ICT platform for online critical peer feedback, especially, for the Chinese undergraduates. The strength and online features of Qzone are models by Nvivo 8 for description by figures. The six aspects of strength and five online features are coded by Nvivo 8. The only weakness of Qzone is the character number limitation for each blog and feedback. The conclusion of this study may be implied for the use of Qzone weblog and other kinds of weblog for online peer feedback in writing instruction.

READING THE MESSAGE THROUGH THE COVER DESIGNS OF EDUCATIONAL BOOKS ABOUT COMMUNICATION

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Design is a way to understand communication and an aproach for investigating the social World from the standpoint of communication. From a design perspective, basic complexity that people encounter is when it was difficult, impossible or unimagined, how to make communication possible. Design of communication occurs while there is an intervention into some continuous activity by the invention of techniques, devices and procedures that ain to redesign interactivity. There is something important about the mass produced communication book as an object. It is more than just a statement of the ideas of an author. When a text is published and the book is designed and printed, it becomes a physical manifestation not just of the ideas of the author, but of the cultural symbols and aesthetics of a significant historical era. Book covers can be consider as a marriage between authors' words and designers' vision. The cover is the first interraction and communication to the reader. It's a graphic representation not simply of its content but also of it's place in history, in history of design, history of literatüre and history of culture. The designs associate our personal and collective encounters with the groundbreaking intellectual expressions of our era.

While studying about a book cover design there are two links to examine: first between the text and the cover; and second, between the cover and actual or potential reader. It is important to study about how book covers translate the verbal signs of the text into a non verbal sign system of culturally encoded images. There are three basic functions of book covers: to advertise and identify the content of the book, maintain the literal approach of the original author and work as a primary visual in advertisement approaches. As for the method, this study will be focused on three elements to analyze the visual-rhetoric features of the album covers; Graphics, colors and theme. Examine the meaning of these elements as cultural messages will be the main purpose of the study.

REINTERPRETING THE FLESCH READABILITY SCALE FOR THE INFORMATION AGE

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ABSTRACT

For more than seventy-five years, *Flesch Reading Ease* has been an important measure of the readability of a passage. In this paper, examples that Flesch used are re-analyzed. Flesch originally interpreted his readability scale in terms of school grade levels, but changes in reading difficulty, as well as readers' abilities, suggest that an interpretation based on *occupation* may be more suitable for the twenty-first century. Recent changes in the workplace, resulting from computerization, require a further shift in interpretation of *Flesch Reading Ease* to one of *social functionality*. Examples from digital media verify this interpretation. (97)

INTRODUCTION

Many educators will recognize *Flesch Reading Ease* as an important measure of the readability of a passage. In the seventy-five years since its inception, the Flesch readability scale has become one of the most frequently cited instruments for determining readability of documentsThough it has become a standard for measuring readability, the various components of "reading ease" may not yet be fully understood.

There are three numbers or sets of numbers associated with *Flesch Reading Ease*.   The first is the *Flesch Readability Formula*. This simple formula, based on the average number of syllables per word and the average number of words per sentence, produces a readability scale known as *Flesch Reading Ease* (henceforth FRE). This gives us a numerical value, on a scale of 0 to 100, by which to appraise a text. Reading difficulty is considered to be inversely proportional to this numerical score. A third factor, *School Grade Level*, gives us a method of interpreting the score.

Flesch's formula, developed in the 1940s, has withstood the test of time. Yet research indicates that the interpretation of scores attained today by the *Flesch Readability Formula* may differ somewhat from the original interpretation suggested by Flesch, both in terms of the difficulty of the passages he used as examples, and in terms of the school grade levels that correspond to the scale. Exemplary passages have become more accessible to their intended audiences, due in part to the influence of the *Flesch Reading Ease* measure itself. In addition, school grade levels have shifted somewhat, due in part to the influences of the Information Age and different forms of written texts.

In this paper I will demonstrate that the same reading materials which Flesch evaluated years ago do not yield

the same results today, even when analyzed according to his own formula. Next, I will suggest a modified interpretation of the scores, an interpretation suitable for the twenty-first century. Finally, I will suggest broad categories of interpretation that reflect changes to society in the Information Age.

THE FLESCH READABILITY FORMULA

Rudolf Flesch (1949) developed his readability formula as a means of evaluating adult reading materials, basing his formula on the average number of words per sentence and the average number of syllables per word:

$$206.835 - 84.6 \text{ (syllables/word)} - 1.015 \text{ (words/sentence)} = \textit{Flesch Reading Ease}.$$

The readability score can range from anywhere below zero to 120.2 (for example, in a passage consisting entirely of simple two-word sentences, "I go. We go. You go. They stay." FRE = 120.2.) Flesch then interpreted the scores in terms of school grade levels (in the American K12 system[1]), predicting readability based on formulas derived from McCall and Crabbs' *Standard Test Lessons in Reading* (1925). Table 1 shows Flesch's original model of how the scores should be interpreted.

Table 1.   The Flesch Readability Scale.

Score	School Level	Example
90 to 100	5th Grade	Comics (92)
80 to 90	6th Grade	Consumer Ads (82)
70 to 80	7th Grade	Movie Screen (75)
60 to 70	8th and 9th Grade	*Seventeen* (67) *Reader's Digest* (65) *Sports Illustrated* (63) *N.Y. Daily News* (60)
50 to 60	10th to 12th Grade	*Atlantic Monthly* (57) *Time* (52) *Newsweek* (50)
30 to 50	College	*Wall Street Journal* (43) *Harvard Business Review* (43) *New York Times* (39) *N.Y. Review of Books* (35) *Harvard Law Review* (32)
0 to 30	College Graduate	Auto Insurance Policy (10)
		Internal Revenue Code (– 6)

REEXAMINING THE FLESCH SCALE

A previous study (Stewart, 2003) arose from a deepening suspicion that Flesch's interpretation of the *Internal Revenue Code*, his most difficult example, had been exaggerated, possibly as a means of grabbing people's attention. A reexamination of *all* of Flesch's examples (over 100,000 words) revealed that reading difficulty has changed over the course of time. The following summarizes those findings.

1. Comics. Flesch claimed that comics have a readability score of FRE 92, but there are different types of comics: comic *strips* (four frames in daily newspapers) and comic *books*. When retested, comic *strips* had a readability score of FRE 88.53; comic *books* had a readability score of FRE 81.32. Combined, they produced a score of FRE 85.43.

2. Consumer Ads in Magazines. More than one hundred samples of consumer advertise- ments were analyzed. While Flesch predicted that these would have a score of FRE 82, advertisements today have a score of FRE 62.32, nearly twenty points lower (more difficult) than Flesch's original estimate.

3. Movie Screen. It is not entirely clear what Flesch meant by "movie screen," which he assigned a readability score of FRE 75. However, the scrolling and receding onscreen prologues of *Star Wars I-VII* (1977-2016) produced a score of FRE 52.27.

4. *Seventeen, Reader's Digest, Sports Illustrated, New York Daily News.* Flesch originally reported that these periodicals fell within the 60-70 range on the Readability Scale. Although this remains true in the case of the adult publications, *Seventeen*, aimed at a teenaged audience, scored notably higher (FRE 77.57).

5. *Atlantic Monthly, Time, Newsweek.* Flesch reported that these publications fell within the 50-60 range on the Readability Scale. *Atlantic Monthly* was found to have a readability score of FRE 52.67; *Time* scored FRE 56.95; *Newsweek,* FRE 58.18.

6. *Wall Street Journal, Harvard Business Review, New York Times, New York Review of Books, Harvard Law Review.* Flesch originally reported that these publications fell within the 30-50 range on the Readability Scale. Most of these publications today have slightly easier readability. Only the *Harvard Law Review* remains about the same (FRE 34.20, compared to Flesch's estimate of FRE 32).

7. Standard Auto Insurance Policy. As a result of "plain English laws" governing consumer contracts, many states now require that insurance policies be written in language that is easy to understand. A score of FRE 59.76 obtained for a standard insurance policy may therefore be considered an artifact of the works of Rudolf Flesch.

8. Internal Revenue Code. Section 23(p), the part analyzed by Flesch (FRE –6) and Title 26-404, the same passage in today's language (FRE 9.84), pertain only to pension plans. When this and sixty-eight other sections of the *Internal Revenue Code* were analyzed, the sample produced a score of FRE 52.57.

REINTERPRETING THE FLESCH READABILITY SCALE FOR THE INFORMATION AGE

Flesch's interpretation of readability scores notably relies on school grade levels (from fifth grade to college graduate) to illustrate the reading difficulty of a text. However, a closer look at his examples reveals a number of inconsistencies. First and foremost, the "school grade level" of the exemplary texts has nothing to do with their intended audiences. Sixth grade pupils have very little purchasing power compared to the adult work force, so it is not likely that "consumer ads in magazines" should be used to exemplify sixth grade reading materials.

Similarly, none of the reading examples with a readability score in the range of FRE 50-80, with the possible exception of *Seventeen*, appeals to the audience that corresponds to the grade level that Flesch described. Secondly, as mentioned in number 7, above, certain types of documents are now being written at a specified level of difficulty, taking into account the *reading abilities* of their intended audiences. These discrepancies suggested that a more practical method of interpreting the readability scores, an interpretation based on the concept of *audience appeal* rather than school grade level, should be sought.

With this in mind, all the publications originally listed by Flesch were arranged in order of their current difficulty. This list produced five distinct categories of *audience appeal*: K12 student, blue-collar workers, white-collar workers, professionals, and statesmen.[2] A new range of readability scores, corresponding to *occupation* rather than *school grade level,* was then derived. Table 2 summarizes this interpretation.

Table 2.   A Twenty-first Century Interpretation of the Flesch Readability Scale.

20th-Century Level	Flesch Index	21st-Century Level	Examples (21st-Century Analysis)
Fifth - Sixth Grade (80-100)	90 – 100	Elementary School	*Peanuts* (95)
	80 – 90	Junior High School	*Stuart Little* (86)
Junior High School (60-80)	70 – 80	High School	*Seventeen* (77)
	60 – 70	Blue-collar	*Sports Illustrated* (67) Consumer Ads (62) Auto Insurance Policy (60)
High School (50-60) College	40 – 60	White-collar	*Time* (57) *Internal Revenue Code* (52) *New York Times* (48)
(30-50)	20 – 40	Professional (Lawyer, Physician)	Medical Journals (34) *Harvard Law Review* (34)
College Graduate (0 – 30)	0 – 20	Statesman	Preambles, Resolutions etc. (1-26)

We have thus far shifted the interpretation of the Flesch readability scale from an *educational* perspective, which Flesch advocated, to an *occupational* perspective, which more accurately reflects reading audiences today. However, some job categories are undergoing a major transformation due to automation, computerization and globalization, products of the Information Age. This has affected blue-collar workers in particular (assembly line workers, data processors, etc.), who must deal with the change in one of two ways. They must either move up the ladder, re-educating themselves to become "knowledge workers" (consultants, teachers, journalists, executives, etc.), or accept lower-paying service jobs. This necessitates another change in perspective of the interpretation of *Flesch Reading Ease*, this time from an *occupational* perspective to one of *social functionality*.

In order to reach a better understanding of the readability demands of the Information Age, we may look to several digital media that did not exist when Flesch developed his formula. When analyzed, *Wikipedia* yielded the most difficult score, FRE 34.67, roughly equivalent to Medical Journals and the *Harvard Law Review* of 75

years ago. Descriptions of half a dozen online games (playstation.org) were the next most difficult, scoring FRE 49.9, appropriate reading for a college freshman in Flesch's day, or a white-collar worker today. Social media such as blogs, e-mails, and tweets scored FRE 50.1, 56.2, and 63.6, respectively. Facebook scored FRE 70.5, which Flesch would have considered junior high school level.

Most parents of elementary school pupils prefer to monitor their children's access to the Internet. Nonetheless, the Internet has come to provide valuable assistance in the schools, making use of technology to enhance education. A number of online worksheets covering reading skills from kindergarten to grade six (k5learning.com) were analyzed, producing an average score of FRE 81.6. These findings correlate roughly with Flesch's original interpretation. When analyzed one by one, however, a different picture emerged. Only the second-grade worksheet yielded what Flesch would have considered elementary school difficulty (FRE 92.5)[3]. The others scored between FRE 54 and FRE 77, materials suitable for seventh- through twelfth-grade students. This means that either reading ability has advanced far beyond what Flesch envisioned nearly 75 years ago, or study materials today are far too difficult for elementary school pupils. Results of the intermediary study (Stewart, 2003) indicate that the latter is more likely to be true. This has been corroborated by others who have studied recent trends in online reading.

In an article entitled, "Lower-Literacy Users: Writing for a Broad Consumer Audience," Jakob Nielsen (2005) discusses making web sites more accessible to the masses. In this article, he estimates that 43% of the American public fall into a "lower-literacy" cate gory of poor readers. In contrast with "higher-literacy" users, who scan texts on the Internet and pick out the pieces that interest them, these lower-literacy users "plow" the text, reading word for word and line by line. Nielsen recommends writing for lower-literacy users at the sixth-grade level (FRE 80), and writing for higher-literacy users at the eighth-grade level (FRE 70)[4].

Understanding the Flesch readability scale in the Information Age requires combining elements of the twenty-first century occupational interpretation with social realities arising from the impact of computers in the workplace. At the easiest level (FRE 70-100) are materials commonly read for leisure by elementary, junior and senior high school students, who are society's *dependents*. Certain groups of adults may be added to this category – those who depend upon society for their support. An online application for food stamps (a social welfare program) rivaled Facebook in reading ease (FRE 70.3), or high school level, the threshold of readability for an applicant to be able to complete the form without assistance. Combined, we may thus consider social *dependents* as reading texts between FRE 70 and FRE 100.

A second group, whose readability scores would be in the range of FRE 60-70, may be considered socially *mobile*. This group might include some high school students, who are transitioning from a status of social dependency to one of self-sufficiency (i.e., *upwardly* mobile). Those blue-collar workers who are in the process of being replaced by automation, computerization, or globalization (i.e., downwardly mobile) might also fit into this group. A third group, those who are socially *established* (surviving blue-collar workers, white-collar workers,

professionals) commonly read texts between FRE 30 and FRE 60.

Those who read documents more difficult than FRE 30 could be considered the *elites* of society, for example, a statesman, a scientist, or an inventor. *U.N. Resolution* 2225 ("Children and Armed Conflict," 2015) has a readability score of FRE 8.6; all twenty-seven *U.S. Constitutional Amendments*, FRE 26.6. Twelve modern scientific articles that deal with quantum physics were evaluated, averaging FRE 25.2. Albert Einstein, whose 1905 paper "On the Electrodynamics of Moving Bodies" ("The Theory of Relativity") was written at FRE 28.1, worked in the Swiss Patent Office. Documents filed in the U.S. Patent Office at about the same time include Nicola Tesla's 1905 patent, "Art of Transmitting Electrical Energy Through the Natural Mediums," which scored FRE 30.3, and the Wright Brothers' 1906 patent, "Flying Machine," which scored FRE 31.8. Abstracts of fifteen U.S. patents (2015-2016) scored FRE 23. Table 3 summarizes this interpretation.

Table 3.   The Flesch Readability Scale, Reinterpreted for the Information Age.

Flesch Scale	Twentieth Century	Twenty-First Century	Information Age		Examples
90 - 100	Fifth – Sixth Grade	Elementary School	Literacy Downward ↑ Lower Upward → Higher Literacy ↓	Dependent	*The Giving Tree* (102)
80 - 90		Junior High School		Dependent	*Harry Potter* (83)
70 - 80	Junior High School	High School			Facebook (70) / Welfare Appl. (70)
60 - 70		Blue Collar		Mobile	Tweets (63)
50 - 60	High School	White Collar		Established	Blogs, Emails (50-56)
40 - 50	College			Established	Games (49)
30 - 40		Professional		Established	Wikipedia (34)
20 - 30	College Graduate			Elite	Scientific Articles (25)
10 - 20		Statesman		Elite	Patents (23)
0 - 10				Elite	Government Documents (1-26)

CONCLUSION

The Flesch readability calculations began with a formula based on word length, in syllables, and sentence length, in words. This produced a readability score, which was then interpreted in terms of school grade levels.

In this study a different approach was taken. The examples were analyzed according to the *Flesch Readability Formula*, but instead of interpreting these scores in terms of school grade levels, the target audiences of the exemplary publications were considered. Five groups were identified, groups which corresponded to distinct ranges of difficulty on the Flesch Readability Scale: K-12 student, blue-collar worker, white-collar worker, professional, statesman. However, an occupational model only partially expresses the social realities of the Information Age.

Changing conditions in the workplace, caused by automation, computerization and globalization, require a

further shift in perspective from an occupational model to one of social functionality. In this model, four groups become evident. Socially *dependent* persons read at levels easier than FRE 70; socially *mobile* persons read at levels between FRE 60 and FRE 70; socially *established* persons read at levels between FRE 30 and FRE 60; those considered the *elites* of society read documents more difficult than FRE 30. While younger, emergent readers spend a greater portion of their time reading printed materials, the Information Age exerts increasing influence on older dependents, mobile persons, and the socially established. Elites will most likely transcend readability influences, whether technological or otherwise.

The twentieth century stood at the crossroads of the Industrial Age and the Technological Revolution, which ushered in the Information Age. One defining characteristic of the Information Age is accumulation, a principle of the desktop era. This accumulation is typified by Facebook, where one's identity is considered the sum of all the information that person has saved – text, photos, video, web pages. As mobile devices replace desktop computers, we now view digital identity differently. The accumulated "virtual self" is giving way to more spontaneous expressions, as in Instagram or Snapchat. Search engines eliminate the need for keeping vast libraries of information on hand. Changes in personal communication habits will, in time, necessitate a further study, examining whether the social functionality model of the Information Age remains a valid interpretation of readability in the Experience Age.

NOTES

1) In this system, some school districts offer middle school (a 5-3-4 system), and others offer junior high school (a 6-2-4 or a 6-3-3 system). High school begins in the ninth or tenth grade. The K-12 nomenclature conveniently describes any combination of elementary school, middle school / junior high school, and high school.

2) The *Preamble to the U.S. Constitution* has a readability score of FRE 1.13; the first sentences of the *U.S. Declaration of Independence*, FRE 1.32; *U.N. Resolution 1441* ("Weapons of Mass Destruction," 2002), FRE 8.

3) The kindergarten worksheets probably would be read by the teacher, not by the pupils.

4) Using Flesch's original interpretation treats this evaluation very generously; a twenty-first century interpretation would place these figures at FRE 90 and FRE 80, respectively.

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RELATIONSHIP BETWEEN MASS MEDIA AND EDUCATION: CASE OF JORDAN.

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ABSTRACT
 The paper is showing the relationship between the mass media and education. It contains the role, importance and effects of mass media on education in underdeveloped countries. It also talks about the use of media in classroom and in the teaching learning process. This paper is representing the extensive and extreme use of media in education contents and its social impact upon society because of its inherent ability to reach large number of public. We will take for example " jordan" and through specific examples and statistics, we will analyse the whole process starting on 2011 with the Arab spring.

INTRO/ MOTIVATION
Our research paper is showing the relationship between the mass media and education. It contains the role, importance and effects of mass media on education in underdeveloped countries. It also talks about the use of media in classroom and in the teaching learning process. This paper is representing the extensive and extreme use of media in education contents and its social impact upon society because of its inherent ability to reach large number of public. As Field of study, We will take for example "Jordan" and through specific examples and statistics, we will analyse the whole process starting on 2011 with the Arab spring.

Role of Mass Media in providing Education
Mass Media is the tool or technology that take several form such as Internet, Television, newspapers..etc This tool can be used by someone to transfer a positive or negative message to a huge number of people in all over the world. Media is a gift given to humanity because Media has enhanced education and education has improved media. There are two major ways to using media and technology in Schools or any educational institution. First, students can learn "from" media and technology in many field of knowledge, and second, they can learn "with" the media and technology, using it simplify learning process because students have easy access to any source of science. So, Education and Media are integral part of learning, They form a person and transform society. In the twenty first century, education could not be limited within teacher and taught without social environment. It is obvious that Media is one such strong power that exist in the social environment of education. Using these modern electronic techniques and technologies, Mass media proves that education is, really comprehensive and not confined within four walls of the classroom. So it is really clear that mass media is the educational medium for the mass and mass education. Students/ learners get a great deal of information from the widespread mass media. We would estimate that mass media may substitute the real classroom teaching in future.

Functions of Mass Media
The media has the power to enable the adaptability of the educational process to the individual student's differences in pace, temperament, background, and style of learning. These media can perform many of the following functions involved in the educational process: 1) The media helps in disseminating information for the mass. People acquire different knowledge very quickly and have access to it when it is wanted. 2) The Media helps in providing vocational and professional information to a larger group of the community. 3) The People can be aware of different problems of the society and their role in changing society through mass media. People know their rights and duties for the nation clearly. 4) They can give the student the opportunity to reach the material and respond in many ways. 5) The Mass Media help in forming suitable habits for different programmes and they utilize their leisure time in a productive way. It also influences the behavior of people through different programmes. 6) Now in Jordan mass media is not treated as informal agencies of education. They are called non-formal agencies due to its wide coverage of educational items in a systematic way.

It is viewed that these media can substitute the classroom teaching in future.

Educational technology is considered as an effective approach to instruction, since it's objectives are defined, the logical blocks in the argument worked out, and students tested for their ability to absorb the blocks at different rates in different sequences etc. The media was born of the communication revolutions which can be used for instructional purposes, alongside the teacher, textbook and blackboard. The components that make up educational technology include television, films, overhead projectors, computers, and the other items of hardware and software. In nearly every case, the media have centered education independently, and still operate more in isolation than in combination.

Mass Media for education in underdeveloped countries

Mass media, print media and its usage, play an important role for the development of education in the underdeveloped countries, such as Jordan. Various forms of mass media can be used for the development of education in underdeveloped countries. The twenty first century witnessed a fast and huge development in societies, Mass media offers societies and its inhabitants a great number of new possibilities. Predominantly, these unique opportunities concern the advancement of social media that have noticeably permeated the modern education world. In fact, it is not a secret that the majority of teachers and professors, in Jordan, highly appreciate the power of these tools which lies in the ability to engage, motivate, as well as to involve the students into deep contemplation and sensible discussion. To some extent, it is a two way discussion which brings people together to discover and share some information, interests, as well as ideas.

Implementation of Social Media Into Educational Life

It is important to note that social media is occupying more and more of our online time and in many ways is becoming a preferred method of communication. This begs the question: how do we educate today's students on the best practices of using social networks?

Nowadays, many educational establishments in Jordan are beginning to embrace social media into their everyday life. It is a wellknown fact that Twitter and Facebook are considered to be the fastest ways of finding information that might be of great value for all students.

It may be challenging to bring a social network like Twitter into your classroom or school In a country like Jordan, But another option is to create a social media class. With a structured environment that the teacher controls, there is a big opportunity to teach students about using these platforms as creative writing and communication tools. Remarkably, these websites can be used for:1) Creating a discussion in the classroom for a new topic or a topic that previously published online. Interestingly, it is possible to create a chat room on any secure website that can be embedded later to some blog and scheduled to open at a specified time. 2) Speaking about various blogs which can be utilized to encourage creative writing and to enrich grammar skills. 3) On the whole, one of the biggest assets of each social media tool lies in bringing together the students of all ages to help them with all types of assignments, starting with the homework and finishing with different researches. 4)Media can assist the students in solving their engagement crisis. Indeed, In some jordanian institution, the lack of engagement has become the main reason for students' expulsion both from the course and college. In this case, social media engages them into close communication and collaboration with their instructors so that the studying process is properly maintained.

The Importance of Media in the Classroom

The classroom is a closed place with four walls, therefor it need always refreshment. Media act perfectly as a direct refreshment in our present time because Media in the classroom engage students in learning and provide a richer experience. Media components are useful tools for illustrating a lesson, allowing students to see examples of what they are learning easily and quickly. Interactive media such as Smart Boards allow students to move items on a screen for illustrative purposes. Media Appeals to Multiple Learning Styles such as visual, auditory and kinesthetic learners, those learners can watch a movie, listen to music or interact with digital media on an interactive Smart Board. Media creates an Authentic Learning Experience: the different type of media provides authentic opportunities for students to learn using real-world media. Learners must read, evaluate and interpret information based on items that they need in their daily lives. Media als has the power to strengthens Critical-Thinking Skills: Teachers can help the learners in using the media to ask probing questions and facilitate discussions that extend beyond basic comprehension questions. For example: Students can write a story, interpret a documentary or interpret

a news broadcast. Finally, Meda Teaches Students to Use Media and care for resources to further their education because with the time , students become experts which enable them to determine the value of media and learn methods to contribute to society, producing their own media.

CONCLUSION

In this chapter we attempted to analyse the mass media's importance and role in education in an underdeveloped country like Jordan. The revolution in information technology has equipped the media with huge power. In the present digital age, multimedia access which is a powerful mechanism to accelerate the development in education through distance learning. We have the media like Internet, which is equivalent of a telephone, fax and radio, TV all rolled into one service. It has been observed that if mass media could be appropriately used to the suiting and to the learning needs created by the forces of change like population explosion, knowledge explosion, electronic distance education and technological explosion. So, The media has the power of educating people, the good and the bad. Since it affect the eyes, the ears and the mind simultaneously nothing can overcome the influence of the media. The media in Jordan performs a noble mission of enlightening people and discourage sectarian, communal and divisive trends. It did change the educational system radically and students depend more and more on MEDIA.

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RESEARCH INTO THE EFFECT OF SPECIAL COURSE WITH POSITIVE EMOTION ABOUT THE CREATIVE DESIGN OF FUEL-ECONOMIZING DEVICE ON UNIVERSITY STUDENTS' CREATIVITY DEVELOPMENT IN THE DEPARTMENT OF ENGINEERING

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ABSTRACT

This research aims to discuss the effect of special course with positive emotion about the creative design of fuel-economizing device on university students' creativity development in the Department of Engineering. This research took 45 students in the special course of the Department of Engineering in one National University of Technology located in the south of Taiwan and established a network learning platform with the positive emotion as the learning situation for the special course about the creative design of fuel-economizing device, so as to provide the space for the team students to discuss, share and integrate the creative design of fuel-economizing device; then the questionnaire survey was conducted to analyze and discuss the effect of positive emotional environment on university students' creativity development in the Department of Engineering. According to the research results, the following findings are made: 1) the construction of positive emotional environment contains 4 dimensions: pleasure, contentment, self-confidence and empathy; 2) university students in the Department of Engineering have a positive attitude towards the integration of the construction of positive emotional environment into special course; 3) most of the students are positive and affirmative of the integration of positive emotions into course teaching; 4) the construction of positive emotional environment has the significantly positive effect on university students' creativity development in the Department of Engineering. Finally, the specific suggestions are proposed, which will be used as the reference for the future promotion of positive emotion and creativity teaching. **Keywords:** Fuel-economizing, Creativity, Positive Emotion, University

Student

INTRODUCTION

In recent years, the rise of large-scale enterprises in America, such as Amazon, Apple, GOOGLE, and Facebook, lies in their courage to face challenge and pursuit of innovation. They lead a new wave of economic growth in the United States. This indicated that the educational focus on freedom, open thinking, and creativity of America had made substantial achievements (Wu, 2002). Thus, the education of creativity played a prominent role in education (Lubart, Georgsdottir & Besançon, 2009; Prabhu et al., 2008; Runco, 1996). "White Paper on the Education of Creativity" published by the Ministry of Education of Taiwan announced in 2007 mentioned that, it aimed to activate the creative potential of the whole people, improve the ability to solve issues, develop diversified skills, create and enrich self-value, and build Taiwan into a creative country.

However, it can be seen from the recent literature that intrinsic motivation played an important role in personal innovative behavior. The main factors influencing an individual's innovation lie in his/her intrinsic motivation which further affected innovation (Amabile, 1988). In other words, if an individual had high intrinsic motivation, he/she would exert the greatest power for creativity (Amabile & Conti, 1999). Besides, intrinsic motivation made one braver to explore new paths of cognition and happier to come up with new ideas (Amabile, Goldfarb & Brackfield, 1990). Therefore, the most decisive factor influencing an individual's creativity was psychological (Dewett, 2007).

In the field of psychological research, Panksepp (1998) argued that past studies focused primarily on the effects of negative mental state on physical and mental health. And few academic papers were about positive psychology. In terms of the rise of positive psychology, in Handbook of Positive Psychology, published by Oxford University in 2002, the topic in March 2001 was "positive psychology" (Snyder & Lopez, 2009). At present, the studies on "positive psychology" stress positive emotions, because positive emotions had better preventive effects than negative ones and could promote physical health (Salovey, Rothhmman, Detweiler, & Seteward, 2000). Fredrickson (2001) advocated positive psychology and established broaden-and-build theory. Fredrickson explained that positive emotions like pleasure, interest, satisfaction, confidence, and love could promote brief thinking, action skills, and learning outcome.

Therefore, this study created positive emotions in the course of teaching and designed theme creative design competition. In the activity, students were expected to apply the basic knowledge and skills learned in textbook. Through the learning environment with positive emotions and the theme creative design competition, the potential creativity of students was stimulated. It was expected to combine both theory and practice. This study contained four purposes:

(I) Exploring the dimension of the learning environment with positive emotions.

(II) Exploring the dimension of the development of creativity.

(III) Exploring the impact of the integration of positive emotions into thematic courses for undergraduates majoring in Engineering Science.

(IV) Exploring the impact of positive emotions on the development of creativity of undergraduates majoring in Engineering Science.

LITERATURE REVIEW

Traits of creative personality

Kirton (1976) assumed that people with creative personality were interested in the changes in environment and brave to explore, had autonomy, endured vagueness, believed intuition, and stressed "originality". Chen (2012) summarized the traits of creative personality, including wisdom, originality, spirit of adventure, independence, curiosity, intuition, and strong sense of mission. In addition, much literature on creativity proposed that the generation of creativity was related to personal abilities, such as identifying problems, keen observation, insight, strain capacity, conversion, adaptability, skills of specific fields, professional skills, adjustment of oneself to meet the demands of environment, skills to solve problems, effective decision-making, and logical thinking (Donnelly, 1994; Feldhusen, 1995; Runco, 1996; Runco & Walberg, 1998; Sternberg & Lubert, 1996). Thus, this study aimed to cultivate students with the traits of creativity, such as initiative, originality, simplicity, imagination, knowledge, flexibility, and, association, and regarded these abilities as the basis for the design of questionnaire.

Positive emotion

Positive psychology emphasizes that psychology shall not only study the problems of human or society, but also the inner positive aspect and positive factors of humans. Hence, it suggests to actively promote positive thinking rather than passively preventing the consequence of negative factors. Seligman & Csikszentmihalyi (2000) explained positive psychology from three aspects, that is, positive emotions, positive individual traits, and positive institutions (Seligman & Csikszentmihalyi, 2014). Nevertheless, the research on positive emotions is still in the embryonic stage. Thus, different experts and scholars have different views on the definition of positive emotions. While defining positive emotions, this study referred to the definition proposed by Seligman who was an authority in positive psychology. Seligman classified positive emotions into three categories by different time phases, including past, present, and future. Negative emotions in a time point would make life unbalanced. Only by learning the skills to sustain happiness could one change his/her opinions on the past, cherish hope for the future, and experience the present. One should guide himself/herself toward positive emotions so as to maintain good psychological quality (Seligman, 2002; Peterson, Park & Seligman, 2013). This study summarized relevant literature on "positive emotions" like pleasure, contentment, confidence, and empathy which served as the key points to create an environment with positive emotions and the basis for the

development of questionnaire.

3. Research Design

Through the reference to and summary of relevant literature on positive emotions and creativity, this study had initial understanding of the integration of positive emotions into "CAD" thematic courses to develop the creativity of undergraduates majoring in Engineering Science and started to conduct relevant research design, described as follows:

Research Structure

This study designed "Course of Creative Design of Fuel-efficient Device" lasting for 9 weeks. The subjects were 48 sophomores of Engineering Science Department attending the thematic course. Experimental teaching method and questionnaire were employed to explore the influence of the "CAD" thematic course with positive emotion environment on their development of creativity, as shown in Figure 1. With respect to the creation of the environment with positive emotions, this study put forward four dimensions, including pleasure, contentment, confidence, and empathy, as the key points of creation of environment with positive emotions and the basis for questionnaire design. Furthermore, in regard to the development of creativity, it hoped that, through the design of "the thematic course of positive emotions", students could have the traits of creativity, including initiative, originality, simplicity, imagination, knowledge, flexibility, and, association which served as the basis of the design of creativity development questionnaire.

Figure 1 Research Structure
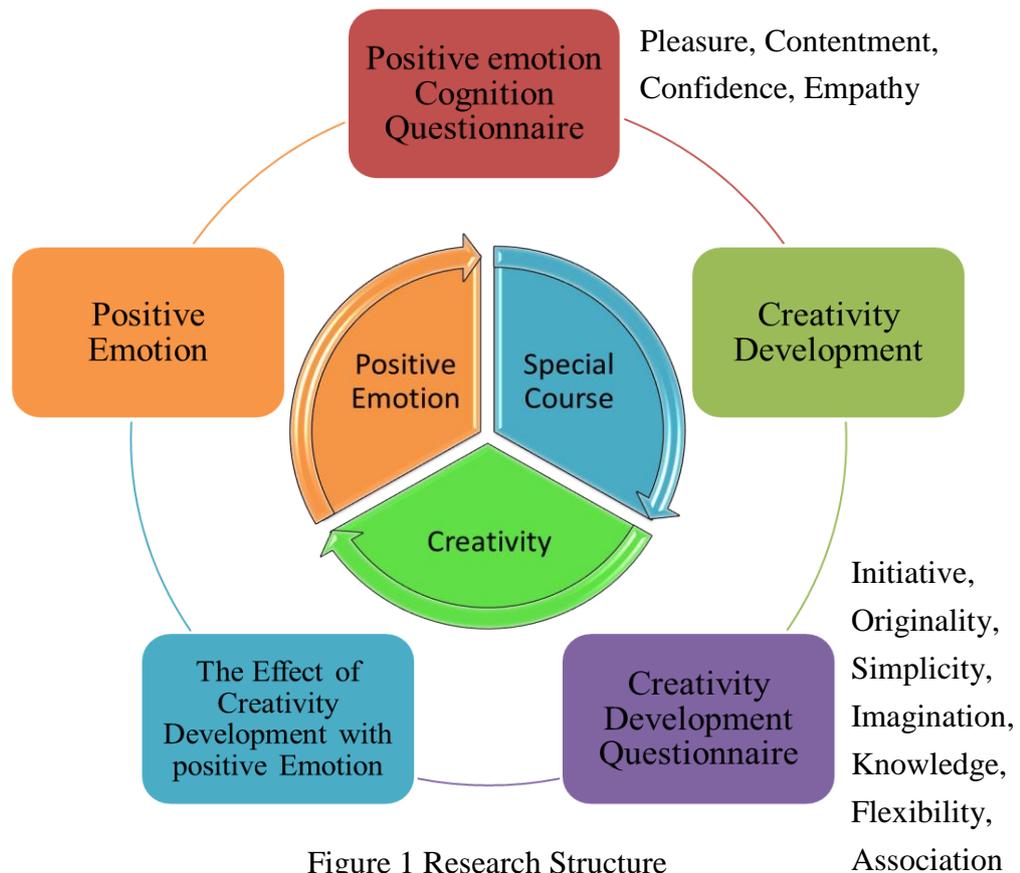
Research Tools

After the design of "positive emotion cognition questionnaire" and "creativity development questionnaire" was completed, this study invited two scholars to verified the validity, modified the questionnaires, and developed them into formal ones which were conducted with Likert five-point scale. After the pre-test of 100 undergraduates, it analyzed the questions, reliability, and validity, as follows:

Analysis of the pre-test of positive emotion cognition questionnaire

27% of the respondents with high scores and 27% of the respondents with low scores in valid questionnaire feedback were selected and classified into High Score Group (42 points) and Low Score Group (30 points). Based on the results of *t-test* of the independent samples, the questions in positive emotions questionnaire on pleasure, contentment, confidence, and empathy were at a significant level. And the correlation between each question and the dimension was over 0.3. Thus, it was not necessary to delete any questions. In terms of factor analysis, the KMO and Bartlett's spherical tests of pleasure (.893), contentment (.824), confidence (.868), and empathy (.857) were at a significant level. This showed that the questionnaire was suitable for factor analysis. Furthermore, the factor loading between each question and corresponding dimensions in the positive emotion questionnaire was high. Five questions in pleasure were between .716 and .894. Five questions in contentment were between .675 and .886. Five questions in confidence were between .689 and .891. And five questions in

confidence were between .667 and .889. The above data show that the factor loading of each dimension was greater than 0.5. Hence, all the questions should be retained. And the questionnaire had good validity. Lastly, in terms of reliability, the Cronbach's α values of pleasure (.837), contentment (.804), confidence (.898), and empathy (.873) were more than 0.7, implying that the reliability of each question was high. Additionally, the Cronbach's α of each dimension is between .827 and .943, representing that the reliability was favorable and isomorphism type. All the questions met requirements, so all of them were retained.

Analysis of the pre-test of creativity development questionnaire

Based on the t-test results of the independent samples of High Score Group (62 points) and Low Score Group (37 points), the questions on initiative, originality, simplicity, imagination, knowledge, flexibility, and association in creativity development questionnaire were at a significant level. And the correlation between each question and the dimension was over 0.3. Thus, it was not necessary to delete any questions. In terms of factor analysis, the KMO and Bartlett's spherical tests of initiative (.873), originality (.912), simplicity (.875), imagination (.892), knowledge (.881), flexibility (.849), and association (.878) were at a significant level. This showed that the questionnaire was suitable for factor analysis. Furthermore, the factor loading between each question and corresponding dimensions in the positive emotion questionnaire was high. Three questions in initiative were between .816 and .894. Three questions in originality were between .775 and .816. Two questions in simplicity were between .692 and .891. Two questions in imagination were between .696 and .876. Two questions in knowledge were between .715 and .843. Three questions in flexibility were between .659 and .781. And two questions in association were between .776 and .893. The above data show that the factor loading of each dimension was greater than 0.5. Hence, all the questions should be retained. And the questionnaire had good validity. Lastly, in terms of reliability, the Cronbach's α values of initiative (.843), originality (.932), simplicity (.867), imagination (.897), knowledge (.891), flexibility (.854), and association (.868) were more than 0.7, implying that the reliability of each question was high. Additionally, the Cronbach's α of each dimension is between .813 and .951, representing that the reliability was favorable and isomorphism type. All the questions met requirements, so all of them were retained.

RESULTS AND DISCUSSION

After 9 weeks of experimental teaching, and when the activity was completed, the respondents stated their own opinions. 48 copies of questionnaire had been distributed. And 48 valid copies were collected. The effective recovery rate was 100%. Statistical analysis was conducted with t-test of a single sample. This study explored the influence of "CAD" thematic course with environment with positive emotions on the development of creativity of undergraduates majoring in Engineering Science, as described below.

Analysis of positive emotion cognition questionnaire

In terms of the students' positive emotion cognition, the average score of each question was between 3.508 and 3.957 (The standard deviation was between 0.467 and 0.802), as shown in Table 1. The test value of 3 points was used for verification. The t value of each question was between 2.627 and 9.743, reaching a significant level and implying that most of the students gave positive feedback on the environment with positive emotions created. This study further analyzed the four dimensions of pleasure, contentment, confidence, and empathy, respectively, as follows:

Pleasure

In terms of the dimension of pleasure, the average score of each question was between 3.693 and 3.838 (The standard deviation was between 0.467 and 0.733), as shown in Table 1. The test value of 3 points was used for verification. The t value of each question was between 3.136 and 9.473, reaching a significant level. The top three questions with the highest scores were "This contest was good experience for me.", "I am glad to have participated in this contest.", and "I enjoy this contest." In light of the scores, the students gave positive feedback on the environment with positive emotions created. Hence, most of the students were satisfied and affirmative of the experience of participation in the contest, as well as design and course of the contest. The dimension of pleasure among positive emotions taught the students to cooperate and encourage with each other and see the pleasing side of the activity.

Contentment

With respect to the dimension of contentment, the average score of each question was between 3.528 and 3.750 (The standard deviation was between 0.594 and 0.794), as shown in Table 1. The test value of 3 points was used for verification. The t value of each question was between 6.318 and 9.743, reaching a significant level. The top three questions with the highest scores were "I expect that I can learn and grow in the contest.", "I think that the contest went smoothly.", and "I could not make it without the support of my teammates." In light of the scores, the students gave positive feedback on the environment with positive emotions created. Hence, most of the students were satisfied and affirmative of the contribution of mutual help among teammates to the success of the contest. The dimension of contentment among positive emotions allowed the students to sincerely thank the organizer for providing them with this chance to study and learn.

Confidence

In terms of the dimension of confidence, the average score of each question was between 3.508 and 3.901 (The standard deviation was between 0.536 and 0.802), as shown in Table 1. The test value of 3 points was used for verification. The t value of each question was between 3.971 and 6.448, reaching a significant level. The top

three questions with the highest scores were "My work meets my expectations.", "In the face of the unknown, I believe that I can do it.", and "I am very confident when I complete something by exerting all my efforts." In light of the scores, the students gave positive feedback on the environment with positive emotions created. Hence, most of the students were satisfied and affirmative of the creative works they designed. The dimension of confidence among positive emotions made the students to devote to explore the unknown, help their partners, overcome setbacks, and cherish the hope of success for anything.

Empathy

In terms of the dimension of empathy, the average score of each question was between 3.518 and 3.957 (The standard deviation was between 0.594 and 0.784), as shown in Table 1. The test value of 3 points was used for verification. The t value of each question was between 5.627 and 9.643, reaching a significant level. The top three questions with the highest scores were "After receiving the help from others, I am more willing to help others", "In the face of challenges, I persist with a positive attitude.", and "Recalling the contest, I am thankful to those who had helped me." In light of the scores, the students gave positive feedback on the environment with positive emotions created. Hence, most of the students, in the face of challenges, persisted with a positive attitude. The dimension of empathy among positive emotions made the students more willing to help others due to the help from others. They expressed gratitude to those who had helped them and cared about them.

Table 1 Analysis of t-test of single sample of positive emotion cognition

Dimension	Question	Verification Value		
		Average	Standard Deviation	T Value
Pleasure	I am glad to have participated in this contest.	3.693	.721	8.989***
	I am happy about the mutual help between my teammates and I	3.794	.648	3.136***
	I am glad when my teammates praise me	3.765	.467	6.318***
	This contest was good experience for me.	3.838	.691	9.473***
	I enjoy this contest.	3.681	.733	7.441***
Contentment	I think that the contest went smoothly.	3.750	.717	9.671***
	I expect that I can learn and grow in the contest.	3.530	.594	9.743***
	I am touched when my teammates help me	3.657	.738	6.318***
	I could not make it without the support of my teammates.	3.530	.794	9.463***
	I'd like to thank the organizer for holding this activity	3.528	.740	7.441***

Confidence	I am very confident when I complete something by exerting all my efforts.	3.901	.675	5.233***
	In the face of the unknown, I believe that I can do it.	3.578	.802	5.844***
	During the contest, I supported my teammates and believe that we could overcome the difficulties	3.508	.536	4.818***
	I think that I have a chance to succeed in anything	3.625	.702	3.971***
	My work meets my expectations.	3.623	.724	6.448***
Empathy	I'd like to thank those who cared about me	3.735	.781	5.627***
	After receiving the help from others, I am more willing to help others.	3.530	.754	9.643***
	I am touched when my friends consoled me when I was sad	3.957	.784	6.318***
	In the face of challenges, I persist with a positive attitude.	3.530	.594	9.473***
	Recalling the contest, I am thankful to those who had helped me.	3.518	.724	7.441***

Analysis of creativity development questionnaire

As shown in Table 2, in regard to development of creativity, the average of each dimension was between 3.701 and 3.991. The standard deviation was between 0.624 to 0.933, indicating that most of the students were affirmative of their development of creativity. In the t-test analysis of single sample with the verification value of 3, the t value of each dimension was between 6.448 and 9.143, reaching a significant level. The top three dimensions with the highest scores were "flexibility (M=3.991)", "simplicity (M=3.942)", and "association (M=3.843)", in order. Additionally, "originality" had the lowest score yet with the score of recognition of 3.701 points. The observation of the scores showed that the students held a positive and affirmative attitude toward the influence of positive emotions on their development of creativity. After the course and the activity, most of the students no longer focused on form, but could flexibly adapt to any conditions. They learned to think out of restrictions and from various perspectives, and use new concepts to solve problems. Moreover, under the guidance of environment with positive emotions, the students learned to think and solve complicated matters, and they were confident in and proud of their abilities. Besides, the students agreed the cultivation of creativity stimulation and creative thinking skills.

Table 2 Analysis of t-test of single sample of development of creativity

Dimension	Average	Standard Deviation	t
Initiative	3.735	.933	6.448[***]
Originality	3.701	.846	7.262[***]
Simplicity	3.942	.836	6.448[***]
Imagination	3.815	.781	8.818[***]
Knowledge	3.761	.748	7.971[***]
Flexibility	3.991	.624	9.143[***]
Association	3.843	.892	8.989[***]

Analysis of the concept of creative design of the students' works

The statistical analysis of this study shows that most of the students hold a positive attitude towards the environment with positive emotions created by this study and agree with the dimensions of development of creativity. Hence, this study analyzed the creative design concept of students in their works with the skills learned from "CAD design course", and learned the influence of environment with positive emotions on their development of creativity.

This study integrated positive emotions into course and activity design, requested teachers to often encourage students, and adopt positive and active guidance methods so that the students would learn with pleasure and confidence and be willing to spend time in study and activity. In order to complete the design of energy-efficient device, the students spent much time in collecting the data related to energy conservation, had relevant discussions, and used CAD software jointly to complete the blueprint, as shown in Figure 2. Students of the first group drew the draft of a streamlined sports car. Carbon fiber material was planned to be used to reduce the weight of the car and achieve the purpose of saving oil. Furthermore, based on data collection, they learned that cascade gas-electric hybrid system could effectively save fuel consumption, so they applied it to the design and planning of the engine. In addition, on the discharge valve of the engine, an air control valve was added and controlled by a high-precision electronic controller. So that complete combustion could be achieved in the combustion chamber and improve fuel efficiency, as shown in Figures 3 and 4. The students of the second group employed the skills learned at the CAD design course to draw "green energy yacht". The streamlined interior design reduced the weight of the yacht. And the stream-lined shell reduced wind resistance to save oil. Moreover, solar panel was adopted on the shell, which could convert solar energy into electrical and kinetic energy in order to drive the yacht and achieve the goal of replacement of limited energy by sustainable and green energy, as shown in Figure 5. The students of the third group not only added solar panel (black) on the top of control cabin to collect solar energy, but also added sail design to convert wind energy into kinetic or electrical energy so as to

add to the power of the ship and save fuel.

To sum up, the above-mentioned fuel-related knowledge was summarized by the students after information collection and group discussions. This design activity made the students happy to learn and stimulated their motivation to actively learn. Besides, most of the students believed that, different opinions existed during discussions. Due to the positive emotions created by the teacher and their empathy, the students could embrace different opinions, reach consensus finally, solve problems together, and complete the creative design of fuel-efficient device.
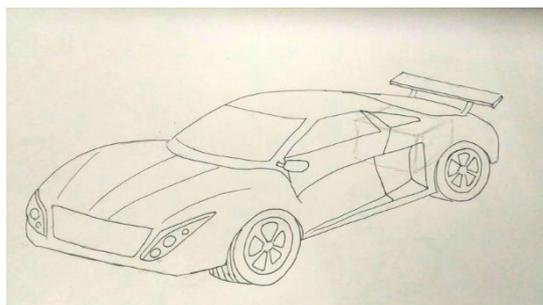
Figure 2 Draft of the streamlined sports car

Figure 3 Blueprint of the green energy yacht
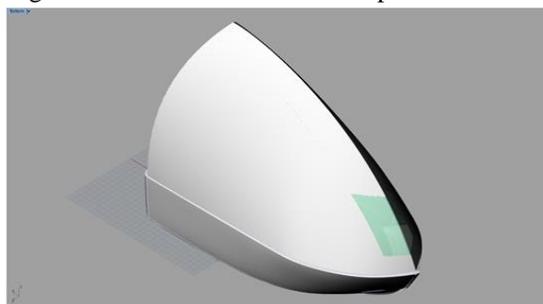
Figure 4 The solar power shell of the green energy yacht
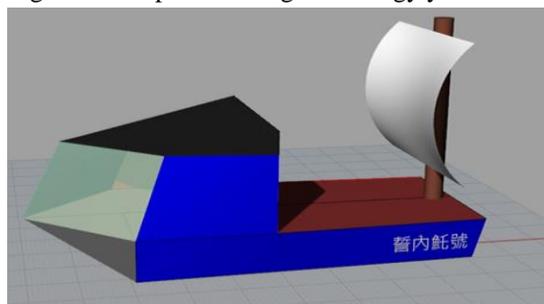
Figure 5 Ship fueled by wind and solar power

CONCLUSION AND SUGGESTIONS

Conclusion

After the above discussion and research analysis, this study reached the following six conclusions:

(1) The creation of learning environment with positive emotions contained four dimensions, namely, pleasure, contentment, confidence, and empathy.

Through literature review, and summarization and analysis of the results of pre-tests of questionnaires, this study concluded that the creation of learning environment with positive emotions contained four dimensions, namely, pleasure, contentment, confidence, and empathy. Hence, it developed the four dimensions of positive emotions into a positive emotion cognition questionnaire, and integrated the into course teaching and activity design to create learning environment with positive emotions.

(2) Development of creativity covered seven dimensions, that is, initiative, originality, simplicity, imagination, knowledge, flexibility, and association.

Through literature review, and summarization and analysis of the results of pre-tests of questionnaires, this study concluded that the development of creativity covered seven dimensions, that is, initiative, originality, simplicity, imagination, knowledge, flexibility, and association. Thus, it developed the seven dimensions of development of creativity into a creativity development questionnaire to verify the influence of the integration of positive emotions into course teaching on development of creativity.

(3) Most of the students are positive and affirmative of the integration of positive emotions into course teaching

The statistical analysis of positive emotion cognition questionnaire in this study indicates that, after the course and contest, most of the undergraduates majoring in Engineering Science gave positive feedback on the environment with positive emotions created. And they were positive and affirmative of the integration of positive emotions like pleasure, contentment, confidence, and empathy into course teaching which had significant differences and were effective to make the students to study happily.

(4) The integration of positive emotions into the course has a positive and significant influence on the development of creativity of most of the students

The statistical analysis of creativity development questionnaire in this study indicates that, after the integration of positive emotions into the course and contest, the dimensions of development of creativity, including initiative, originality, simplicity, imagination, knowledge, flexibility, and association exerted significant and positive influences, implying that the integration of positive emotions into course teaching is conducive for the development of creativity of the undergraduates majoring in Engineering Science.

Suggestions

In view of the conclusions, this study proposed the following suggestions in the aspects of school, teacher, and future research when one intends to promote the integration of positive emotions into course teaching and development of creativity.

(1) School: Promoting the integration of positive emotions into course teaching

This study finds that most of the students are affirmative and positive about the integration of positive emotions into course teaching. As the Internet and other media are filled with negative news, it is suggested to transmit more positive energy to students, integrate positive emotions into courses, and provide a learning environment with positive emotions to students.

(2) Teacher: Improving the quality of positive emotions and enhancing the role of tutor

The study discovers that the integration of positive emotions into course teaching exerts a positive influence on the development of creativity of most of the students. Therefore, it is suggested that students can enhance their quality of positive emotions and skills of creativity, facilitate students to learn in an environment with positive emotions, and guide students to develop their creativity potential.

(3) Future research: Using experimental research to carry out long-term follow-up study

This study, based on experimental teaching of an individual case, shows that the integration of positive emotions

into course teaching exerts a positive influence on the development of creativity of most of the students. Future researches can design control group and adopt experimental research method to conduct teaching research, further explore the achievements of students in creativity development, serve as important reference for the promotion of integration of positive emotions into course teaching in the future.

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RESILIENCE INVENTORY AND THEIR PSYCHOMETRIC PROPERTIES

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ABSTRACT

This research is aimed at estimating the psychometric properties of an inventory of resilience in order to explore its operation in university students. 1196 We worked with students of the Academic Unit of Social Sciences of the Technical University of Machala, Ecuador, of which 61.7% were female and 38.3% male. The mean age was 22 years with a standard deviation of 6.54. The methodology was divided into three stages: the first addressed to the descriptive analysis of the reagents. The second focused on the estimation of the exploratory factor analysis and the third, in the calculation of confirmatory factor analysis. In conclusion inventory it consists of 14 reagents resilience explaining the 44,894% of the variance associated with the construct was achieved. The factorial solution identifies four factors: psychosocial coping, confidence in solving problems, humor and positive evaluation of what I lived and self-regulation. This model is fitted under the statistical evaluation done. As for reliability, the inventory showed a Cronbach's alpha of .889 and .887 Omega McDonald, both with p value of .001 **Key words**: resilience, psychometric properties, psychosocial coping, self-confidence.

INTRODUCTION

The resilience is inspired in the behavior of the physical bodies that are capable of returning to its original state, after having been submitted to high temperatures (Grotberg, Paladini, Suárez and Melillo, 2008). Werner and Smith, by means of its studies on the adaptive capacity of born children from Hawaii in vulnerable situations, transfer the concept to the field of the psychology naming this property as resilience (Uriarte Arciniega, 2005).

Currently, the complexity of such a construct has woken up the interest of multiple investigators of the area of the health (Vinaccia, Quiceno, Remor, 2012; Ruiz & López, 2012), education (Trujillo, 2011; López, 2010), psychology (Morelato, 2011), managing to present it like a multidimensional concept which components arose from the interaction of such aspects like: independence, initiative, morality, humor, introspection, creativity, all of them put to the service of the confrontation of adverse situations and of the increase of the adaptive capacity of the subject.

Based on the special thing, the present research takes as a target to Value the psychometric properties of a scale of resilience directed to explore its functioning in young Ecuadoran university students. The relevancy of the study rests on the need that has the Ecuador of young people links in the diverse structures of its productive device, where the estimation of the resilience is a factor that affects in the selection of personnel, competitiveness in the university educations, evaluation of the execution, between other aspects. In addition to the previous thing, the functioning factorial of the scale, opening the reflection for the system creation of psychosocial intervention that they encourage the ripeness of this construct like input for the sustainability of ideas of personal efficacy and hence the achievement of the goals commonly raised in the population study object.

METHODOLOGY
PARTICIPANTS

The research developed with 1196 students of the Technical University of Machala (UTMACH), distributed in the careers of the Academic Unit of Social sciences of the following way: Plastic arts: 3.3 %, Social Communication: 7.4 %, Educational sciences Mention: Physical culture: 7.4 %, Basic education: 8.4 %, Initial Education: 7 %, Teaching in Computing science: 4.4 %, Social sciences: 2.3 %, Physics and Mathematics: 0.9 %, English: 1.7 %, Language and Literature: 2.4 %, Educational Psychology and Vocational Orientation: 2,5 %; Clinical psychology: 14,9 %, Jurisprudence: 13,7 %; Environmental management: 9,5 %, Sociology and Political sciences: 5.4 %, Social work: 8.8 %. As for the genre, 738 (61.7 %) was of the feminine sex and 458 (38.3 %) was of the masculine sex. The average of the age was 22 years with a standard deviation of 6.54.

INSTRUMENTS

The instrument in study named type Likert an inventory of resilience (INRES) constructed with base in the norms stipulated for scales with format and shaped initially by 84 reagents. Its writing was focused in the routine character of the young Latin-American university people, from there that tackles situations of classroom, group meetings, psychosocial confrontation in university ambiences, between other interest aspects. To answer it there were considered to be five options faced to the evaluation of the frequency of appearance of the feature, like evidence of its incorporation to the behavior pattern of the subject. These alternatives were: To = Never, B=few, Time C = Sometimes, D=Most of the time, E = Always. The values allocation continues a sequence (never always) of 1-5 for the items positives and inverse in case of the negatives. The statistical estimation of the latent variables that form the instrument was realized in three stages, which next are described:

Stage 1. Descriptive analysis of the reagents: the target of this first stage is to value the changeability of the reagents in order to add that these behave like variables and that they assemble the conditions to calculate the exploratory factor analysis (AFE). In this estapa there were observed the measurements of central tendency and changeability of every reagent. Normality tests were estimated single-variant by means of the Kolmogorov-Smirnov test. In addition, to the previous thing the extracted communalities are explored. The precision of these elements was realized following the orientations of Cartwright - god and Pérez, (2005).

Stage 2: Exploratory factor analysis (AFE): for the purpose of analysis object determined the structure factorial latent of the instrument the AFE was used by means of the fulfillment of the following sub-stages (Lloret-Segura, Ferreres-Traver, Hernández-Baeza, and Tomás-Marco, 2014; Pere J y Lorenzo-Seva, 2014): a) Evaluation of the coefficients of interrelation observed in the information by means of the test KMO and estimation of the viability of calculation of the factor analysis by means of the test of Barlet's sphericity. b) Selection of the method for factors estimation: in this study there are considered not exaggerated square minimums (ULS) due to the expediency of its use in ordinal variables and counterfoils of interrelations polychorics (Freiberg Hoffmann, Stover, De la Iglesia, and Fernández Liporace, 2013). c) Rotation as the method PROMIN (Lorenzo, 1999). d) Factorial saturation of.4; e) 3-4 items for factor; f) Average quadratic residue ("Root Mean residual Square" RMSR or RMR) by means of closeness with the Kelley criterion; Index of fitting criterion (GFI "Goodness of Fit Index"), quadratic average Error of approach (RMSEA "Root Mean Square approximation error"). During this phase there used the statistical software FACTOR (Lorenzo & Pere J, 2006).

Stage 3: Confirmatory factor analysis (AFC). For the sake of validating the theoretical model previously identified by means of AFE and of it fitting to increase its aptitude to represent the construct in the population object of analysis (Batista-Foguet, Coenders, & Alonso, 2004; Pérez, Chacón & Moreno, 2000), one proceeds to establish the calculation of the AFC. The decision on its adjustment was based on the value obtained by the indexes that next are identified (Orgaz Baz, 2008): To measure the entire adjustment of the model without valuing the over-adjustments the GFI was used, RMSEA and the RMR. The incremental adjustment was estimated by means of the CFI, NFI, AGFI. In case of the indexes that indicate absolute or relative covariance proportion it is considered to be the adjustment if the obtained value is over 0.9. The indexes based on the standardized residues are considered to be exact if they show a value lower than 0.05. With regard to the slowness the index AIC was used. During this stage the software was used OWNERS.

RESULTS

The descriptive result of the items suggests that the same ones assemble conditions for the application of the AFE. Of the whole of the initial reagents there were selected those that showed a typical deviation with values equal or superior to 1 and the asymmetry and kurtosis between the awaited limits. In this stage a whole of 14 reagents was selected (to see table 1).

Table 1: Descriptive statistics of the reagents.

ITEM	AVERAGE	SD	ASIM	CUR	K-S	P. VALUE	COM
4	3.099	1.180	-1.065	0.708	8.361	0.000	0.430
5	3.443	1.028	-1.801	2.879	12.879	0.000	0.580
6	3.311	0.985	-1.463	1.472	11.586	0.000	0.704
24	2.420	1.198	-1.756	2.584	7.874	0.000	0.693
28	2.479	1.057	-1.871	3.300	7.571	0.000	0.520
37	3.956	1.031	-0.823	0.159	10.907	0.000	0.404
38	3.236	1.016	-1.261	0.888	7.623	0.000	0.517
53	3.947	1.049	-0.854	0.223	11.100	0.000	0.455
58	3.698	1.445	-0.565	-0.716	5.582	0.000	0.477
60	3.765	1.267	-0.591	-0.503	8.067	0.000	0.475
67	2.920	1.596	0.123	-0.984	6.571	0.000	0.561
69	3.321	1.174	-1.469	1.511	7.037	0.000	0.607
72	3.808	1.083	-0.530	-0.503	6.308	0.000	0.586
77	3.003	1.045	-0.917	0.340	7.774	0.000	0.591

SD: Standard Deviation
ASIM: Asimetry
CUR: Curtosis.
K-S: Kolmogorov- Smirnov Normality test
COM: Communality

The average of the reagents was located about the average point of the scale except for the reagents 37, 53 and 72. Nevertheless, considering the percentage of explained variance it was considered opportune to maintain its integration to the scale. The result of the test of normality, it indicated not normal distribution. In balance, the observed information was considered to be consistent for the application of the AFE .

Continuing with the analysis process and in accordance with the ordinal nature of the information, an interrelations counterfoil was used polychoric for the calculation of the AFE. There was observed a satisfactory adjustment as the test KMO =. 93095 and the test of Barlett's sphericity that threw a value of 9395.5 (P.000), which suggests that the interrelations counterfoil is different from the identity counterfoil. The solution factorial obtained was constituted by four factors that there explains 44.894 % of the whole of the variance associated with the construct in study. The factorial charges observed are over.04 (to see table 2). High co-change proportion was detected between the items and the model proposed according to the result of the GFI =. 99. As for the behavior of the residual ones a RMSR was obtained =. 0282 value that was located below the criterion of Kelley's (.0295). This result suggests that the model has good definition factorial (Hair, Thatam and Black, 1999) being robust to explain the resilience in the juvenile population.

The reliability (to see table 3) observed is an indicator of high internal consistency and a stability of the values (Landeau, 2007; Bernal, 2006; Reynoso & Seligson, 2005). Value of.001 obtained an alpha of Cronbach of.889 and a McDonald Omega of.887, both with one p. At individual level the factors showed the following alpha values:

factor 1:.875; factor 2:.868; factor 3:.794; factor 4:.875. In a complementary way, an interrelation brings in the interrelation item - whole between.419 and.578 which is an indicator of positive interrelation moderated between the item and the whole less the item.

Tabla 2: Distribución factorial del INRES**.**

ITEM	FACTOR A	FACTOR B	FACTOR C	FACTOR D
4. I recognize when I can reach my goals.	**0.041**	**-0.020**	**0.277**	**0.425**
5. I feel at ease with what I am.	**0.038**	**-0.017**	**0.080**	**0.696**
6. I am sure of my life project.	**-0.080**	**-0.079**	**0.132**	**0.831**
24. I feel guilty when I do not do what others want.	**0.127**	**0.159**	**0.016**	**0.641**
28. I am capable of autocorregirme when I commit errors.	**0.048**	**0.687**	**-0.188**	**0.208**
37. I respect the decisions of the others.	**0.095**	**0.540**	**0.212**	**-0.221**
38. I support my partners in the confrontation of its problems.	**-0.156**	**0.557**	**0.260**	**0.044**
53. In opposition to the stress the best thing is to laugh.	**-0.099**	**0.127**	**0.644**	**-0.012**
58. I accept easily the councils of persons foreign to me.	**0.616**	**0.031**	**0.111**	**-0.037**
60. The difficult situations strengthen me.	**0.053**	**0.024**	**0.637**	**-0.000**
67. Often I assume challenges that others leave aside.	**0.820**	**-0.269**	**0.037**	**0.006**
69. I possess skills to solve my problems.	**-0.075**	**0.800**	**0.069**	**-0.061**
72. I feel that I must look for solutions to my friends problems.	**0.643**	**0.117**	**0.179**	**-0.147**
77. I often take the positive side of the things.	**-0.076**	**-0.018**	**0.805**	**0.032**

In order to confirm the explored factorial model, it was estimated the AFC. The results throw that the identified dimensions develan the functioning of the population explored as for the resilience. The evidence of the adjustment oberves in the table 4.

Table 3: Reliability indicators**.**

ITEM	Average of the scale if the element is eliminated.	Variance of the scale if the element is eliminated	Whole-element correlation.	Cronbach's if the element is eliminated.
ITEM 4	**49.84**	**51.505**	**.520**	**.784**
ITEM 5	**49.49**	**52.654**	**.484**	**.787**
ITEM 6	**49.63**	**51,624**	**.509**	**.785**

ITEM 24	50.15	57.550	.458	.822
ITEM 28	49.99	51.983	.487	.787
ITEM 37	49.64	52.086	.509	.785
ITEM 38	49.98	52.210	.452	.789
ITEM 53	49.74	51.805	.451	.789
ITEM 58	50.59	52.497	.450	.798
ITEM 60	49.94	50.824	.527	.783
ITEM 67	50.96	53.472	.419	.800
ITEM 69	50.28	50.355	.573	.779
ITEM 72	51.01	54.858	.538	.806
ITEM 77	49.95	50.309	.578	.779

Table 4: AFC Adjustment index

Whole adjustment index			Incremental adjustment index			Parsimony index		X^2/gl
GFI	RMSEA	RMR	CFI	NFI	AGFI	AIC	CAIC	
.976	.039	.040	.964	.945	.964	265.051	483.043	2,798

SIGNIFICANCE OF THE FACTORS - DIMENSIONS THAT COMPOSE THE DEAR CONSTRUCT.

The first factor remained constituted by three reagents linked with the psychosocial confrontation. This element is present at the moment of assuming uncountable changes that the person experiences like part of its transition of life, which commonly, there are generators of stress and emotional destabilization (Wood, Bhatnagar, 2015).

The research reveal that the confrontation as generator of resilience rests on the human networks formed by relatives and friends who come up before the adversity (Liu, Lib, Ling, & Cai, 2016) and increase the predisposition to confront the obstacles that inhibit the psychological normality (Gárriz, Gutiérrez, Peri, Baillés, Torrubia, 2015). Also they suggest that the subject develops strategies centred on the humor to ignore or to minimize the psychological difficulties (Çalışandemira & Tagay, 2015; Anghel, 2015). The debated induces to think that it would turn out to be incongruous to conceive the resilience removed from the confrontation. While more loudly one is in the confrontation, more steadfastness they have the subject to face obstacles of major importance, generating domains and psychosocial adaptation (Fogartya, Proudfoot, Whittle, Player, Christensen, Hadzi-Pavlovic, Wilhelm, 2015; Whittaker, McLennan, Handmer, 2015).

The second one of the factors is shaped by four reagents referred to the process of self-confidence for the resolution of the problems. This condition is key for the estimation of the resilience, given that it involves safety in the solutions selection before the adversities, offering convictions prints for the resolution of adversity (Kapur, 2015; Catterson, Naumann, John, 2015). This factor puts in the carpet the piled up character of this dimension of the resilience, where the previous experiences reinforce and locate the belief of which it is possible to achieve successfully the problem solving in the present and in the future (Sophonhiranraka, Suwannatthachoteb, Ngudgratokec, 2015; Bose & Ye, 2015). But in spite of the social influence, there is left steadfastness of which autonomy exists in the aptitude to decide and to pass to the influence of other in the deliberations that the subject tackles (Grimaldi, Lau, Basso, 2015; Safta, 2015).

By means of this factor one bears witness to the opening towards the communication and emotional intelligence of the persons, which is an indicator of positive attitude and equanimity, in the resolution of conflicts (Middleton, Buboltz, Sopon, 2015) To be sure of the aptitude to settle problems, allows to face the complexities of the newspaper to live, using coherent strategies with the intensity and transcendence of the situation (Gárriz, Gutiérrez, Peri, Baillés, Torrubia, 2015; Choi, C. Martí, Bruce, Hegel, 2013).

The third factor remains composed by three reagents faced towards the humor and positive evaluation of the real thing. The laugh and the aptitude to abstract the positive ways of the experiences are the transverse axis of this factor. Trough humor the subject attenuates the anxiety before stressing situations, contributing with its personal self-regulation, at the time that there is optimized the physical and mental health (Turliuc, Soponaru, and Antonovici, 2013,).

A resilient person finds the comical and entertaining thing in the proper tragedy, and it is capable of laughing, of playing and of enjoying positive emotions, what in turn generates predisposition to the happiness. (Jeder, 2015). To develop certain aspects like the optimism, the creativity, promotes the self-control, before reverses that generate imbalance (Flink, Smeets, Bergbom, & Peters, 2015; Falconier, Jackson, Hilpert, & Bodenmann, 2015). The special thing indicates that the resilience as skill of confronting and becoming stronger before difficult situations needs to be able to use the resources that the person arranges. This way, the humor as ally stimulates the grace sense and generates positive emotions, which the generation of solutions facilitates before the problems that demand it (Thetford, Bennett, Hodge, Knox, and Castaway, 2015).

The last the factor links to the self-regulation. It is integrated by four reagents that explore the interior force and the capacity of acceptance of the personality in order evidence the way in which I he adapts himself before the processes through that he lives.

The control that a person exercises concerning its psychological processes is known as a self-regulation, the same one who allows recognizing the impulses, avoiding not wished behaviors (Sirois & Hirsch, 2015). The capture decisions opposite to difficulties come up by the thoughts and emotions, they activate the selective perception before the situational demand (Blalock, Franzese, Machell, & Strauman, 2015). Therefore the self-regulation implies handling stages that they interfere with the activities to be executed (Eiden, Godleski, Schuetze, and Colder, 2015) since to be known if the same it allows to increase the aptitude to get over before adverse events experiencing well-being (Rui & Cross, 2015). In accordance with the stated thing, the personal control before the misfortunes, allows to evade possible stressing situations that determine the control of impulses, the serenity in the decision making (So, Achar, There Are, Agrawal, Duhachek, & Maheswaran, 2015); the identification of the irrational ideas that finally activate the imbalance and insecurity in human beings (Milkoreit, Moore, Schoon, & Meek, 2015).

The composition of the resilience from the latent variables that structure it bears witness to the presence of a multidimensional concept that limits the psychosocial adjustment of the subject and its possibility of self-fulfillment. Every day we are linked by the adverse thing for being a polarity of the existence and a component of the fluctuation of the balance, from there that to take conscience of the human conditions to confront it is a mental health guarantee.

CONCLUSIONS
The study was allowed by the generation of an inventory of resilience constituted by 14 reagents that there explains 44.894 % of the variance associated with the construct. The solution factorial opposing identifies four factors that are: psychosocial confrontation, self-confidence in the problem solving, humor and positive evaluation of the real thing and self-regulation of me. This model is exact by virtue of the realized statistical evaluation. As for the reliability, the inventory showed an alpha of Cronbach of.889 and a McDonald Omega of.887, both with one p value of.001.

This study offers a tool that allows the research of the factors that promote the resilient behavior in young university students in order to impel its academic performance and the ripeness that like professional need. It also opens processes of research linked to the interaction of the resilience like a variable that determines the success in the different areas of development where the population unrolls study object.

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RETROSPECTIVE MISCUE ANALYSIS WITH AN ADULT ESL KURDISH READER

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This study aimed to explore the reading beliefs and reading strategies of a Kurdish adult English as a Second Language (ESL) reader. The study was motivated by four research questions that include; what are the reading beliefs an adult Kurdish L2 speaker brings to his reading? What miscues does one adult Kurdish L2 speaker make?What factors caused the reader to make particular miscues? And how does the reader respond to these miscues? The study was a case study that utilized retrospective miscue analysis (RMA) as the research methodology to gather the data necessary to answer the research questions. The study participant was the researcher himself who was an Iraqi Kurdish international Master's degree student at the University of Cincinnati. The study found that the participant made various types of miscues ranging from substitutions, corrections, omissions, and repetitions. Among the 83 miscues, 14 of them were abandoned corrections. None of the miscues that were abandoned to be corrected resulted in major meaning change in the sentences as it was finally produced by the participant. The participant also used different reading strategies that included sampling, predicting, confirming and/or disconfirming. The factors that caused miscue production included cultural background and his belief system, cross-language grammatical knowledge, word unfamiliarity, and prior knowledge about miscue analysis. This study advances ESL teachers' and reader's understanding of how reading process occurs and how readers respond to their miscues.

REVISITING PEDAGOGY: WHAT ABOUT PEDAGOGY 3.0?

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ABSTRACT
This paper aims to reconstruct the understanding of academics on pedagogy from the perspectives of a Malaysian academic. In Malaysia, the understanding on pedagogy has reached the stage where acceptance of Pedagogy 3.0, including pedagogy, andragogy and heutagogy makes an impact on the education landscape in Malaysia. The Malaysia Education Blueprint (Higher Education), launched in 2016, highlights the importance of Pedagogy 3.0 through its ninth initiative, which is Globalised Online Learning. As a conceptual paper, the methodology adopted is content analysis of literature review on the evolution of pedagogy. The main question addressed in this paper is whether despite the various relabelling of pedagogy, what impacts do these have on achieving academic excellence? In preparing the global leaders, perhaps academics must step back and out of the loop in order to get the broader view of what is necessary, and what is luxury for the learners to go through during their learning processes.

INTRODUCTION
For young academics, it may be disheartening and overwhelming when they realise that learners have difficulties in understanding the lessons of the day. Especially for those without any teaching certificates or background, the thought of learners struggling and giving up may hinder these young academics from achieving their potential. What is actually the issue that must be understood by these young academics?

To begin with, this perplexing scenario may not be faced by younger academics only. To senior or experienced educators too, sometimes learners find it difficult to follow their lessons. Amongst the critical skills that must be equipped to all academics is pedagogy, and it is always associated with the methods or practice of teaching children. According to Murphy (1996), pedagogy is a term widely used in educational writing but all too often its meaning is assumed to be self-evident.

This paper aims to reconstruct the understanding of academics on pedagogy. In Malaysia, the understanding on pedagogy has reached the stage where acceptance of Pedagogy 3.0, including pedagogy, andragogy and heutagogy makes an impact on the education landscape in Malaysia. The Malaysia Education Blueprint (Higher Education), launched in 2016, highlights the importance of Pedagogy 3.0 through its ninth initiative, which is Globalised Online Learning. As such, each public higher education provider is expected to produce at least three Massive Open Online Courses (MOOCs) per year until 2020. This is where, the significance of heutagogy is highlighted.

As a conceptual paper, the methodology adopted is content analysis of literature review on the evolution of pedagogy. The main question addressed in this paper is whether despite the various relabelling of pedagogy, what impacts does the evolution make for achieving academic excellence? In preparing the global leaders, perhaps academics must step back and out of the loop in order to get the broader view of what is necessary, and what is luxury for the learners to go through during their learning processes.

Before further discussion is done, it is imperative that the outline of this paper is presented. The paper has four sections including this introduction. Next, the second section further discusses the birth of pedagogy, including its literature to further understand what pedagogy is. The third section examines the evolution of pedagogy, and argues for the importance of understanding pedagogy as part of teaching and learning repertoire. The last section concludes the paper with two suggestions on understanding and revisiting pedagogy.

THE BIRTH OF PEDAGOGY
Pedagogy is a small word with a massive impact in education. What constitutes an effective pedagogy? This section revolves around the historical account of pedagogy. It is argued that the founder of pedagogy is Herbart, a German philosopher. Herbart's educational philosophy concentrated on the relationship between personal development and its influence on society. This suggests that learners realise their potential only when they are able to be productive citizens of the nation. Being a Mathematician, Herbat argued for a dominant role in the area of the progressive trend of the education, because without strong recommendations, the education reform in the United States would not possibly be developed (Somr & Hruskova, 2014).

Herbart (1906) promoted five formal steps in teaching, which were translated into a practical teaching methodology,

    a. preparation – relating new material to be learned to relevant existing ideas (memories) to stimulate the learner's interest (prepare learners to be ready for the new lesson)
    b. presentation – presenting new material in the form of actual experience of concrete objects (present the new lesson)
    c. association – comparison of the new idea with existing ideas to find similarities and differences, and thus implant the new idea in the mind of the learner (associate the new lesson with ideas studied earlier)
    d. generalisation – procedures designed to take learning beyond perception and experience of the concrete into the realm of abstract concepts (use examples to illustrate the lesson's major points)
    e. application – using the newly acquired knowledge so that it becomes an integral part of the life of the learner (test learners to ensure they learned the new lesson).

Herbart's ideas were widely adopted in Germany and also the United States, translated into the simple five-step teaching method that became the basic pedagogical practice in the 19th century. By the 20th century, however, the steps had become mechanical, and Herbart's underlying ideas on ethics, psychology, and aesthetics had been forgotten. In their place, new pedagogical theories, such as those of John Dewey in the United States, which freed the child from what had become a controlled learning environment, grew in popularity. Although his teaching methodology was overtaken by new ideas, Herbart's institution of pedagogy as an academic field has remained. The idea of a science of education, including psychology as a source of information about the nature of the learner as well as the learning process, has continued to advance teaching methods. Refining Herbart's ideas, according to Dewey, there were four key educational issues on a reformed educational system. These continue to provide the basis of critiques of and discussion about contemporary education.

The first key issue proposed by Dewey was the value of learners' experiences. Dewey (1933) believed that the way learning occurred inside the formal educational setting should not be isolated from learning achieved elsewhere. He advocated a continuity of the process of learning between settings and viewed each learner's greatest asset as being his/her direct, personal experience that must not be ignored or thrown away in the process of learning. Dewey further proposed the principle of learning through personal experience that rested on two factors – internal and external experiences. For Dewey, education was a re-construction of experience that continuously unfolded learners' potential. In addition, Dewey's (1916) second key educational issue was that learning should be by doing. This meant giving more independence and active roles to learners in their learning. Learners were to describe the construction of their own learning by using their previous knowledge or experience. In other words, the role of active engagement was being advocated. Dewey (1916; 1938) noted that traditional schools kept insisting on telling learners what they needed to learn, despite research clearly demonstrating that learning by telling did not work and learning by doing did. Following Dewey, education should be democratic – it should be experiential, in the sense of engaging the interests of the learners; and it should be reflective, in encouraging learners not just to gather facts but to make connections and to critique knowledge. Thus, Dewey believed in the engagement of learners in the learning process through 'doing' and not just listening.

The third key educational issue promoted by Dewey was purposeful learning. For what purpose was the content to be learnt? Dewey (1938) forcefully stressed the need for activities to be linked cumulatively, defining educative experiences as those that gave rise to the learners' need to gather more facts, become more skilled and use lessons learnt in one experience as the basis for future experiences. He termed this a 'continuous spiral.' Also, Dewey proposed that when learners had a clear and strong purpose for learning, they became more committed and able to participate actively in the learning sessions. The last key educational issue stressed by Dewey was the importance of critical thinking in the education system. Dewey (1933) proposed that in order for learning to be truly effective, it must inculcate reflective thought, or what was referred to in contemporary education today as critical thinking. He further defined reflective thought as an active and persistent process that was able to support individuals' opinions. As this was an individual process, each learner would construct his/her own opinions and critically reflect on those opinions. Furthermore, Dewey elaborated that there were two important elements of reflective thinking. The first element was "a state of perplexity, hesitation and doubt" and the second element was "an act of search or investigation directed toward bringing to light further facts which serve to corroborate or to nullify the suggested belief" (Dewey 1933). By these two elements, Dewey suggested that in order to be reflective or critical thinkers, learners should have doubts or question ideas that they just encountered. They must not believe or merely accept the ideas without trying to challenge their validity. The next step was to analyse the ideas and try to find support to accept or reject them. Thus for Dewey, critical thinking or reflective thought helped learners to construct and build new knowledge, making them aware that they must be active in questioning and challenging new information.

Dewey's interpretations of learning have proven to be useful in the modern world of education. It is in the 21st century that scholars such as Hickman (1990; 2001) and Phillips (2002) have realised that what Dewey stated as the critical issues in education are indeed valid, and these issues continue to form the basis of effective pedagogy. This is because when Dewey began his philosophising on education, many misunderstood his ideas of progressive and reflective education. Some even understood Dewey's ideas as only having relevance to children and their education. Nonetheless today, it has become increasingly obvious that Dewey's writings were not limited to children's education only.

Given the above analysis of pedagogy, there now exist several branches of pedagogy; some can be argued as the extension of the other, and some are viewed as something totally different. Despite this, all of these 'gogies' have something critical in common. It is the fact that these 'gogies' emerge as ways to facilitate teaching and learning, especially when learning itself is a dynamic process, and they are the platforms to ensure learning is achieved. The next section examines the other 'gogies' in detail.

FINDINGS AND DISCUSSIONS: THE EVOLUTION OF PEDAGOGY

Despite the claim that Dewey's ideas on learning does not only cover children's education, the term 'andragogy' became popular due to the fact that many adult learners return to learning whilst working. Because they were not able to further their studies during their teenage years, it is argued that since they have had the experience as working people, their expectations and ways of learning are different from that of teenagers or children. The history of andragogy started in Germany when a high school teacher, Alexander Kapp described learning as a necessary lifelong process in his book *Plato's Educational Ideas* in 1833. Although he did not develop a theory of andragogical principles, Kapp argued that self-reflection, intrinsic motivation and higher self-efficacy is the purpose of human life and learning happens not only through academics but also through life experience. 135 years later, in 1968, Malcolm S. Knowles developed the theory of andragogy, and published an article entitled *Andragogy. Not Pedagogy*, which established him as the leading theorist on adult education in the United States (Reischmann, 2011).

The basic characteristics of andragogy, according to Knowles et al. (2005), include,
  a. adults need to comprehend why they need to learn something. The information has to have meaning for their lives and be of some applicable benefit.
  b. adults are self-directed and have a deep psychological need to be acknowledged by others as capable of self-direction.
  c. adults arrive in learning scenarios with a wider variety of knowledge and experience than children. This previous knowledge can be of assistance in a new learning situation but can also be a hindrance if it results in the individual being less open to new concepts. In either case, adults expect their prior experience to be acknowledged.
  d. adults are task-centred learners. They become ready to learn subject matter based on the need for certain learning in order to cope with their lives.
  e. although adults respond to external motivators such as promotions or higher salaries, they are more motivated by intrinsic factors, including self-esteem, job satisfaction and quality of life.

Knowles further elaborated on andragogy by suggesting four main principles. These are (a) adults need to be involved in the planning and evaluation of their instruction; (b) experience (including mistakes) provides the basis for the learning activities; (c) adults are most interested in learning subjects that have immediate relevance and impact to their job or personal life; and (d) adult learning is problem-centred rather than content-oriented (Kearsley, 2010). These principles suggest that the role of experience in andragogy is massive (and these also reiterate what Dewey had proposed as his first key educational issue, which is on the importance of leaners' experience). It is inevitable that adult learners know what they need because their experience points them to the direction that they seek. At the same time, based on their prior experience too, they want to learn something that is of the utmost relevance to them so that they can use the new knowledge for facilitating their existing job. Because of this too, they want to be able to solve problems at their workplace, which suggests that the experience tells them what is important, and what is not.

The term andragogy is akin to adult education for some scholars. For European countries such as Poland, Germany, the Netherlands, Czechoslovakia, Russia, Yugoslavia, and other central and eastern European countries, the term andragogy is better understood compared to adult education which is normally used by the British and Americans (Draper, 1998).

Merriam (2001) argued that when Knowles introduced andragogy to North American adult educators, self-directed learning also emerged as another model to help understand the differences between how adults and children learn. In fact, Knowles (1975) also wrote a book about self-directed learning. It must be emphasised that the first assumption underlying Knowles's view of andragogy is that learners become increasingly self-directed as they mature. In addition, when applying andragogy in classroom learning, the methods of instruction, either direct or indirect, are based on the tasks. A more direct instruction will be employed if an unknown concept is introduced during the lessons. The most critical aspect is that the learners need to know why the concept to be learned is important in order for them to remain motivated.

From andragogy and self-directed learning, a new form of pedagogy is borne. Heutagogy, a form of self-determined learning with practices and principles rooted in andragogy, has recently resurfaced as a learning approach after a decade of limited attention (Blaschke, 2012). In a heutagogical approach to teaching and learning, learners are highly self-directed and self-determined. Importance is put on the development of learner capacity and capability with the goal of producing future workforce who is well-prepared for the challenges and complexities of the 21st century's workplace. Although heutagogy appears to be an extension of andragogy, there are, of course, some differences that distinguish these two 'gogies.' One of the differences between andragogy and heutagogy is that heutagogy further expands upon the role of learner agency in the learning process. Thus, the learners are seen as, "the major agent in their own learning, which occurs as a result of personal experiences" (Hase & Kenyon, 2007).

To ensure successful implementation of heutagogical approaches to teaching and learning, a number of design principles for learning can be applied, no matter what the context is (Dick, 2013; Hase & Kenyon, 2013a, b; Kenyon & Hase, 2013). These include,

a. learners need to be involved in negotiating what and how they learn throughout the design and learning process.
b. curricula should be flexible and take into account learners' questions and motivations and how thinking shifts as a result of things they have learned.
c. learners and the teacher need to work together to negotiate how learning outcomes will be assessed. Evaluation could also include forms of participative (self- and peer) evaluation, allowing learners to learn from each other and through self-reflection.
d. the role of the teacher is to guide the learner, providing formative feedback that is personalised according to the learner needs.
e. the learning environment needs to incorporate opportunities for learners to explore and reflect on what they have learned and how this new knowledge can be optimally utilised.

Some scholars argue that due to the changing demands in the industry, graduates must be well-equipped with various skills especially communication and critical thinking skills. This is where heutagogy comes into significance. This is because moulding "competent and capable learners is critical to life in the rapidly changing economy and cultures that characterise postmodern times" (Anderson, 2010). By incorporating heutagogical practice, academics are able to prepare learners for the workplace and for becoming lifelong learners, as well as to foster learner motivation by cultivating learners who "are fully engaged in the topic they are studying because they are making choices that are most relevant or interesting to them" (Kenyon & Hase, 2010).

Because self-determination is the driver for learning, heutagogy is best reinforced with digital technologies. There are six elements in the heutagogical approach that are well-suited to be supported with technologies. These are (Blaschke & Hase, 2016),

a. explore – essential to heutagogy is the element of exploration. Learners must be given the freedom and opportunity to explore various sources of knowledge. Technologies that can support exploration includes the Internet (Google or other search engines).
b. create – another important design element of heutagogy is giving the learner the freedom to create. This can be achieved using a variety of learning approaches, for instance, writing and drawing. Applications such as Padlet or WordPress can help in this creation process.
c. collaborate – collaboration aims to provide the kind of environment where learners can learn from each other. Googledocs is a popular application to encourage collaboration amongst the learners.
d. connect – networks and connections are keys within heutagogy, since learners learn through these connections. It is easy to connect between learners today since social media such as Twitter, LinkedIn or Facebook provide comprehensive services on expanding network.
e. share – once learners have started connecting, it is only apt that they start sharing. Numerous Web 2.0 tools are available for this purpose, such as SlideShare and ResearchGate. Sharing information allows leaners to keep track, learn from each other's discoveries and experience, provide feedback and get to know others with similar interests.

f. reflect – lastly, reflection allows for improvement and consolidation of new and old knowledge. This is where there is potential for new learning to occur and previous learning to be consolidated. Tools such as WordPress, Facebook or Twitter can be used to reflect, and academics can then provide appropriate feedback accordingly.

To sum up the critical aspects of pedagogy, andragogy and heutagogy, Table 1 below takes into consideration the key strengths of each 'gogy.' These three 'gogies' are also known as Pedagogy 1.0, Pedagogy 2.0 and Pedagogy 3.0, responding to the term pedagogy, andragogy and heutagogy respectively. It must be emphasised that military pedagogy is added for reasons explained in the next two paragraphs.

Table 1: Comparison between Pedagogy, Andragogy, Heutagogy and Military Pedagogy

	Pedagogy: Teacher-Led Learning Pedagogy 1.0	Andragogy: Self-Directed Learning Pedagogy 2.0	Heutagogy: Self-Determined Learning Pedagogy 3.0	Military Pedagogy: (Blended Learning Pedagogy 1.0-3.0)
Dependence	Learners are dependent. The teacher determines what, how, where and when anything is learned	Learners are independent. They strive for autonomy in learning to arrive at a destination determined by others. They are 'problem solvers'	Learners are 'problem finders.' They know their destination and become interdependent on those who can help them determine the route	Learners are independent and 'problem solvers.' They listen and follow instructions well but are able to question and probe further for more
Reasons for Learning	Learners place trust in the teacher and the efficacy of linear, sequential learning. Learners take little or no responsibility for their learning	Learners seek guidance/mentorship but aspire to increase responsibility for the direction of their learning	Learning is not necessarily sequential or linear. Learners accept full responsibility for their learning, welcoming challenges and serendipity	Learning is sequential in order to allow for progress. Learners aspire to increase responsibility as they become more familiar with learning and working environment
Focus of Learning	Learning is subject-centred and focussed on prescribed curricula	Learning is goal-driven, focussing on tasks which allow for cross-disciplinary thinking and autonomy	Learners are enquiry driven – they take a long-term view of their learning, seeking further complexity and uncertainty	Learning is goal-driven on standard curricula. Learners are enquiry driven in order to become critical and analytical learners
Motivation for Learning	Motivation derives from external/extrinsic sources such as parents, teachers, sense of competitions etc.	Motivation is intrinsic – leaners enjoy the boosts to self-esteem that comes from successfully completing challenges	Motivation lies in experiencing 'flow' and knowing how to learn. Learners seek out unfamiliar situations and the gaining of 'adaptive competencies'	Motivation is both intrinsic and extrinsic. Learners enjoy self-discovery and new found knowledge and they also are driven by sense of competitions and other people
Role of Academics	Pedagogue – designs the learning process, suggests and provides materials deemed effective at achieving desired outcomes	Facilitator – sets tasks but encourages diverse routes to solutions. Pursues meta-cognition in learners	Coach – brings together opportunity, context, external relevance and extended complexity. Fosters a culture of collaboration and curiosity	Mentor (Murabbi) – becomes a role model for knowledge and personality. Designs the learning process, set tasks and encourages collaboration and sharing of ideas

Source (Gerstein, 2016; the author, 2017)

As the author works in a military learning environment, another branch of pedagogy, considered under military sciences (see Toiskallio, 2003), must also be examined. Military pedagogy originates from European military institutions that are concerned with the education and training of their military personnel. Military pedagogy can be defined simply as the education and training for military purposes, and the education and training must be conducted in a military learning environment (Falk, 2008). The term and practices of military pedagogy is not *popular* in the Asian region. Nonetheless, it is pertinent to compare and contrast the 'gogies' in education as one 'gogy' may not fit one learning environment.

Can military pedagogy be considered part of the pedagogy revolution? The author opines that military pedagogy belongs to the continuum of this evolution. The reasons for this are twofold. Firstly, as another branch of pedagogy, it has been mentioned earlier that different learning environments and purposes of learning require different approaches to teaching and learning. Because military institutions rely heavily on the concepts of chain-of-command and leadership, the approach and instruction methods require ones that permit learners to be articulate whilst at the same time respect the academics and fellow learners. These academics can be military officers too, and thus, learners or military trainees must be able to distinguish the roles of the military officers in and outside of classroom learning. Secondly, military pedagogy is associated with academic achievement of military personnel, and not so much on the military training. Most of the time, academic and military training run concurrently, and this puts learners into a tough situation in which they have to balance two priorities. Given all these, the author argues that positioning military pedagogy in the pedagogy evolution is appropriate, as can be observed in Table 1.

CONCLUSIONS

What can be discerned from the analysis and discussion in the previous two sections? Looking at the question addressed earlier on the impacts this evolution has on academic performance and excellence of learners, it can be argued that as the educational landscape changes, so does the 'gogy' that must be adopted for classroom learning. It is expected that not all academics would know about these branches of pedagogy. Notwithstanding this, the knowledge on each branch may ensure successful teaching and learning, especially when these academics are aware of their roles and the learners' motivation for learning. Often, it is found that learners lose focus in the middle of the semester simply because 'there is nothing new' about the teaching approach. Today's generation of learners are different from 10 or 20 years ago. They are fast paced learners and are able to explore new things on their own with the assistance of digital technologies. Most of these learners are attached to their gadgets, and thus the academics must know how to utilise this situation to their advantages. For example, they can use Twitter to ask questions, and then ask the learners to provide feedback, orally or by tweeting their answers. The classroom learning then, may become interactive and active.

To conclude, it is high time that the academics revisit the meaning and implications of pedagogy, andragogy, heutagogy and military pedagogy (for those at the Defence Universities or academies). There are two suggestions on enriching the academics' teaching repertoire. These suggestions can be taken up immediately. First, extensive research must be done on finding the best 'gogy' that suits learners of the day. It must be emphasised that learners' acceptance may vary and may change over a period of time. Therefore, the research must be dynamic in nature, and academics must be flexible to suit the learners' needs. Second, frequent exchange of ideas from counterparts all over the world may open up possibilities for physical exchange programmes, or if financial support is not available, video conferencing or Skype is good option. Benchmarking best practices from other countries is a sign that academics and higher education providers are ready for changes, which are inevitable!

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RISE AND FALL OF MASSIVE OPEN ONLINE COURSES: IMPLICATIONS OF LIMITATIONS IN TEACHING AND EVALUATION PROCESSES

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ABSTRACT
In the particular case of e-learning pedagogical processes, we can find a wide range of educational methodologies, from automated to personalized ones. One example is the peer review methodology, where each participant in a virtual course, to complete the assessment of each module should evaluate at least a determined number of works from their peers. This methodology is popular in one particular scenario which is not present (at least in equal dimensions) in classroom teaching processes. This is the possibility of including, within one particular course, an enormous number of participants which would be impossible even to imagine in a classroom teaching process. This is where the concept of "mass education" appears, and with it, the concept of Massive Open Online Courses (MOOCs). On the other hand, we can see the results of personalized methodologies, in which the main instructor or a coordinator or assistant interacts directly with each student and performs feedback on each of the work, inquiries or suggestions from them.
Keywords: Massive Open Online Courses, e-learning, mass education, peer review methodology

INTRODUCTION
The key factor in any course implementation is the didactic design. Choosing the appropriate content, structuring it properly and communicating effectively, form the basis upon which we can implement a successful learning process. In this context, we are constantly reflecting on questions such as: What should a student know and what would be convenient for them to know?, How do we choose the priority issues?, In what way should they be taught?, What duration and intensity must the education process have?, How do we evaluate the outcome of this learning?, etc.

Given these concerns, both from the point of view of the teacher as from the student, there is a need to analyze the entire educational process and identify the critical components that not only should not be absent, but must be optimized to achieve greater efficiency and effectiveness thereof. Education is a process of systematically and intentionally directed communication toward achieving goals previously set or adjusted on the fly and whose essential components are: the person who must be educated, the educator, the message, the educational environment and the numerous interactions between these different factors. (De Ketele, 1984)

To plan a teaching program, the first thing we have to be clear about is their objective, which defines the criteria used to select the material, design the program content, the teaching procedures and the development of tests and examinations. The questions that arise are basically: Where do these objectives come from?, How do we set them?, What are the sources we use to define these objectives? Tyler argues that there is no single source, but each one has certain values and all of them must be considered when designing a comprehensive educational program. (Tyler, 1974)

THE EDUCATIONAL PROCESS
As a result of the above steps, one can select a list of important and achievable goals, which, as they come from various sources, may be stated in different ways. When planning a single list of important objectives, it is convenient to list them in ways that are useful to be able to select learning activities and also guide these. Since the real purpose of education is not that the instructor performs certain tasks, but instead to promote significant changes in patterns of student behaviour, it is important to recognize that every statement of objectives will be related to the changes experienced by the students.

Meanwhile, Stenhouse argues that there are two ways to view the curriculum, the first one is to consider it as an intention, plan, or limitation on what we want to happen; the other idea is to see it as the state of things that really happen. Therefore, he clarifies that the study of the curriculum must be concerned with the relationship between the intention that this curriculum actually has and the reality of its implementation. After all, the curriculum is what happens in real situations. It is not the hope, but the achievement. The problem when one specifies it is to accurately perceive, understand and describe what actually happens. (Stenhouse, 1987)

The curriculum should, at least, provide the basis for planning a course, study it and justify it empirically. The most important principles that must be respected are:
-Selection of content: what should be taught and learned.
-Development of a teaching strategy: how must this be taught and learned.
-Decision-making on the sequence of events.
-Diagnosis of strengths and weaknesses of each student and their possibility to adjust to various cases.
-Study and evaluation of progress of both students and teachers.

Chevallard states that any social teaching and learning project is built dialectically by means of the identification and designation of contents. A content knowledge that has been designated as knowledge to be taught, then suffers a set of changes that will make it suitable to occupy a place among the objects of education. (Chevallard, 1997)

The experts who develop a curriculum become the mediators between scholarly knowledge and knowledge to be taught. Thus the curriculum becomes a bridge between theory and action, even more so if it allows freedom to both teachers and students.

Having selected the content, one must also choose appropriate teaching strategies to achieve the desired goal. Designing teaching situations takes into account the assumptions concerning both teaching and learning. According to Fenstermacher and Soltis, there are three approaches to teaching, regarding how the teacher is conceived:

-The executive approach sees the teacher as an executor, a person responsible for producing some learning, and to achieve this uses the best skills and techniques available.

-The therapist's approach sees the teacher as an empathic person responsible for helping each individual in their personal growth and achieving a high level of assertiveness, understanding and acceptance.

-The liberating approach sees the teacher as a liberator of the individual's mind and a promoter of moral, rational and integral human beings. (Fenstermacher y Soltis, 1999)

According to Brunner, students can be classified as:
-Imitative apprentice: The students aim to achieve specific goals by steps or procedures.
-Didactic exposure apprentice: The student constitutes himself as a receptacle of knowledge.
-Thinker apprentice: There are exchanges among peers and the student expresses previous knowledge, but without theoretical support.
-Apprentice as objective knower: The student performs exchange, but with theoretical support (he must give valid theoretical arguments).
The way to propose the class depends on how the learner is considered, according to the content, the student group and the moment. The concepts of learner are dynamic and complementary, not exclusive. (Bruner, 2001)

In defining and prioritizing certain facets of a topic and providing those meanings to be promoted, the teacher anticipates the general context in which this process will develop, plans sequences of work, studies different ways to combine tasks, etc. This outline is precisely the adoption of a strategy: a plan that allows us to attain predefined goals. Stenhouse defines this plan by saying: Teaching strategy seems to refer more to the planning of teaching and learning based on principles and give greater importance to teacher judgement. It involves the development and implementation of a course of conduct. (Stenhouse, 1987)

In the case of e-learning pedagogical processes, there is one particular scenario which is not present (at least in equal dimensions) in classroom teaching processes. This is the possibility of including, within one particular course, an enormous number of participants which would be impossible even to imagine in a classroom teaching process. This is where the concept of "mass education" appears, and with it, the concept of Massive Open Online Courses (MOOCs). These methodologies of "mass education" may seem very attractive because of the volume of students who can be trained, but are very sensitive to environmental design, which can determine the success or failure of the process. On the other hand, we can see the results of personalized methodologies, in which the main instructor or a coordinator or assistant interacts directly with each student and performs feedback on each of the work, inquiries or suggestions from them. (Beaumont, 2016)

E-EVALUATION IN VIRTUAL ENVIRONMENTS: AUTOMATED VERSUS PERSONALIZED METHODOLOGIES

In e-learning pedagogical processes we can find a wide range of educational methodologies, from automated to personalized ones. One example is the peer review methodology, where each participant in a virtual course, to complete the assessment of each module should evaluate at least a determined number of works from their peers. To illustrate this, I would like to use as an example a course dictated on the Novo Ed virtual platform; in particular I will refer to a course from 2013, by Stanford University in conjunction with the Catholic University of Chile, on "Evaluation of Strategic Decisions."

Since this course was based on the MOOC model of mass formation and an enormous amount of participants were likely (as the course was free and recognized by prestigious institutions), it resulted impossible to perform a personalized assessment of each students work. According to the organizers, "the inscriptions of this course exceeded 118,000 students." Obviously, with one teacher in charge, having to read about 4 or 5 answers of each participant was directly an impossible task. As a solution, they implemented the peer review methodology, in which each participant should assess at least 5 papers from their peers in order to complete each module

It sounded good in theory but in practice it was not that simple.

The main difficulties arose in the heterogeneity of academic backgrounds of participants and the large difference in the depth that they engaged in both developing responses as making assessments on them. The first problem that arose was that of cases of highly elaborate answers, several pages long and with great academic quality, which were evaluated as mediocre, without even an argument or some sort of explanation justifying this evaluation. Just a "low grade" without taking the time to write 5 words in the comment field explaining this evaluation.

This obviously created a huge amount of claims and complaints from participants, which, added to the limited availability of coordinators or assistants, generated a major frustration among most of the students.

On the other hand, we see the result of personalized evaluation methodologies, where the main teacher, or a reduced group of coordinators or assistants, read the work of each student and makes a written feedback on each piece of work. The immediate and most obvious advantage to students is that they feel more accompanied and enriched in their learning process. A disadvantage, however, is the fact that this methodology requires more teacher effort. Returning to the previous example, it would be impossible to assess in a personalized way 118,000 pupils in 4 months!

Finally, having developed these strategies, feedback is crucial to achieve the educational process to create a system of continuous improvement in its implementation. For this you must have an appropriate system of assessment of learning.

As in any successful educational processes, feedback from the participants plays an important role to improve different aspects such as curricular design, methodology, evaluation, etc. One issue that has frequently arisen is the issue of the impact of latest trending technology on our educational process design.

As well as taking note of spontaneous feedback from online students Centro de Tecnología para el Desarrollo (CENTED) has conducted a number of surveys among these participants, so as to understand their particular needs as far as learning environments and the use of information technology in their homes and or work-places. The main results from the latest survey (CENTED, 2015), include:

- One of the most frequent complaints from online students is the availability of tutors /coordinators to be able to answer inquiries and assist students in general problems.

- Delay in answering (both questions and evaluation of exercises) and depth of responses are cited in second place.

- Another issue occurring in some highly automated e-learning platforms is that some students find it difficult to locate the learning material. When there are many different files (video, text, presentations, etc.) located in different places, it is relatively frequent that they "skip" some of them.

CONCLUSION

One of the main issues in today's on line education programmes is trying to find the right balance between the amount of students and the amount of teachers or coordinators assigned to each particular course. The main problem is the cost of this. How can you offer free MOOCs to thousands of students when you should probably have to pay for a couple of hundred teachers or coordinators?

Obviously there is much more to say about the subject and is always open to debate, but the contrast between models with less teacher involvement versus those that require greater dedication, pose significant challenges when designing a virtual teaching process.

We can summarize the dilemma as "automation versus customization."

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RISING VALUES IN 21ST CENTURY EDUCATION: SCRATCH AND CODING

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ABSTRACT

Scratch and Coding Education; Is an educational approach that many countries in the world have incorporated into teaching programs that enable students to see the information they learn in science courses as parts of a whole, aiming at transforming theoretical knowledge into practice, product and innovative inventions. Scratch and Coding Education is aimed at providing an ability to make production and inventing skills and it is aimed that these educated individuals can adapt easily to the qualities of business life thanks to these skills when they enter into the business world. In addition, Scratch and coding education is considered as an interdisciplinary approach covering the whole education process from primary education to higher education in the world. It is necessary to make a detailed study on this approach which is based on the multidisciplinary system which is one of the indispensable elements of a good education and it should be done to examine the development in our country. Within the scope of the study, attempts were made to investigate the trends and new trends of Scratch and coding education conducted from 2005 onwards. Document analysis and thematic content analysis (meta-synthesis) method was used in the research process. Thematic content analysis; Analyze, synthesize and interpret the findings of more than one research on the same topic, with a critical point of view, in contrast to the theme or templates specified and raw data. With this feature, thematic content analysis also provides a rich reference to researchers, teachers and decision makers in terms of achieving more work, since it enables qualitative synthesis and exemplification of common and similar aspects of studies that deal with different dimensions of a particular subject. During the research; Articles, theses, reports and reports which are reached from various sources in the national and international literature have been examined and a wide-scale resource has been created by considering every point related to the contents of the work. The results of the research were examined under various headings and a broad framework was established and recommendations were made.

ROMA IDENTITY AND EDUCATION- COMPARATIVE RESEARCH

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ABSTRACT

This paper is a report of studies conducted by the authors in the Roma community in the Czech Republic and Slovakia. After a brief introduction and characteristics of the researched group, the theoretical basis of the research and a methodological approach was presented. The project was supposed to be an attempt to show the difference with Roma education and the dominant community in their country of residence. The research objective of the project would be to identify Roma perceptions of education and school duty. Identify and understand the relationship between the Roma identity and their relation to education and participation. Three areas were analyzed: identities, culture and education. The identification of their identities, their participation in culture and the education of the culturally dominant group are indicated. The conclusions show the current situation of the Roma in these areas and possible recommendations or solutions for the future.

INTRODUCTION

Being the most numerous minority group in Europe, above all in Central Europe, Roma/Gypsies are, at the same time, the least known community. There are 6-12 million Roma dispersed around Europe with two-thirds living in Central and Eastern Europe. The whole Europe should try to get to know them in order to understand them. The surveys problem seems to be essential for the whole region of Central Europe.

Theoretical consideration concern: Romanis, ethnic identity; integration and social (cultural) assimilation; multicultural education; minorities' culture; social changes; transformation; globalisation. There are introduced: the characteristic of Romanis ethnic group and the situation in which Gypsy people are now. There are also described conditions of participation of Romanis/Gypsies in culture and education of majority.The authors presents the project, which would be an attempt to show the differences in the understanding of the education by the Roma and the dominant community in their country of residence. The aim would be to identify a formal relationship to the educational system and own group. The authors describes the elements of the identity of the Roma. It also indicates a possible approach to the use of theoretical and empirical research suggests this.

That were monographic surveys with the usage of analysing technique of documents and literature but also qualitative techniques (narration interview, interwiev, active observation). The research trip (internships) to Czech Republic and Slovakia were enable to gather required knowledge that would be taken from archives and libraries (teaching plans and programs – official and alternatives; governmental plans and specific law regulation; documents about educational institutions, associations, organizations and social movements that are engaged or take part in Romanis/Gypsies' education). The interviews with Romanis/Gypsy leaders and people engaged in Romanis/Gypsy education were also play vital role here.

ROMA ETHNIC IDENTITY

In the text consistently tried to use the name "Roma" in terms of not its ethnic or rather political significance. Despite some negative language associations, the name "Gypsies" is still used for reasons of historical or substantive correctness. Without forgetting the group diversity of the described community, we use the name "Roma" in its political meaning, thus covering all Roma groups. We also know that some of them do not use this ethnic name.

Their ethnic boundary, based on the above dichotomy, is additionally regulated by Gypsy purity laws and expressed by the three following models (Mirga, Mróz, 1994, pp. 269-270): The first model is based on the contrasts "pure-impure" *(Romanipen-Gadjipen)* (Hancock1992). Name gadzio, sing. (gadzie plural.) – stranger, no-Roma. Romanis are pure since they know how to avoid contamination. Non-Gypsies are impure due to their constant violation of the Mageripen code (marks borders of conduct permitted among Roma people). According to the second model, contamination relates only to the Gypsy community and is respected only within the Romani group. The Roma perceive the inappropriate behaviour of Gadje whilst considering the non-Gypsy

population as neutral. People who can lead to the contamination of the Roma are for example: midwives and doctors. The contamination theory plays an insignificant role according to the third model. Non-Gypsies are portrayed more as evil and dangerous rather than impure. Rom, on the other hand, is depicted as good and wise.

It is crucial that Roma lack a collective ethnic identity which only now is being reinforced by a small group of Gypsy elite. Their ethnic identity relates mainly to the non- Gypsies (Gadje). Their ethnic boundary, based on the above dichotomy is additionally regulated by Gypsy purity laws. The first model is based on the contrasts „pure-impure" (Romanipen-Gadjipen). Romanis are pure since they know how to avoid contamination. Non-Gypsies are impure due to their constant violation of the Mageripen code. The contamination can occur on different levels, depending on a Roma group.

American romologist-Matt Salo (1979, pp. 73-96), listed the below criteria distinguishing the Roma from the Gadje: The first one- universal- characterizes all the Gypsy groups. It is the Gypsy kindship – membership inherited naturally, as a consequence of birth to Gypsy parents. It reflects a status of an individual in a social stratum. One can also become a member of a Gypsy community via brotherhood and mixed marriage. A child being born in a mixed marriage enjoys the full rights of a Gypsy. The second one reflects the contamination concept in the Gypsy culture, the concepts of appreciation and respect. Rejection of Gadje by the Gypsy community is caused by their disrespect of Romani cultural standards. The third criterion is related to the Romani language which symbolically separates the Roma from the Gadje who cannot speak the Romani language. The fourth one reflects the norms, resulting from a group structure and the links between its members, which exclude non-Gypsy from the social organization of the Roma community. The fifth criterion constitutes the Gypsy economic business activity with the Gadje considered fair game for exploitation. The sixth one reflects the external distinctive anthropological features perceived by the Roma as Gypsy, such as: outfits, specific gestures and so forth.

IDENTITY BEHAVIOR THEORY

A theoretical concept that would allow to systematize the determinants of the Roma identity and could be applied in the description of its subsequent areas is Tadeusz Lewowicki's (2001, pp. 161-164) Identity Behavioral Theory (TZT). Especially in a comparative context with the majority group, as Tadeusz Lewowicki claims that concentration on a chosen minority community deforms reality and makes it difficult to reach general patterns, conditions, relationships (Lewowicki 1995). Referring to the criteria described above in the TZT, the first three areas appear to be relevant to Matt Salo's first, second and third elements, but also for the fourth and sixth. Thus, they concern the determinants of historical fate, the distinctness of the institution, culture, language, customs, transmission of tradition, biological and racial categories, personality traits, stereotypes. The fifth element of the Roma identity seems to correspond to the fourth TZT area, for it concerns the economic sphere, the standards of life, the styles of economic activity. It is also important to refer to the Fifth and Sixth TZT areas, but this will require in-depth study of the proposed issues.

The social and cultural identity of the Roma is being transformed, which may be reflected in their increasing participation in the socio-economic and political life of the countries of residence. They are increasingly adapting to continuous change, which does not matter to their identity. Often among the Roma comes to doubling, tripping identity (eg. Lovar - Rom - Pole or Polish Roma - Roma, European, Citizen of the World). Also, Jerzy Nikitorowicz assumes the possibility of many dimensions of identity. Indicates the ongoing process of shaping and operating in three dimensions: Identity inherited and acquired, Identities of roles and challenges, Identity felt and realized (Nikitorowicz, 2009, p. 378).

SHORT CHARACTERISTIC OF ROMA GROUPS

European Roma, for centuries, have been faithful to their traditions and cultural heritage. This is reflected not only in their cultivation of the Romani language, maintenance of Romani customs and active participation in the lives of ancestral and tribal communities but is also manifested in the group exclusivism and compliance with solely Gypsy communal forms of organization, systems of rules, code of conduct rather than with the mainstream - non-Gypsy structure. Similarly to the representatives of majority populations, the Romanis are living in times of constant social changes and the development of civilization. As a consequence, their identity has undergone various transformations provoked by globalization, European integration, political system transformations, educational reforms and more active participation of Romani students in the schooling process. The government programmes, for the Roma community not only in Czech Republic and Slovakia but also in other countries, focus on amelioration of the Romani educational situation and their occupational development. The Romani identity is not closed since it has been undergoing, to a certain extent, transformations similar to the changes transforming the identities of other communities.

Romanis are surely a heterogeneous ethnic group. The division into subgroups influences the Roma's comprehension of the surrounding environment. It can be easily noticed that tribal identities are being replaced by a broader concept of Romanihood - attempted to be defined in national categories. The Romani community has been subject to social transformations as a result of the Gypsy elite's concerted attempts to create a homogenous Romani identity. Romani inner integrity embodies the common elements of Roma identity and similarities between the Romani subgroups. The newly deconstructed identity is vital not only for the Romani elite. Borrowing solely symbolism from its predecessors aids the self-identification process of individuals or whole groups through the common language, tradition and cultural heritage. Gypsy group cohesion and their social behaviour are strictly regulated by the highly developed inner system of social control outlined in the code of conduct and represented by Gypsy institutions "the Romani traditional jurisdiction"(the rules of mageripen, romanipen, manusipen). Transgression of taboo mageripen leads to tainting. Romanipen marks the border of ethnicity, it is an interpretation of Roma tradition and is valid only inside community. Manusipen is humanity, preserving Roma moral values romanipen. There are different institutions within various Roma groupings. Some institutions are more democratic, represented by a kris (group of persons) in collective decision taking. The others are ruled by one leader (Śero Rom, Jonkaro) (Ficowski, 1985, pp. 175-199). Inner relations and social stratification are regulated not only by the hereditary caste status but also by personal traits of an individual person. The diversity of Romani ethnic identity depends on the length and intensity of the assimilation process conducted towards particular representatives of the Romani minority group. Most of the Roma communities are characterized by a high spatial mobility. Their family home – a cradle of Gypsy culture, place of meetings, Gypsy fortress - and oral transfer of customs, history and cultural traditions to the younger generation (oral culture), played an integral part in the preservation of Romani cultural traditions. The Romani language is still spoken in the traditional Gypsy home.

The Romanis form one cultural group around the world that is internally divided. The division occurred as a result of fundamental clan and tribal differences, traditional and modern nomadic practices, Gypsy dispersal and settlement in different countries. Romani existence next to the mainstream populations, with distinctive cultural traditions, religion, socio-political characteristics also influenced the Romani identity. However, Roma still remain largely unknown by the majority population. Their distinctness is reflected by group exclusivism and cultural ethnocentrism. Despite their subdivisions, Romani people have succeeded in retaining their inner integrity. One of its characteristic features is endogamy, the practice that facilitated the maintenance of Romani homogeneousness. Furthermore, Roma integration into a host society or even into the global population might lead to the creation of a universal Romani identity. The Romanis might also skip the phase of national identity formation and adopt a broader European identity or even head towards New Tribalism - the phenomenon which embodies the return to traditional elements of Romani identity.

Roma people divisions are also visible in Czech Republic. We can divide them in five different subgroups which considerably vary in numbers. The first three are newcomers who settled during the migrations after 1945. The first and biggest group is Slovakian Roma, otherwise called Servika Roma, Slovenska Roma, i.e., c.a 65–75% of all Roma people. Such great amount of Slovakian Roma in Czech Republic is a result of many-years migration to Czech Republic in search of jobs and place to live in Czechoslovakia time. The second group are Hungarian Roma, ethnonym Ungrika Roma. They are 15–20% Roma in Czech Republic. Wallachian Roma – Olaši (Vlachi, Vlachika Roma) are a small community. There are 10-15% in the population of Czech Roma. They came from the territory of present-day Romania. The least numerous group are Czech Roma, sometimes divided into Czech and Moravian Roma and German Roma – Sinti. Both communities had been living on the territory of Czech Republic before the WW II but the majority were murdered by German Nazis. Czech Roma are descendants of several hundred people who survived the extermination. They are mostly assimilated group, especially as far as language is concerned.

In present-day Slovakia we also can divide Roma society on sub-groups. Similar groups inhabit territory of Czech Republic. The biggest community are Slovakian Roma people. Distinct line of the division and Olaši Roma manifests itself on different level of upholding tradition and language and also different ways of living and dwelling. Other groups have little percentage of Roma people in Slovakia.

Up to the present, no reliable data have been gathered which would show a considerable fluctuation in the size of Roma population and include a thorough analysis of their characteristic demographic features.

Table1. The Roma population in the Czech Republic (the 20th and 21st century)

Year	Roma population
1930	227[y]
1947	16 752[x]
1970	60 279[y]
1980	88 587[y]
1989	150 000[y]
1991	32 903[y]
2001	11 746[y] 150 000-300 000[x]
2011	5 135y 150 000-300 000x

Key:

[x] – demographic estimates

[y] – census data/official data

References: Z. Barany, *The East European Gypsies. Regime Change, Marginality and Ethnopolitics.* Cambridge University Press 2002. p. 126; K. Kalibová, *Romové v Evropě z pohledu demografie,* „Demografie" 2001, No. 2, pp. 125 – 132; J. Langhamrová, T. Fiala, *Kolik je vlastně Romů v České republice?* „Demografie" 2003, No. 1, pp. 23 – 32; *Sčítání lidu v Republice československé ze dne 1. prosince 1930*; *Sčítání lidu, domů a bytů 1991. Základní údaje za republiky, kraje a okresy – Česká republika*; *Sčítání lidu, domů a bytů 2001;* Český statistický úřad. http://www.czso.cz; G. Šamanová, *Národnost ve sčítání lidu v českých zemích,* http://www.cvvm.cas.cz/upl/nase_spolecnost/100023s_Samanova-narodnost.pdf (24 July 2017).

Table 2. The Roma population in Slovakia (the 20th and 21st century)

Year	Roma population
1930	31 188[y]
1947	84 438[y]
1970	159 275[y]
1980	199 863[y]
1989	25 3943[y]
1991	75802[y1]
2001	89 920[y] 350 000-500 000[x]
2011	105 738y 350 000-500 000x

Key:

[x] – demographic estimates

[y] – census data/official data

[1] - 77 269 persons declared they spoke Romani language at home.

References: Z. Barany, *op. cit.*, p. 126; K. Kalibová, *Prognóza romské populace v ČSFR do roku 2005,* „Demografie" 1990, No. 3, pp. 219 – 223.G. Kozmová, *Rómsky problém na Slovensku,* „Slovenská politologická revue" 2004, No. 4; B. Vaňo, E. Haviarová, *Demografické trendy rómskej populácie,* [in:] *Čačipen Pal o Roma. Súhrnná správa o Rómoch na Slovensku*, ed.by M. Vašečka, Bratislava 2002, pp. 475-502. B. Vaňo, *Demografická charakteristika rómskej populácie v SR,* Bratislava 2001.

Table 3. The Roma population in the Czech Republic and Slovakia – comparative overview

Data	The Czech Republic (2001)	Slovakia (2001)
Census data	11 746 (0, 11% of total Czech population)	89 920 (1,65% of total Slovak population)
Demographic estimates	150 000-300 000 (1,42%-2,84% of total Czech population)	350 000-500 000 (6,42%-9,16% of total Slovak population)
Overall number of Roma population	10532770	5455000

Source: Z. Barany, *op. cit.*, p. 126; E. Davidová, *Romano drom. Cesty Romů 1945–1990. Zmeny v postaveni a způsobu života Romů v Čechách, na Moravě a na Slovensku.* Olomouc 2004. pp. 24-49; B. Vaňo, E. Haviarová, *op. cit.,* pp. 475-502.

ROMA EDUCATION

Romani education (Romani ethnic group education and so forth) relates mainly to the educational initiatives of the host countries. The activities that comply with the official education system applicable in a particular country include schooling and education of Romanis, educational activity of Non-Governmental Organizations, other educational institutions, Romanis and their minority associations. The programmes also comprise all the initiatives familiarizing the mainstream population with the facts related to the Romani lifestyle and situation. The above understanding of "Roma education" fully reflects the concept of intercultural education and it cannot be restricted solely to the educational programme carried out but Romanis themselves for their own ethnic group (Kwadrans, 2011, p. 7).

Roma people are the most defenceless group and the most unwanted at the same time in the midst of European Minorities. We could observe: growing pauperization some part of Romany, trends to isolation them by national society, unemployment, aggravating health situation, still low level of education among Romany childern and youth. Roma Education after year 1989 was still in bad condition. Almost half of 8-12 milions of Roma people in Europe were in school age. 30 - 40% of children don't get elementary education. Roma pupils have still problems with reading and writing. Usually they don't continue education in high school. Almost 54% of adult Roma people in Europe are illiterates, in some regions even 80-100%.

SHORT REPORT FROM RESEARCH

Project goal is: Indication of differences in the presented attitude towards education and cultural differences and the sense of identity of the Roma. Central area of interest is Roma identity, its transformation, attitude to education. Conclusions from the research conducted in Poland were the basis for the formulation of the research problem: What is the feeling of Roma identity and their attitude towards education? Can the relationship between cultural identity and Roma identity and their relation to education and school fulfillment be recognized? Identity is central to research interest. The purpose of the research: to indicate the differences in the attitude towards education and cultural differences and the sense of identity of the Roma.   Adoption of relative dynamics: diagnosis for 2 groups: 1) students in segregation and integration education; 2) youth and adults.

Main problem is: Can the relationship between cultural identity and Roma identity and their relation to education and participation be seen? 3 diagnostic problems corresponding to theoretical threads: Problems related to Roma culture; Roma Identity Problems; Problems related to Roma education. Specific problems (Culture): 1. Are the Roma aware of their cultural differences as they understand it? 2. Do the Roma engage in social and cultural life of their own or majority groups and how do they assess their activity? 3. What experiences are there in Roma culture? 4. What attitude to their own and what other people declare / show Roma and to what extent? 5. Do they favor their own cultural group? 6. In which direction is the acculturation of the Roma, the culture of its own or dominant? 7. What cultural patterns are conveyed in a homogeneous and heterogeneous family? Specific problems (Identity): 1. What are the identity behaviors of the Roma? 2. How do the Roma perceive themselves and their behavior? 3. What - in the opinion of the respondents - are the criteria for being a Roma? 4. What identity profiles do they accept (one, two, multi-dimensional)? 5. What is the dynamics of identity formation in individual Roma groups? 6. What is the dynamics of identity formation in Roma and mixed families? 7. And what elements of identities are common, different for representatives of Roma groups and for the country of residence? Specific problems (Education): 1. Do the Roma engage in group education or do they work in majority-group education and how do they assess their activity? 2. What are the experiences related to functioning in education declared by the Roma? 3. To what extent does the country of residence of the Roma

condition their participation in education? 4. How does Roma schooling fulfillment in the studied countries take place? 5. How do Roma perceive education and school duty (help, assistants, programs)? 6. What is the participation of Roma children in education (network of schools, number of students, school achievements)? 7. And to what extent do Roma get knowledge about their own culture at school? Specific problems (Identity and participation in culture and education): 1. How do identity profiles fit into the majority culture? 2. How do identity profiles assume participation in education? 3. And to what extent does the identity change from tribal to national? 4. And to what extent does the identity change to one-dimensional to multidimensional?

There is also a description of Roma participation in the culture of majority societies, the implementation of school attendance and participation in education. It seems important to emphasize the educational thread, the institution, the school network, the number of pupils, their participation in education, attendance, school achievement. The project is an attempt to show the difference between Roma education and the dominant community in their country of residence. The purpose of the project was to identify the Roma's attitude towards education and the school duty.

The study was conducted: in Slovakia (I-VI 2015) in: Nitra – Orechov Dvor, Koszyce – Lunik, Poprad – Hranovnica, Letanovce, Hrabusice, Zehra, Hrusov, Bratislava, Dunajska Streda; in the Czech Republic (III-V 2016) in: Zlin, Prague, Straz pod Ralskom, Hradec Kralove, Usti nad Labem.

We have experienced problems in conducting research. They were related to: specificity of the group, difficulty entering the group, problems of cultural differences, language problems, communication skills, technical - exclude the use of quantitative approach, transition from individual to collective interview, researcher relationship – investigated, stereotypes, subjectivity, ethical implications, intercultural competence of the researcher and the researcher.

Studies were conducted in the towns and villages (also of the Roma settlements) in the Czech Republic and in Slovakia. The selection of participants reflected the group divisions and the size of this community in both countries. Most respondents, interviewees were male. This was due to cultural reasons. Often interviews went from individual to collective. Most of the respondents were characterized, although in the labor mobility declarations. Accepted identity profiles were from one dimensional to multidimensional. The latter was more often declared. They were denominated in groups, family, and world citizenship. There were no significant differences between heterogeneous and homogeneous families.

During the study, the multidimensionality of Roma identification was noted. Discovery of a certain outbreak of ethnicity. This could be related to the mobilization of group elites. Attempts to adapt and integrate with the majority may be due to the significant role of European Union aid programs. Otherwise, the Roma declare their group identification during censuses (they are reluctant to admit their identity) and otherwise they can participate in projects and be their beneficiaries.

Researchers have found that, despite being treated by Roma as a majority of the population as a cultural group, Roma themselves declare little awareness of cultural, social or social differences. Stereotypes perceive their own culture. They point to music, dance, singing, folklore. Acceptance for cultural differences, Gadzi's otherness is noticeable

During the study the positive thinking of the Roma about school segregation was revealed. They have a sense of security that children learn in school with other members of the group. They do not perceive the role of classes, schools of integration character. Among the Roma appeared low educational awareness, negative school experience (in the adult group). The respondents positively assessed school attendance and the value of education. They pointed out the lack of opportunities to deepen their knowledge of self-help in formal education.

CONCLUSIONS
Socialist governments of these countries have made unsuccessful efforts to assimilation of Roma people. As a result during transformation Roma society was one of the weakest educated and the most neglected group in Czech Republic, Slovakia. Education policy in these countries isn't satisfactory enough because of: ideals of multicultural education, the civilization development and an economical status of Roma people. Low level of education among Roma, the lack of job qualifications, difficult living conditions generate new problems and intensify social marginalization. The education can help Roma people in their economical situation as well as in more active social life. One of the biggest problem for Roma, besides low educational consciousness and low level of education is the school segregation – classes and schools only for Romany or very common special schools.
Every of these two countries has worked out their own educational and government programs, which are different from each other in moment of initiation, character and the way of realization.
Necessary conditions to change unsatisfactory reality is: a cooperation, an exchange of experiences and facts about Roma's education; equal educational chances for Roma's students (nursery education, pre-primary classes);

the improvement of social situation Roma's children and their families (scholarship system); the elimination of any discrimination, intolerance and racism acts at schools; the liquidation of school segregation, learning in integration classes constructed by age and intellectual level; developing such institution as Romany assistant and teacher supporter; multicultural education programs at schools; an activity of Romany elite into creation and realization educational policy in their society; an increase of educational consciousness among Roma's parents and children.

The project has exploratory significance for this part of knowledge. It can be very useful source: theoretician (dealing with multicultural education), practicians (Roma assistants, teachers supporting Romanis/Gypsy activists, institutions engaged in favour of Romanis/Gypsy Society) and authors of governmental programs, which are to change Romanis/Gypsies situation.

It is also important that representatives of the Romani community, Roma leaders, members of various organizations and associations engaged in the Roma educational process share their opinions about relevant changes. Moreover, everybody can benefit from the expertise and help of various experts on the education of ethnic and national minorities. Educated Romani elite should be engaged in the creation and management of the educational policies for their community. Roma students and university graduates should be supported throughout their university career. After the graduation, they should be subsequently engaged in different government programmes and projects implementation for their own community group.

Roma children need to be supported in kindergarten education, reception classes (0 - level) and encouraged to study in mainstream schools, situated close to their place of living. Roma educational organizations could support these practices (such NGOs already exist in the two researched countries).

It is necessary to raise educational awareness of Romani children and their parents. The whole process of engaging Romani families in their children education, adult education, pointing at positive role models, can be done with the help of public media but first of all, in cooperation of local organizations. Roma parents should be involved in their children's school life. School authorities and teachers can play here an important role in creating a friendly, unbiased environment for Roma children. Better educated and qualified teachers and educators, specializing in the work with Roma children should be supported and motivated by pay incentives and other forms of promotion.

The authors of this paper are aware that limited character of his work did not allow him to develop many issues in detail (difficulties related to the Roma children school motivation, school attainments analysis). Therefore, presented outcome might seem to be too general. However, because it is a complex problem, it can be further developed and analysed in detail. The publication is a description and an evaluation of the Romanis 'educational situation and constitute the comparison of the educational Romani reality with the Roma's and non-Roma's expectations towards the education policy implemented by the administrative authorities.

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SAFELABS
THE SAFE EDUCATION AND INTERNET SURFING IN COMPUTER LABS FOR PEOPLE WITH INTELLECTUAL DISABILITY

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ABSTRACT
Persons with intellectual disability become less and less digitally excluded but this development brings also new problems – problems related with safety. And it's not just about surfer's security in internet. Also, arises a problem of safe behaving in computer labs. Support is expected for both, leaders of computer labs and labs users with intellectual disability. These needs can be fulfilled by the project "Safe Education and Internet Surfing in Computer Labs for People with Intellectual Disability" called shortly SafeLabs. The project is financed from Erasmus + Program, action KA2 – Adult Education, Strategic Partnership and has been started in autumn 2015 by the Polish Association for Persons with Intellectual Disability. The partnership was built around the idea of safe behaving in computer or multimedia laboratories. The other partners of the project are Socialas Inovacijas Centrs from Latvia, Spolecnost pro podporu lidi s mentalnim postizenim v Ceske Republice from Czech Republic and Instituto Politecnico de Santarém from Portugal.
The project idea was to define the dangers of work not only in internet but also in computer environment used by people with intellectual disability. Together with dangers and risks list, the answers and solutions were worked out. All this knowledge is now accessible in form of database, where labs leaders and staff can find information. The certification rules were worked out and SafeLabs certificates were granted to the laboratories which met the certification requirements. These labs could be named as safe computer lab for persons with intellectual disability.
KeywordsPersons with intellectual disability; Safe computer labs; Cyber safety**.**

INTRODUCTION
Today's world is based on the internet and social media. People with intellectual disability also use the Internet in a more and more common and sophisticated way. They are encouraged to this, because thanks to digital inclusion they can become full citizens and does not stand in the worse position when looking for work. Internet, due to its universality and accessibility, however, carries many risks. Cyber violence and the antidote of cyber safety are fast becoming a global concern for governments, educational authorities, teachers, parents and users. Some aspects of internet endanger safety of all – children, teenagers, adults and seniors, regardless of whether they are people with or without intellectual disabilities. But it can be concluded that people with intellectual disabilities are more vulnerable to various types of fraud and cyberbullying.
Because of limited funds of public centers for people with disability, staff leading computer labs are often therapists, who are left alone, with no IT support and sometimes they have no skill to solve problems they meet during their everyday work. Sometimes they are not even conscious of the problems.

It is based on these needs that the Safe Education and Internet Surfing in Computer Labs for People with Intellectual Disability project (SafeLabs) comes out and it is financed from the Erasmus+ Programme action KA2 Strategic Partnerships for adult education, Cooperation for innovation and the exchange of good practices. The partnership was built by 4 organizations and institutions: Polish Association for Persons with Intellectual Disability (Poland) – coordinator; Instituto Politécnico de Santarém (Portugal); Společnost pro podporu lidí s mentálním postižením v České republice (Czechia) and Social innovation centre (Latvia).

The main goal of the project is to help computer laboratories leaders to create a safe place for persons with intellectual disability to work in a common space of computers and internet. The second project aim is to deliver materials for teachers, therapists, parents and persons with intellectual disability, as well as informing about possible dangers during work in computer laboratories and in internet and proposing suitable solutions.

So, as it was mentioned above, the project's results and activities are addressed to three main groups of recipients:

1. teachers, therapists, trainers - educators of adult persons with intellectual disability;
2. parents whose adult children are persons with intellectual disability;
3. persons with intellectual disability.

During the two year, partners created and published several project intellectual outputs. All the worked-out materials can be find on the project website, figure 1 http://www.safelabs.eu, in five languages: English, Portuguese, Polish, Latvian and Czech.
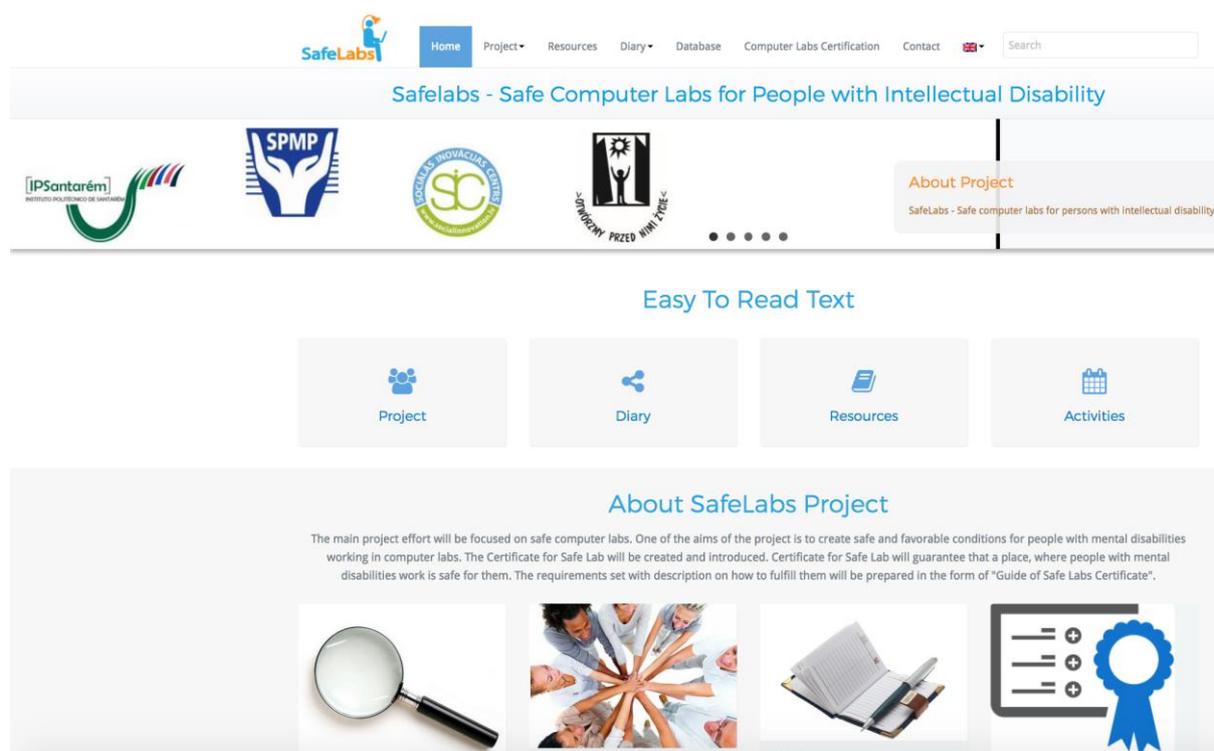
Figure 1 – SafeLabs project Website

THE RESEARCH

The research aimed was to find the needs and problems that persons with intellectual disability face while using internet and working in computer labs. The idea was to define the dangers of work not only in internet but also in computer environment. The partners searched about internet dangers and on the organization of safe computer labs with special focus on persons with intellectual disability. Together with dangers and risks list the answers and solutions were worked out. Partners analysed existing skills to identify internet and computer dangers and ways to avoid or solve them. Partners did resources research and summarized the results. The next step in researches were interviews with stakeholders. The face to face meeting with teachers, trainers, special educators and persons with intellectual disability were organized. Simultaneously the discussion in social media was conducted. Partners worked on the questions to be asked to persons with disability and to computer or multimedia labs leaders. The aim of these interviews was to find out the problems computer and internet users facing, how they solve them and what are their knowledge about internet dangers. The discussion plan was

created and the discussion was held, mainly in Facebook, but in some cases via paper polls or during meetings. Questions addressed to persons with intellectual disability were in form of easy to read text. Data was collected from over 120 respondents.

The main conclusions of the research were:

Individuals who are supporting people with disabilities know about the risks linked to the used Internet and many of them believe that the risk situations are the same for people without disabilities and for people with intellectual disabilities. Nevertheless, the existence of a greater vulnerability to manipulation was pointed. Several risk situations have been described by respondents who reported about dating portals, porn pages, Facebook, loans possibility on internet etc. They share the concern that for people with disabilities it can be difficult to identify some risks or risky behaviours on Internet. People with intellectual disabilities are aware of the information they should never publish on Internet and, interestingly, they list the same information as those who support people with disabilities. When a person with a disability faces a problem on Internet, it is important for many of them to turn to somebody they trust but who doesn't know their parents. Many people with disabilities are afraid that their parents would block their access to their computers. It was also complicated to explain to people with disabilities what is bullying, especially cyber bullying. There was an interesting answer, one woman with intellectual disability who says that: "only a bad person can bully" and her answer to the question: "How can you identify a bad person", she answered: "Every person who doesn't have an animal". Teachers stressed the need to professional equipment computer laboratories in all relevant areas (electrical safety, system configuration, ergonomic etc.).

The close cooperation with parents were also mentioned during meetings. This survey therefore shows the importance of developing further work in this area. It is highly needed to train people with intellectual disabilities so that will know the safety rules and know how to safely behave on Internet. From the technical point of view, computer protection and appropriated set-up are also necessary to surf safely on the net.

FINDINGS

Results of resources research, discussion details and conclusions were collected and published in the digital publication "Review of Available Knowledge on Internet and Computer Dangers in Laboratories for Persons with Intellectual Disability", figure 2 - http://safelabs.eu/en/resources/.
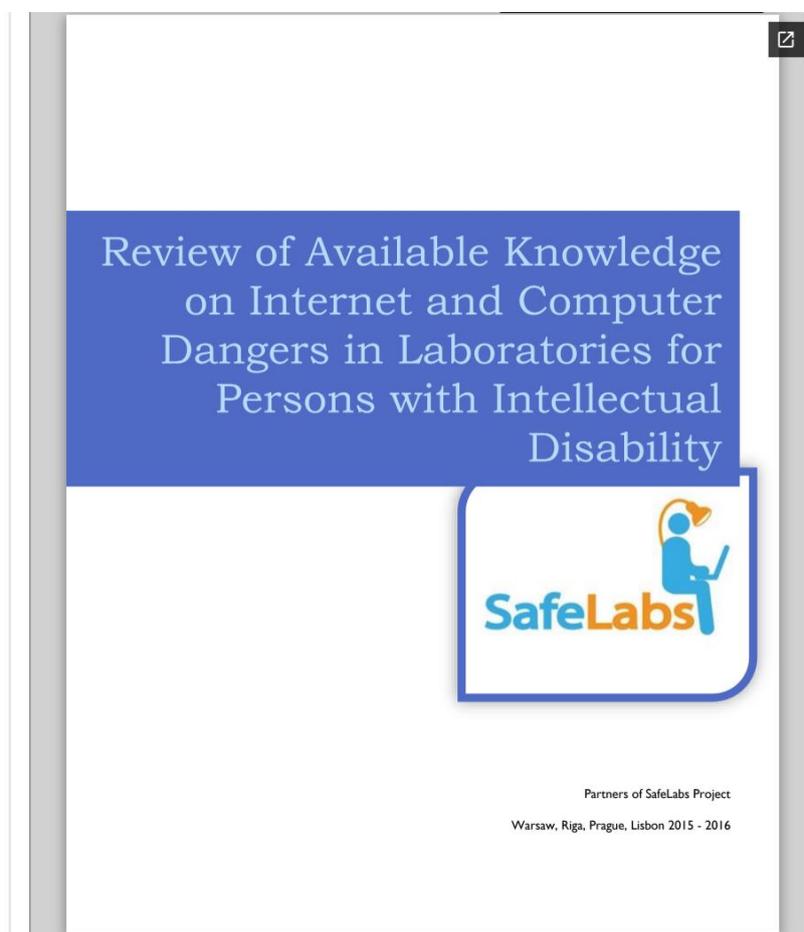
Figure 2 - Digital publication

After collecting and analyse the information, partners designed and implemented database with rules, figure 3 - http://safelabs.eu/en/database/. The rules concern following issues: how to be safe in internet, in computer labs, how to prepare computers and internet in labs or how to recognize that a person with intellectual disability suffers any problem caused using the computer, internet, social media etc. The database users can be teachers, psychologists, parents and persons with intellectual disability. The interface of the database rules has a filter, so user can limit rules list only to rules addressed to specific type of receiver. Also, the search engine is implemented and all the database can be searched by given categories or by any phrase. The knowledge collected in the database is unique and it is presented in attractive way. There are not only plain articles, but also articles with easy to read text, PowToon films, multiply choice tests and other forms. The database is open. The logged users can add new rules.
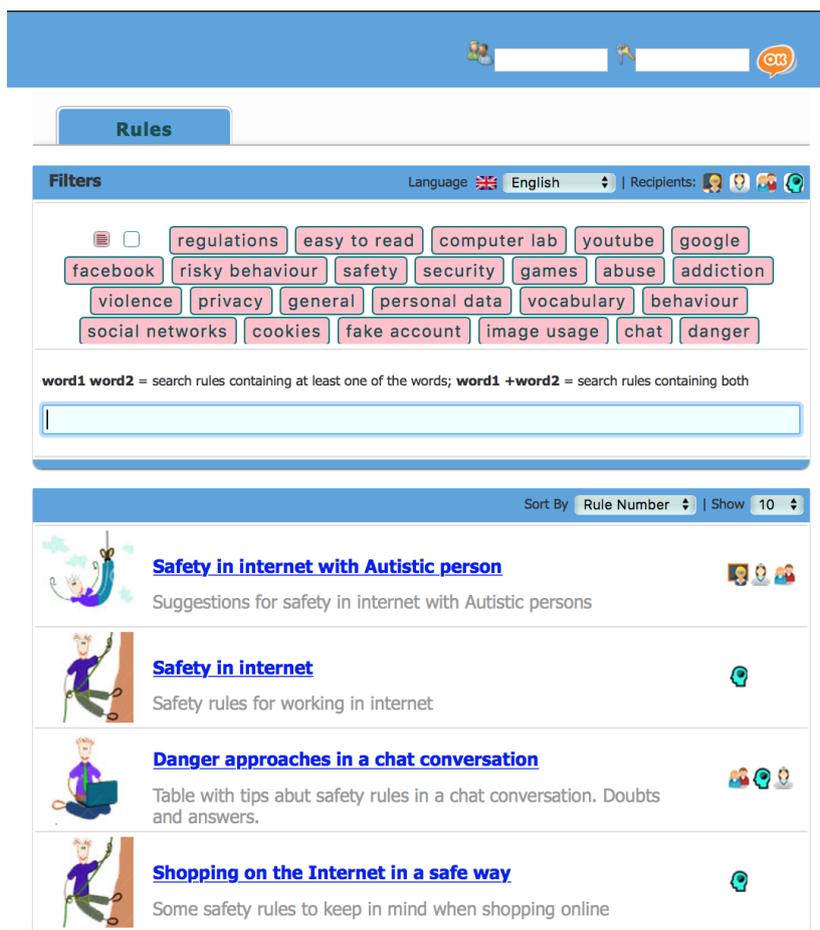
Figure 3 - Database with the rules

After gaining skills during working on the and database rules partners were ready to prepare the certification process. This task consisted of several steps:
- preparing and creating the handbook;
- certification process and granting the certificate rules working out;
- conducting certification processes.

The "Safe Laboratory for Persons with Intellectual Disability - Certification Handbook", figure 4 http://safelabs.eu/en/resources/, was intended to be a help for computer laboratories leaders. There are collected requirements to be met in laboratory equipment and software configuration. Also, the description how the requirement can be fulfilled is included.

- O3 intellectual Result – Certification Handbook
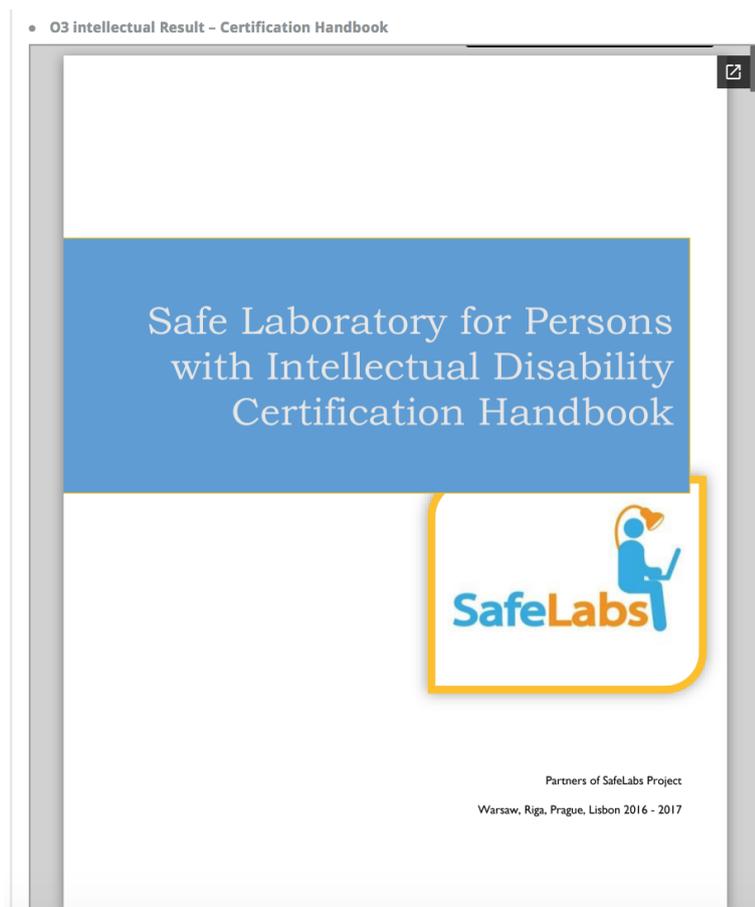
Figure 4 - Certification Handbook

The handbook is a great help in a certification process not only for computer laboratories leaders but also for Main Trainers - persons trained to conduct certification processes.
The Handbook is divided into three parts:
1. Technical Requirements;
2. Software Requirements;
3. Safe Behaving Rules
and in the end of the publication the checklist can be found.
Project partners worked out the complete procedure of granting a certificate to computer laboratory. Beside the checking of the requirements by a Main Trainer, the certification procedure involves carrying out the course for persons with intellectual disability, figure 5, leaded by a Main Trainer and named Supporting Trainer.

Figure 5 - Course for persons with intellectual disability

A Supporting Trainer is a person with intellectual disability who uses computer and internet at a higher level when compared with other persons with disability. She or he shares her/his experience during the course. Also, a Supporting Trainer can present the database's functionalities and rules or support a Main Trainer whenever it is necessary and agreed before the course.

During the visit to the computer laboratory the Main Trainer checks all the requirements according the checklist. The SafeLabs Certificate is granted if 75% of requirements is positively checked. The certification executor fills the certification process assessment form and sends it to the project coordinators. Basing on the form the consortium grants the SafeLabs Certificate, figure 6. The computer laboratory gets the signed Certificate and a special sticker to mark the laboratory as a place safe for persons with intellectual

Figure 6 - Certificate Lab

As it was shown above to conduct certification process involvement of Main and Supporting Trainers is needed. Project partners worked out the course for Main Trainers. The set of materials to the course, figure 7, is published on the project site, in resources module (http://safelabs.eu/en/resources/) as O4 (Intellectual Output no 4) result.

Figure 7 - materials to the course

Every partner conducted several certification processes. The Certificates were granted to majority of checked computer laboratories. The list of these laboratories is published on the SafeLabs project website (http://safelabs.eu/en/certifikace/)

CONCLUSIONS

The main effort of the project was to create safe and favourable conditions for people with intellectual disabilities to work in the computer labs. The SafeLab Certificate ensures that the place where people with mental disabilities work is a safe area. The set of requirements is available in the form of a SafeLabs certification handbook.

The Main National Trainers were trained according Guide to be able to help in improving computer labs safety and training people with disability in safe internet behaving.

The database and the certifications become popular among computer laboratories' leaders in partners' organizations. Certification is a chance to check the laboratories' configuration, software and surroundings and to create a safe place to persons with disability - a group which is still socially and digitally excluded. Partners are convinced the database and the certification should be developed and widely spread. Partners are going to try to extend the certificate to national or even European level.

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All types of the institution need to manage whole organization by considering the requirements of all stakeholders within the dynamic business environment. Institutions should to determine long-range goals and provide the achievement of these goals as well as they should to keep continuous improvements through their business processes. On the other hand, they also should cope with various challenges coming from the business and the environment. One of these challenges is to cope with the huge data throughout the implementation of these management approaches. In this study, management of the institutions in an integrated manner is considered in terms of strategic management and process management, and integrated management model for higher education institutions is proposed with the special information management system to support this proposed model. The implementation of the proposed model is also presented in this study as Sakarya University Institutional Management System.

SCHOOL AUTONOMY IN THE UNITED STATES ACCORDING TO THE PISA REPORT: ANALYSES, EMPIRICAL EVIDENCES AND PROPOSALS

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ABSTRACT

There are many variables that affect the management of school autonomy in the United States, which is the decision-making capacity of schools to improve the outcomes of students and meet the needs of the socio-cultural context. These variables differ from one state to another. The study aims to analyze the percentages, means, correlations among the quantitative variables and the independence of categorical variables that affect the management of pedagogical autonomy at schools in USA. The results of PISA school and general teacher questionnaires from the 2015 data collection were analyzed with the statistical analysis program SPSS. Findings suggest that the type of school (public/private) where teachers are working is not related to their responsibility for choosing which textbooks are used, determining the course content or deciding which courses are offered. Moreover, 51 percent of principals affirm that they provide staff with opportunities to participate weekly in school decision making and 41 percent hold that this occur once a month. Finally, a 4-stage plan has been designed for improving school management and pedagogical autonomy.

Keywords: PISA, school autonomy, school management, teacher autonomy.

INTRODUCTION

In 2013, a study proved that school autonomy can lead to positive results of students in well-developed educational systems, but can be harmful in low-performance systems. To reach this conclusion, a panel data set was created from the 2000 to 2009 international PISA tests. This included over one million students in 42 countries and proved that local autonomy has an important impact on student performance. However, this impact systematically varied among the countries, in accordance with the level of economic and educational development. In simpler terms, countries with otherwise strong institutions gain a considerable amount from making decentralized decisions in their schools, while countries that lacked such a strong existing structure were harmed by the decentralization of decision making. In the United States, the autonomy of the schools to select content decreased from 2000 to 2009 (Hanushek, Link, & Woessmann, 2013). Another study showed that PISA holds a very influential position in the teaching of school policies throughout the world. Its conclusions and recommendations have considerable weight in debates on national policies. The secondary analysis of the PISA data showed that accountability policies resulting from using student performance data to evaluate teachers and assign resources were associated with poorer student performance (Murphy, 2014). A study measured the effects of teaching time on achievements. The study of a sample group of 15-year-old students from over 50 countries showed that additional teaching time had a positive and significant effect on the reuslts of the PISA test (Lavy, 2015). A study created a framework to re-conceptualize the study on school autonomy, correcting traditional study limitations and reinforcing ties between autonomy and the learning outcomes. The conclusions showed that internal autonomy of schools is not sufficiently differentiated, since autonomy is measured from the point of view of the directors and does not consider the perspectives of other important people, such as the teachers (Cheong, Ko, & Tai Hoi Lee, 2016). According to the results of the latest PISA report, the United States remained in the middle of the classification among the 35 OECD countries. Its performance was around the average in reading and sciences, but was below average in mathematics. One of every five 15-year-old students in the United States underperformed, not reaching PISA level 2 in scientific competence. At the other end of the performance scale, 9% of the students in the United States reached the highest level, achieving level 5 or 6, comparable to an average of 8 in the OECD (OECD, 2016).

In Boston, the implementation of administrative responsibility coincided with a change in the political leadership of the city's school district. The business and institutional leaders established a commitment to the public schools of the city in 1982 through the Boston Compact, an agreement with the Boston Private Industry Council. Through this, the main private companies and universities in Boston agreed to offer work positions and scholarships to secondary school students in exchange for an improved academic performance. In Boston, the percentage of public school students who attend independent schools increased from 7.4 in 2006 to 10.5 in 2012, placing the city in the lower half of the big city classification. Since its start, independent schools in Boston have been perceived to be a threat to public education, and have thus brought about the formation of a corporate alignment of city officials, unions and a united local organization that proposes alternatives to improve the educational performance of the districts (DiGaetano, 2015). A study compared the working conditions at

independent schools run by management organizations (MOs) with the conditions that teachers experience at autonomous schools. It considered the differences in the level of autonomy among the schools, professional development, the levels of administrative support, the support of the teachers and parents, the working hours of the teachers and the levels of compensation. The results showed that teachers at charter schools, managed by MOs, had lower levels of autonomy than teachers at other charter schools. They also received lower levels of compensation than other charter school teachers (Roch & Sai, 2015). The aim of a recent study was to compare the predictors and results of the teachers' job performance at charter schools with regular public schools in the Southern United States, where organizational and managerial autonomy is the main difference. Both the predictors and results of the teachers' job performance were examined in these two school environments, considering that ERP is the extra performance index of teachers who go beyond expectations. According to the results, teacher self-efficiency is the only common predictor of the teachers' ERP in both school systems, which has significant implications. Educational research, policies and professionals seek ways to promote school performance and improvement (Duyar, Pearson, & Ras, 2015). California's Charter School Act of 1992 gave parents the right to send their children to public charter schools, schools where teachers have more autonomy. Hope Charter School (HCS), located in a densely populated area of Los Angeles, was founded in 2002 by local community directors, teachers, parents and financers. A case study on this school showed that it had a work environment full of positivity and productivity. However, this environment was not sustainable over the long-term since the flexibility of the board of directors had conflicts with the ability of the teachers to make decisions (Montaño, 2015). Charter elementary schools welcome students who are at risk of having reading problems, so they emphasize a critical role in literacy. The first year of the literacy programs, K-3, in US primary schools has advantages and disadvantages. The results of the study suggest that the teacher's performance and the autonomy of the organization allowed for the development of the literacy programs in each school, while student mobility was an obstacle (Ross, Pinder, & Coles-White, 2015). An impact study compared the teachers' perceptions of autonomy and accountability at public charter schools (PCS) and at traditional public schools (TPS). The data was examined from the 2011-2012 course surveys that were part of the United States Department of Education (DOE) and the Schools and Staffing Survey (SASS). SASS is a national representation of the public school districts, which were selected in each state, and then several teachers were selected at random from each school. Based on the results, it was deduced that TPS teachers did not feel more responsible than PCS teachers (who reported less bureaucracy). However, TPS teachers felt that that they had less control over their job. Secondly, the teachers said that they had relatively high levels of autonomy and low levels of accountability. There was little evidence that the job security of the teachers depended on the results of the students in the external assessments (Oberfield, 2016). A blended learning initiative was carried out at a large secondary school in the Midwest of the United States. The perspective of the SRL included three specific phases in the students' learning processes: Forethought, Performance and Self-Reflection Phases. The opinions of the students, teachers, directors and parents were studied. The results of the study suggested that the combined learning initiatives promoted autonomy and self-regulation, encouraged research, built relationships and improved the students' confidence in achieving academic success at University (Whiteside, Garrett Dikkers, & Lewis, 2016). The deregulation movement has affected the social, political and economic landscape of the United States. Deregulation provides families and students with more options of where and how their K-12 education takes place. The designation used for primary and secondary schooling includes magnet schools, charter schools, open enrollment programs and vouchers. The deregulation of education has the potential to benefit some members of society, but harm others (Dorsey & Plucker, 2016). The effect of autonomous schools on enrollment in private schools is of utmost importance from several perspectives. Private schools are an integral part of the K-12 education system. A study examined the impact of autonomous schools on the enrolment in private schools, and there was a significant increase of autonomous schools in Michigan in the 90s. The data that was used included biannual data from private school surveys conducted by the United States Department of Education and data from autonomous schools obtained by the Michigan Department of Education. No proof was found that the charter schools in Michigan caused a decrease in the number of enrollments in private schools (Chakrabarti & Roy, 2016). Over the last 25 years, the policies of charter schools have rapidly, but unequally, extended across the United States, with significant variations in each state. In Michigan and Oregon, the mobile education policies make up and remodel these policies (Cohen, 2017). Georgia is the only state that offers governance flexibility options for the entire education system. The aim of a recent study was to examine the impact of these options on the allocation of resources and the recruitment of personnel in the 173 school districts of the state of Georgia. The results focused on the system's income sources, expenses per financial category and the number of positions per location (i.e., district office or school). It was concluded that instead of accessing the additional income, the members of the local school board and the district leaders decreased the local investment in education as a potential way to increase political capital and their popularity (Kramer, Lane, & Tanner, 2017). Autonomous schools are a new phenomenon in American education. Since the first charter school was inaugurated in Minnesota in 1991, they have extended to 42 states and represent 6.2% of the public schools in the country. Based on this situation, a study was made with the hypothesis that the differences among charter

schools were due to differences in the level autonomy of the school district. In Milwaukee (Wisconsin), there are three types of autonomous schools with different levels of autonomy. The conclusions suggested that more independent autonomous schools were more effective than autonomous schools with lower levels of autonomy (Flanders, 2017). The aim of another study was to explore the sense of autonomy in two large American public schools. Semi-structured interviews were performed with 11 teachers and two directors in two public schools in Louisiana. The results showed that a teacher's sense of professional autonomy was related to the socioeconomic background of the students. This means that teachers at poor schools have drastically less freedom in their local councils than educators at schools with more economic resources (Cleary, 2017). Public education in the United States is undergoing profound changes. Neoliberal policies believe that, according to economic law, all goods and services must be privatized and proportioned across competitive markets. Neoliberalism not only changes the structure of society, but also changes the relationship between the individual and society. This influences school autonomy since teachers make decisions within the limits of those provided by the market. The countries that have a more successful educational system and a better quality of life are those with the lowest rates of inequality and poverty. We must demand that schools and social services have more than enough funding (Hursh, 2017). There are several schools that generate better academic results in the student. For example, No Excuses charter schools steer their students toward high academic expectations and pursue the goal of the student going to university. They also have codes of conduct, extended teaching time and directed education (tutoring for underperforming students, for example). The results highlight the relative success of No Excuses charter schools since the mathematical achievement of students who attend No Excuses autonomous schools is a standard deviation of 0.25 higher than the levels of students who attend traditional public schools. The reading achievement of students who attend No Excuses charter schools is a standard deviation of 0.15 higher than the achievements of students who attend traditional public schools (Cheng, Hitt, Kisida, & Mills, 2017). In 2014, there were charter schools in 42 of the United States, and almost 2 million children were enrolled at approximately 6,200 charter schools. Although this level of registration and the number of schools represent a relatively small percentage of total public school enrollment in the United States, in many urban school districts charter schools constitute the majority or a significant part of the schools available. The concentration of urban charter schools has had a considerable impact on the communities in which these are located (Scott, 2015). One study has compared the management of nonprofit charter schools in Florida, where the participation of the charter school community has grown by 80% since the 2004-5 school year to almost half of charter schools in 2012-13. The information provided by financial audits and the statements of account submitted by all the charter schools in Florida with publicly available records was analyzed. The results suggest that profit-seeking schools spend more than 10% less per student (Singleton, 2017). Almost all the states in the United States have promoted the creation of charter schools in order to improve the performance of students with special needs. These schools operate with greater autonomy and flexibility than traditional public schools do, but at the expense of democratic accountability mechanisms. Autonomous school managers use independent schools and innovative methods that offer greater opportunities for disadvantaged communities in terms of education to enter universities. This freedom to innovate has a cost: in their current form, autonomous schools function without any accountability, although they are funded by the government in order to educate students without the traditional supervision of the school district (Nacleiro, 2017). A study has examined the surveys of the nonprofit school boards and the members of the elected public school board in Minnesota. The results suggest that the members of nonprofit school boards consider that there is a lower level of conflict and a greater level of responsibility in the area of financial management than members of the elected school board do. Nonprofit schools have important implications for accountability in public education (Ford & Ihrke, 2016).

THE STUDY

The methodology of quantitative research assesses the range, statistical descriptions and generalization of data. A quantitative focus is centered on research to achieve impartiality, control and accurate measurement. These focuses are based on deductive designs with the aim to disprove or create proof in favor of specific theories or hypotheses (Leavy, 2017). Quantitative research makes it possible to generalize a larger, more universal population. Generally, it analyzes the data through the use of statistics, or a mathematical representation of the data that can be used for the significance comparison and to make predictions. Statistics strive to create an objective comparison of the data. Correlation studies use statistical analyses to determine the relationship between two or more variables (Allen, 2017). Quantitative research is a methodological process. It has quantitative focuses that can understand the underlying relationships of the data. Based on the results of the quantitative research, the statistical significance is deduced using the P-value (Albers, 2017). One of the most used correlation indexes is the Pearson correlation for parametric tests, which provides the researcher with a P-value (e.g., significance level). The P-value determines the direction of the correlation (direct/positive, inverse/negative or non-existent) (Weaver, Morales, Dunn, Godde, & Weaver, 2017). Person's r is the coefficient chosen when the relationship between X and Y is linear and both variables are measured on an interval or ordinal scale. The correlation coefficient is an index that expresses the magnitude and direction of

association between two variables. In bivariate cases (i.e., only one X and one Y), r represents the amount of concomitant variation between X and Y (Price, 2017).

The Pearson value can vary between -1 and +1. Both the absolute value and sign are important. A clear, non-linear relationship will have a low r value. An example of a perfect positive relationship is when the numbers of the first variable go up to 1. The Pearson value also indicates the strength of the relationship (weak, moderate or strong). A Pearson's r value of +/-0.10 is considered to be weak correction, +/- 0.30 represents a moderate correlation and +/- 0.50 or greater shows a strong correlation (Wilson & Joye, 2017). If the relationship were perfect, the Person's r value would be 1.00. A value of 0.00 indicates the complete absense of a correlation (Patten, 2017).Covariance is the shared variance between X and Y. The formula for covariance is essentially the mean value of the products of the paired deviation scores. If variables X and Y are positively correlated, then the deviation scores tend to have the same sign, their products tend to be positive and the covariance will have a positive value (greater than 0). If the X and Y variables are negatively correlated, then the deviation scores tend to have opposite signs, their products tend to be negative and the covariance will have a negative value (less than 0). If the X and Y variables are not related, then the deviation scores will have equal and opposite signs, their procducts will be positive and negative (summing to zero) and the covariance value will be 0 (Hahs-Vaughn, 2017).

The chi-squared test has been used to identify the relationship between two categorical variables with any number of degrees (Fagerland, Lydersen, & Laake, 2017; Privitera, 2017). SPSS is a general program for the handling and analysis of data that makes it possible to create a sophisticaed analysis from data sources. The logical progression of the analysis can be easily visualized through file recovery. For some procedures, it is more efficient than using survey menus. The syntax can be stored and then opened to re-do or modify the analysis (Galderisi, 2015). The SPSS statistical analysis program gives you the option of making a one or two-tailed analysis as a significance test. If we want to predict a correlation, without specifically knowing if it is positive (the values of both variables increase and decrease together) or negative (the values of one variable increase while the values of the other variable decrease), the two-tailed test is used (Hinton & McMurray, 2017).

The objective of this study is to analyze the percentages, means and correlations among the variables that affect the management of pedagogical autonomy at schools in USA. The results of PISA school and general teacher questionnaires from the 2015 data collection were analyzed. The data have been analyzed with the statistical analysis program SPSS, which gives an ample variety of analytical functions, descriptive statistics, linear regression and functions to create reports and quality presentation graphics, as well as multiple data formats without size restrictions.

FINDINGS

This study put special emphasis on the analysis of questions about school management.

School Questionnaire (distributed to the principal or designate). One hundred seventy one principals completed the questionnaire.

Please indicate the frequency of the following activity in your school during 2014-2015 academic year.

Item 1 "I provide staff with opportunities to participate in school decision-making". According to the data shown in the graph 1, 1.2 percent of respondents affirm that this does not occur, another 1.2 percent say that it occurs 1-2 during the year, 5.8 percent affirm that it occurs 3-4 times during the year, 40.9 percent hold that this occurs once a month, 26.9 percent maintain that this happens once a week and 24 percent affirm that it occurs more than once a week. The mean is 4.63, therefore the mean of answers is "once a month /once a week".

Frequency of <the last academic year>. I provide staff with opportunities to participate in school decision-making
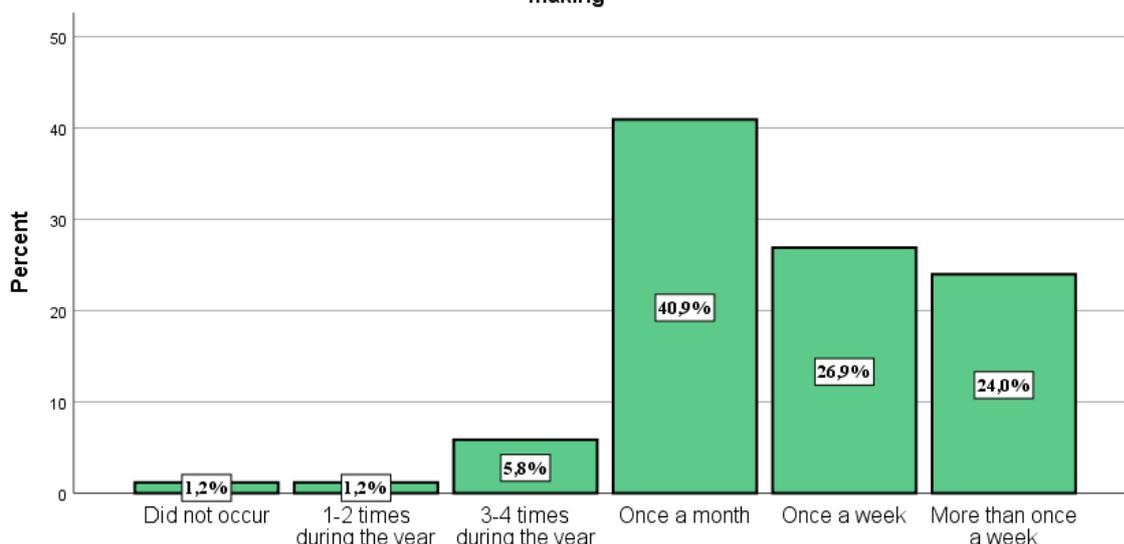
Graph 1. Item 1 "I provide staff with opportunities to participate in school decision-making". Frequency of this activity in the school during 2014-2015 academic year.

Item 2 "I engage teachers to help build a school culture of continuous improvement". According to the data shown in the graph 2, 0.58 percent of respondents affirm that this did not occur, another 0.58 percent say that it occurs 1- 2 times during the year, 5.26 percent affirm that it occurs 3-4 times during the year, 26.32 percent hold that this occurs once a month, 29.24 percent maintain that this happens once a week and 38.01percent affirm that it occurs more than once a week. The mean is 4.97, therefore the mean of answers is "once a week".

Frequency of <the last academic year>. I engage teachers to help build a school culture of continuous improvement.

Frequency of <the last academic year>. I engage teachers to help build a school culture of continuous improvement.
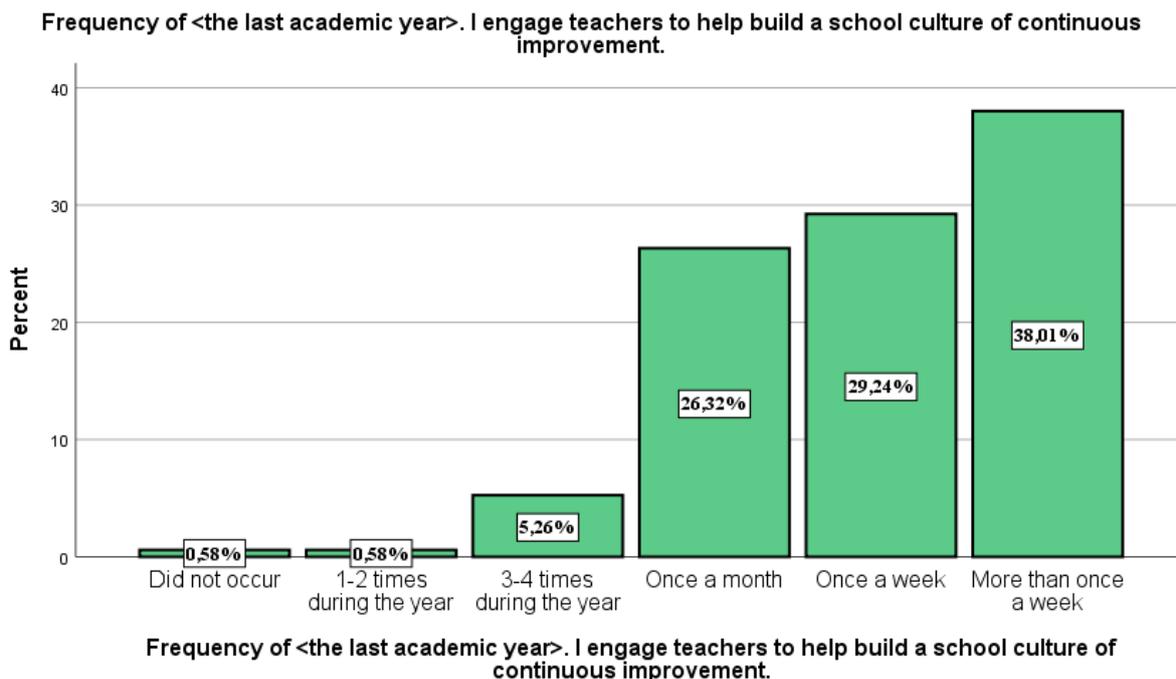
Graph 2. Item 2 "I engage teachers to help build a school culture of continuous improvement". Frequency of this activity in the school during 2014-2015 academic year.

Item 3 "Does external school evaluation (evaluation as part of a process controlled and headed by an external body) exist in your school and where do they come from?" According to the data shown in the graph 3, 68.9 percent of respondents affirm that this is mandatory, e.g based on district or ministry policies, 15 percent hold that this is based on school initiatives and 16,2 percent deny it. The mean is 1.47, therefore the mean of answers is "this is mandatory / it´s based on school initiative".

Does improvement exist at school? External evaluation

Does improvement exist at school? External evaluation
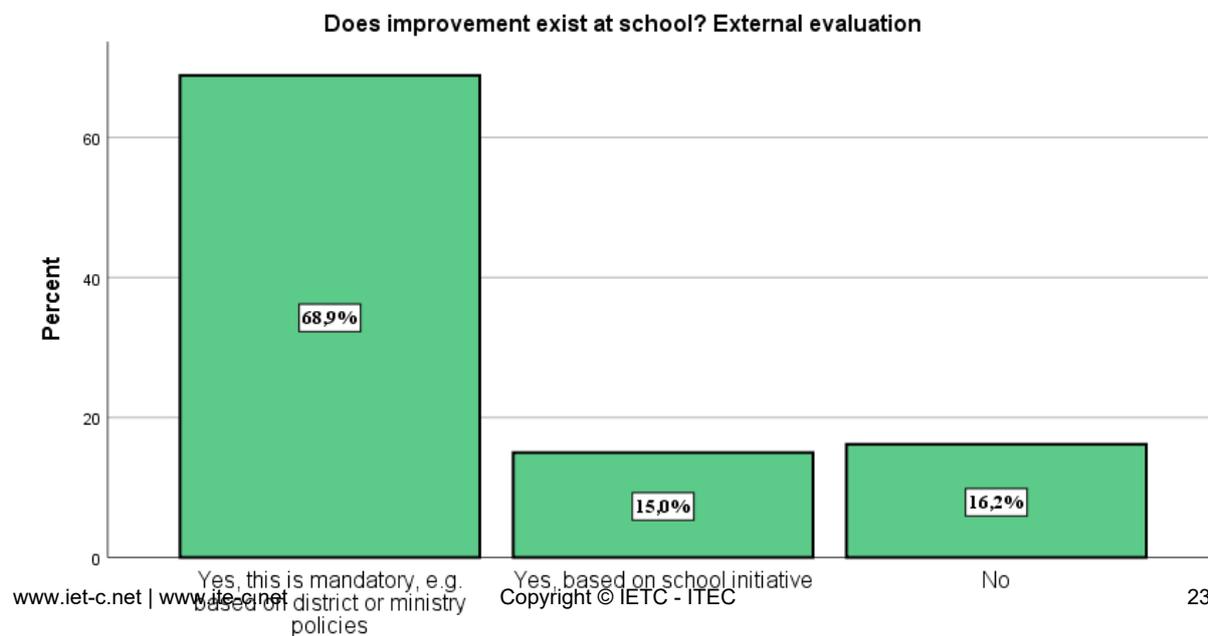
Graph 3. Item 3 "Does external school evaluation (evaluation as part of a process controlled and headed by an external body) exist in your school and where do they come from?"

General Teacher Questionnaire. Two thousand and seventy-five teachers answered the question 4 "To what extent do you disagree or agree with the following statement regarding your school? The principal ensures our involvement in decision making". According to the data shown in the graph 4, 6.9 percent of respondents strongly disagree with the item, 19.3 percent disagree, 46.4 percent agree and 27.4 percent of respondent strongly agree with the item. The mean is 2.94, so the mean of answers is agree with the item 4.
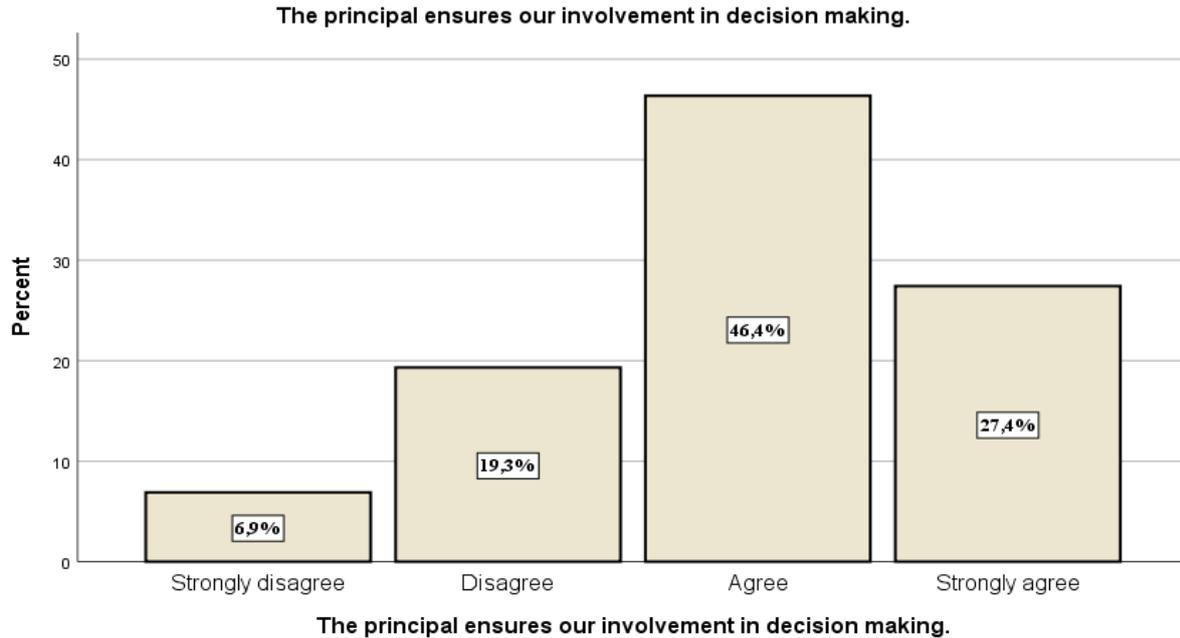
Graph 4. Item 4 "To what extent do you disagree or agree with the following statement regarding your school? The principal ensures our involvement in decision making".

Two thousand and eighty-one teachers answered the item 5 "On average, how often do you work with other teachers in your school to ensure common standards in evaluations for assessing student progress?" According to the data shown in the graph 5, 7.35 percent of respondents never work with other teachers, 8.17 percent do this one a year or less, 16.24 percent do this 2-4 times a year, 14.56 percent of teachers work 5-10 times a year with other teachers, 25.66 percent do it 1-3 times a month and 29.02 percent, once a week or more. The mean is 4.27, so the mean of answers is "5-10 times a year".
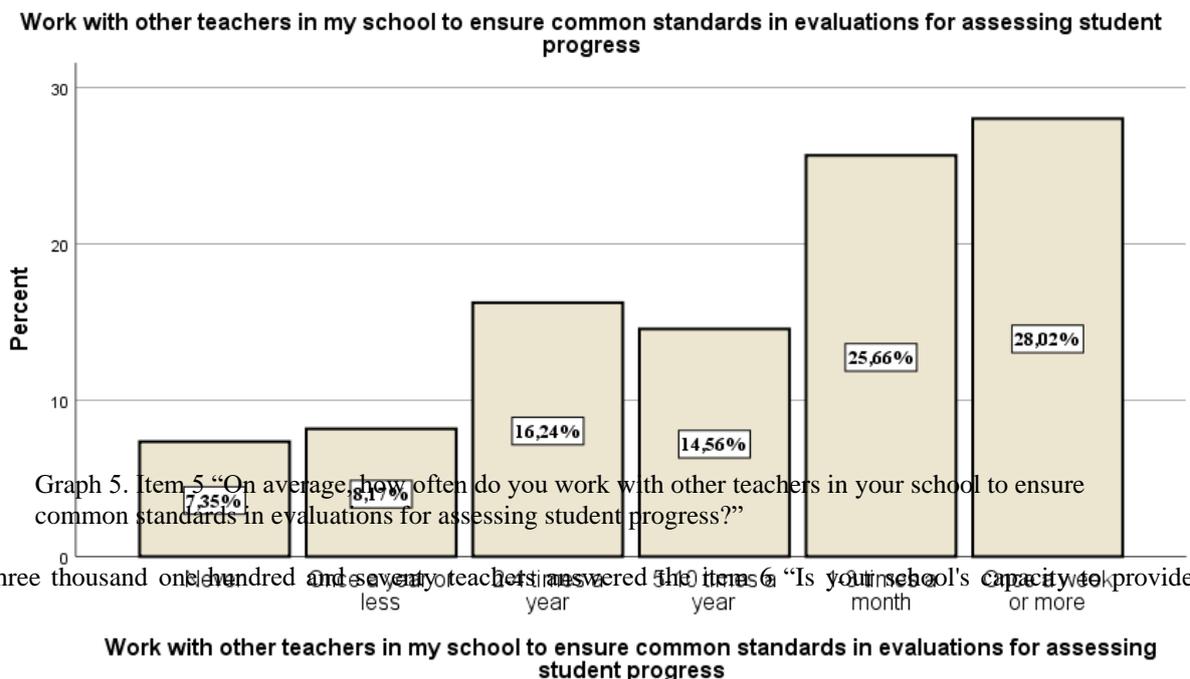
Graph 5. Item 5 "On average, how often do you work with other teachers in your school to ensure common standards in evaluations for assessing student progress?"

Three thousand one hundred and seventy teachers answered the item 6 "Is your school's capacity to provide

instruction hindered by the following issue? Inadequate or poor quality educational material (e.g., textbooks, IT equipment, library or laboratory material)". According to the data shown in the graph 6, 35.90 percent of respondents say that "Not at all", 30.60 percent affirm that "Very little", 24.64 percent hold that "To some extent" and 8.86 percent maintain that "A lot". The mean is 2.06, so the mean of answers is "Very little".

Inadequate or poor quality educational material (e.g. textbooks, IT equipment, library or laboratory material).
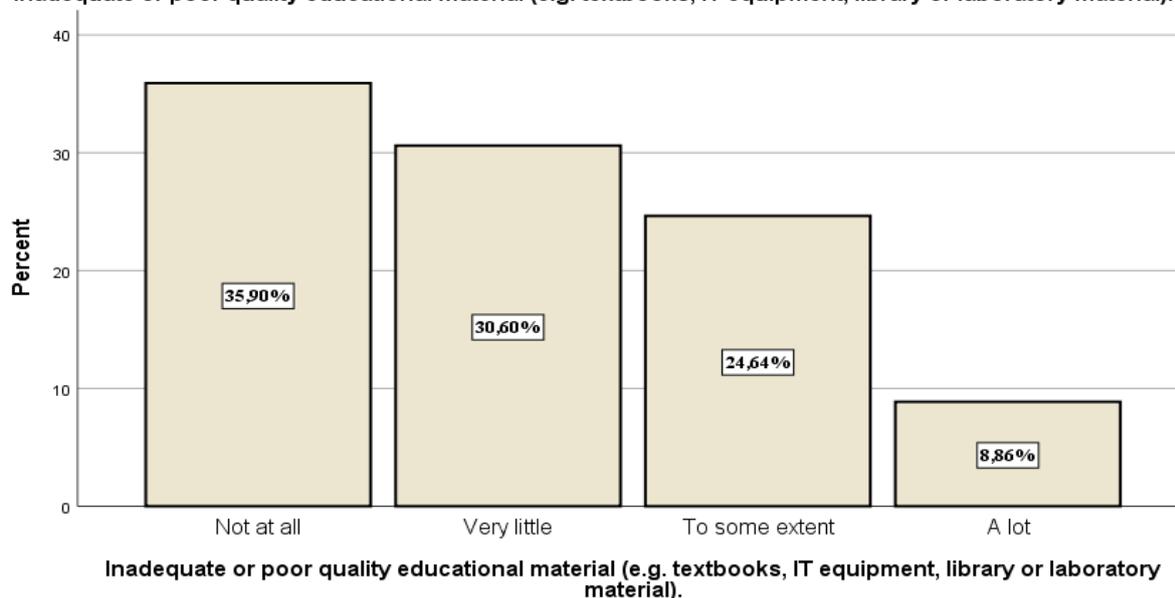
Graph 6. Item 6 "Is your school's capacity to provide instruction hindered by the following issue? Inadequate or poor quality educational material (e.g., textbooks, IT equipment, library or laboratory material)".

School questionnaire:

Case 1. The independence of two categorical variables: Type of school and the considerable responsibility/not responsibility of teachers for choosing which textbooks are used. The null hypothesis is that the type of school (public/private) where teachers are working is not related to their considerable responsibility for choosing which textbooks are used. Both variables are independents. The alternative hypothesis is that the type of school (public/private) where teachers are working is related to their considerable responsibility for choosing which textbooks are used. According to data in Table 1, one hundred seventy three teachers answered the question. If the asymptotic significance (bilateral) is greater than 0.05, the null hypothesis is accepted. The asymptotic significance is 0.071. It is therefore concluded that the type of school (public/private) where teachers are working is not related to their responsibility for choosing which textbooks are used.

	Valid		Missing Values		Total	
	N	Percentage	N	Percentage	N	Percentage
Choosing which textbooks are used: Teachers * Is your school a public or a private school?	173 162=public school teacher 11=private school teacher	97.7%	4	2.3%	177	100%

	Value	df	Asymptotic significance (bilateral)	
Pearson's Chi-square	3.270ᵃ	1	.071	

Table 1. The independence of two categorical variables: Type of school and the considerable

responsibility/not responsibility of teachers for choosing which textbooks are used.

Case 2. The independence of two categorical variables: Type of school and the considerable responsibility/not responsibility of teachers for determining the course content. The null hypothesis is that the type of school (public/private) where teachers are working is not related to their considerable responsibility for determining course content. The alternative hypothesis is that the type of school (public/private) where teachers are working is related to their considerable responsibility for determining the course content. According to data in Table 2, the asymptotic significance is 0.056, so the null hypothesis is accepted. It is therefore concluded that the type of school (public/private) where teachers are working is not related to their considerable responsibility for determining the course content.

	Value	df	Asymptotic significance (bilateral
Pearson's Chi-square	3.655[a]	1	.056

Table 2. The independence of two categorical variables: Type of school and the considerable responsibility/not responsibility of teachers for determining the course content.

Case 3. The independence of two categorical variables: Type of school and the considerable responsibility/not responsibility of teachers for deciding which courses are offered. The null hypothesis is that the type of school (public/private) where teachers are working is not related to their considerable responsibility for deciding which courses are offered. The alternative hypothesis is that the type of school (public/private) where teachers are working is related to their considerable responsibility for deciding which courses are offered. According to data in Table 3, the asymptotic significance is greater than 0.05 (0.120), so the null hypothesis is accepted. It is therefore concluded that the type of school (public/private) where teachers are working is not related to their considerable responsibility for deciding which courses are offered.

	Value	df	Asymptotic significance (bilateral
Pearson's Chi-square	2,421[a]	1	.120

Table 3. The dependence of two categorical variables: Type of school and the considerable responsibility/not responsibility of teachers for deciding which courses are offered.

General teacher questionnaire:
Case 4. The correlation between two quantitative variables: Year(s) working as a teacher at this school and how often do teachers work with other teachers in your school to ensure common standards in evaluations for assessing student progress. According to data in Table 4, Pearson´s correlation coefficient is -0.60, which indicates that there is a strong negative correlation between the two variables. High scores on X are associated with low scores on Y. It is concluded that the more years working at the same school, the less frequency with which teachers work with other teachers to ensure common standards in evaluations for assessing student progress.

		Year(s) working as a teacher at the same school	Work with other teachers in my school to ensure common standards in evaluations for assessing student progress
Year(s) working as a teacher at the same school	Pearson´s correlation coefficient	1	-0.60
	Covariance	58.306	-7.34
	N	2008	

Table 4. The correlation between "Year(s) working as a teacher at the same school and how often do teachers work with other teachers in your school to ensure common standards in evaluations for assessing student progress"

The covariance is -7,34, which means that the X and Y variables are negatively correlated, the deviation scores tend to have opposite signs and their products tend to be negative.

Case 5. The correlation between two quantitative variables: Year(s) working as a teacher at this school and how often do teachers exchange teaching materials with colleagues. According to data in Table 5, Pearson´s correlation coefficient is -0.008, which indicates that there is a weak negative correlation between the two variables. High scores on X are associated with low scores on Y. It is concluded that the more years working at the same school, the less frequency with which teachers exchange teaching materials with colleagues. The covariance is -1.020, which means that the X and Y variables are negatively correlated, the deviation scores tend to have opposite signs and their products tend to be negative.

		Year(s) working as a teacher at the same school	Exchange teaching materials with colleagues
Year(s) working as a teacher at the same school	Pearson´s correlation coefficient	1	-0.088
	Covariance	58,306	-1.020
	N	2005	

Table 5. The correlation between "Year(s) working as a teacher at the same school and how often do teachers exchange teaching materials with colleagues"

Case 6. The correlation between two quantitative variables: Year(s) working as a teacher at this school and how often do teachers observe other teachers' classes and provide feedback. According to data in Table 6, Pearson´s correlation coefficient is -0.41, which indicates that there is a moderate negative correlation between the two variables. High scores on X are associated with low scores on Y. It is concluded that the more years working at the same school, the less frequency with which teachers observe other teachers' classes and provide feedback. The covariance is -.428, which means that the X and Y variables are negatively correlated, the deviation scores tend to have opposite signs and their products tend to be negative.

		Year(s) working as a teacher at the same school	Observe other teachers' classes and provide feedback
Year(s) working as a teacher at the same school	Pearson´s correlation coefficient	1	-0.41
	Covariance		-,428
	N	2006	

Table 6. The correlation between "Year(s) working as a teacher at the same school and how often do teachers observe other teachers' classes and provide feedback".

The discussion allows the comparison between the findings of this study and the previous empirical evidences from investigations carried out in the United States, from 2014 until the present.

Case 2. The type of school (public/private) where teachers are working is related to their considerable responsibility for determining the course content. This finding reinforces the results of a study published in 2014, which suggested that principals of primary schools in Chicago were more probable to exercise autonomy over the school budget and the curricular methods than over professional development and the schedule (Steinberg, 2014).

Case 3: The type of school (public/private) where teachers are working is not related to their considerable responsibility for deciding which courses are offered. This finding supports a study from 2016, which brought up questions about the way in which autonomous schooling, propelled by the imperatives of the market, is undermining the integrity of public education, associated with the values of equity and access. There is the worry that autonomy, intended as a market between schools, undermines inclusive, collaborative, and locally receptive governance. In relation to equity and access, there is the worry that this situation promotes segregation and stratification between schools, which lead to exclusionary practices (Keddie, 2016).

Case 4: The more years working at the same school, the less frequency with which teachers work with other teachers to ensure common standards in evaluations for assessing student progress. This finding reinforces the results of a study carried out in the United States in 2016, whose objective was to compare perceptions of teachers at public, autonomous schools with perceptions of others at traditional schools, showed that the latter (teachers at traditional schools) did not feel more responsible for the results obtained by the student body than the teachers at autonomous schools. However, teachers at autonomous schools, with less bureaucratic control of their work, feel more isolated in their teaching profession (Oberfield, 2016).

CONCLUSIONS

According to the graph 1, 51 percent of principals affirm that they provide staff with opportunities to participate weekly in school decision making and 41 percent hold that this occur once a month. Only 6 percent of principals provide staff with opportunities to participate 3-4 times during the wear in school decision making. According to the graph 2, 67 percent of principals engage teachers to help build a school culture of continuous improvement at least once a week and 26 percent maintain that this occur once a month. Only 5 percent affirm that this occur 3-4 times during the year. According to the graph 4, 74 percent of teachers agree with the item "The principal ensures our involvement in decision making" and 26 percent of teachers disagree with the item. The teachers' opinion on the participation in school decision agrees with the principals´ opinion. This conclusion agrees with findings of other studies in the field. The school districts in the United States have less autonomy when making teaching-curriculum- and school management-based decisions at a local level due to harsh accountability measures. For this reason, educational programs are emerging that are based on collaboration and instruments that measure the effectiveness of the collective administration of the schools (Díaz-Gibson, Civís-Zaragoza, & Guàrdia-Olmos, 2014; Reyes-Guerra, Russo, Bogotch, & Vásquez-Molina, 2014).

According to the graph 6, 36 percent of teachers hold that the school´s capacity to provide instruction isn´t hindered by inadequate or poor quality educational material and a third of teachers say that "very little" and 24 percent of teacher affirm that "to some extent". According to data in graph 3, nearly 7 in 10 American principals maintain that the external school evaluation is mandatory, 15 percent of principals affirm that the school evaluation is based on school initiatives and 16 percent hold that external evaluation don´t exist in their school. This conclusion coincides with the findings of other authors. The aim of the study carried out in California was to understand the role of human resource professionals in teacher management at primary and secondary schools. School employers believe that the role of human resource professionals follows a philosophy based on the strategic training of human resource management (Tran, 2015).

According to the graph 5, 7 percent of teachers never work with other teachers, 8 percent do this one a year or less, 16 percent do this 2-4 times a year, 14 percent of teachers work 5-10 times a year with other teachers, nearly 26 percent do it 1-3 times a month and 29 percent of teachers, once a week or more. This conclusion agrees with the findings of other studies. Contrary to innovative approaches, the lesson study is an approach that improves teaching quality in the United States. Fifty-five teachers at two primary schools in Los Angeles participated in a study. The aim of the study was to understand the teachers' attitudes toward this focus. The results showed significant associations between the teachers' comfort levels and their collaboration, lesson observation, lesson critique and support of the study on lessons (Gero, 2105).

From the analysis of the independence between two categorical variables, it is concluded that the type of school (public/private) where teachers are working is not related to their responsibility for choosing which textbooks are used, determining the course content or deciding which courses are offered.

From the analysis of the correlation between two quantitative variables, it is concluded that the more years working at the same school, the less frequency with which teachers work with other teachers to ensure common standards in evaluations for assessing student progress, exchange teaching materials with colleagues and observe other teachers' classes and provide feedback. Missouri districts have the local decision-making power and

flexibility to develop incentive programs aimed at teachers. The aim of several programs in the United States is for teachers to teach at difficult schools and improve their knowledge and skills. A study proved that, during the 2009-2010 academic year, 32 percent of the districts offered at least a financial incentive to hire teachers. The larger districts with higher salaries were more likely than the smaller districts to offer a greater number of salary incentive programs (Liang & Akiba, 2015).

Improvement Plan for Pedagogical Autonomy in Public Schools in the United States

The proposals to get greater autonomy in the pedagogic field are included in a 4-stage plan.
Stage one. Diagnosis of the initial situation. Autonomy is not the same in all places, it depends on the starting point and objectives wished to be achieved (Fullan, 2014). In this stage, the strong points and needs of each school are made aware of to make educational provisions and methodological decisions. To obtain this information, individual in-depth interviews were carried out with the primary school teachers of each school. The categories were taken from the latest PISA report.

Categories	Definition
Attitudes and reasons	To know the attitudes of the teachers and the reasons for which they adapt the curriculum to the needs of the student and sociocultural and economic environment.
Sociocultural and economic environment	To explore the sociocultural and economic level of the families. To know the number of books that each student has at home, their parents' professions and their household income bracket.
Student body needs	To identify the learning style of each student, their study habits, learning difficulties and academic needs.
Curriculum	To analyze the measure of autonomy and decisions made by the teachers on the following aspects: content, methodology, resources, curriculum materials, syllabus, teaching activity schedule and education plan.
Support and cooperation	To know the cooperative relations and support of the schools to encourage their autonomy.
Difficulties and needs	To analyze the teachers' difficulties in adapting the curriculum, what they need and which suggestions are necessary.
Innovation	To strengthen the innovation programs carried out at the schools and the educational activities aimed at primary school teachers.

Table 7. Categories and definition of Improvement Plan for Pedagogical Autonomy in Public Schools in the United States.

Stage two. Similarities among schools. After analyzing the results of the interviews performed at each school, similarities among the schools of each district are investigated and a proposal is made to resolve the differences. Support networks among the schools and shared learning networks with the city council and local agencies are created. Based on the needs assessment, the networks provide a set of collaboratively undertaken objectives and the educational project of the school is rewritten, adding the objectives, values and manner in which to address diversity. The curricular project is also rewritten, including content sequencing, assessment guidelines and methodology criteria.
Stage three. Project contracted with the administration. A project contracted with the educational administration is designed, reflecting the objectives, actions to be carried out, timing, and educational, human and material resources necessary to offer quality education.
Stage four. Follow-up and evaluation. The educational administration performs a biannual follow-up on the meeting of the objectives, while the schools must demonstrate, each year, that the public resources have been efficiently used and have led to a real improvement in the results.

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SERIOUS GAME AS A WAY TO BOOST SELF-REGULATED LEARNING IN HIGHER EDUCATION

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ABSTRACT
Educational technology favors learning in the university context. In the same way, in the last decades, self-regulated learning has gained relevance in the scientific community because students controls, at their own pace, the way they learns best. Therefore, the present study analyzes educational praxis linked to serious game, in order to identify the self-regulation strategies that are enhanced. Design-Based Research was utilised to examine a group of 30 students of Sociology at the Technical University of Machala (UTMACH), in Ecuador. During the analysis of the data collected with a parametric t-test it was identified that out of the 10 self-regulation strategies analyzed, serious gaming primarily boosts three of them: goal-setting and planning; seeking information; and self-consequences.

INTRODUCTION
At present, serious gaming is seen as a valuable alternative to promote learning; however, there still are unexplored aspects (e.g. self-regulation). There is no clear evidence of the contribution of this type of computational game in self-regulated learning. Therefore, the main objective of this research is to identify whether self-regulated learning is enhanced during an educational praxis using the "Seré Investigador" ("I will be an investigator") game (Samaniego, 2015).

Connection between serious games with learning in higher education
A Serious Game (SG) is a type of computer software that favors learning. It has actually been a challenge for the designers of these educational games, in the last decades, to integrate entertainment with learning (Wouters, Van Oostendorp, Boonekamp and Van der Spek, 2011). This software has been used in the educational praxis of technical and scientific universities (Bellotti, Berta, De Gloria, Lavagnino, Antonaci, Dagnino, Ott, Romero, Usart, Mayer, 2014). During the educational praxis using a SG in higher education, the most relevant aspects that have been favored are: critical thinking and scientific reasoning (Halpern, Millis, Graesser, Butler, Forsyth, Cai, 2012); student engagement (Boyle, MacArthur, Connolly, Hainey, Manea, Kärki, and Van Rosmalen, 2014); and academic performance (Carr and Bossomaier, 2011; Hainey, Connolly, Stansfield, Boyle, 2011; Boada, Rodriguez-Benitez, Garcia-Gonzalex, Olivet, Carreras, & Sbert, 2015).

The self-regulation of learning: an emerging conception in higher education
Self-regulated learning refers to the process by which students activate and maintain by themselves their motivation, cognition, and behaviors that are systematically aimed towards the attainment of their learning goals (Zimmerman & Schunk, 2011). This form of learning has been researched in the last decades as aptitude and as an event (Winne and Perry, 2000). Self-regulation has been evaluated as an aptitude using mainly the following instruments: the Motivated Strategies for Learning Questionnaire (MSLQ) developed by Pintrich, Smith, Garcia, & Mckeachie (1993); the Learning and Study Strategies Inventory (LASSI) designed by Weinstein, Schulte, & Palmer (1987); and the Self-Regulated Learning Interview Scale (SRLIS) developed by Zimmerman & Martinez-Pons (1986). Furthermore, according to Winne and Perry (2000), self-regulated learning has been measured as an event using protocols to measure thinking aloud (Think Aloud Measures) and methodologies that trace the path of student activities (Trace Methodologies).

Serious game and self-regulated learning at UTMACH
In the present study the self-regulation strategies of the "Seré Investigador" serious game was adapted. The game was redesigned to support self-regulated learning. This research considered self-regulation as the student's aptitude and was structured based on the following question: does serious game boost self-regulation?

PARADIGM AND RESEARCH METHODOLOGY
Due to the nature of the present study – research on technology-based learning – Design-Based Research (DBR) (Sandoval, 2004; Reeves, Herrington & Oliver, 2004; Hickey, Kruger, Frederick, Schafer & Zuiker, 2003) was used as the methodological approach. According to The Design-Based Research Collective (2003) guidelines, DBR is used because the data collected, analyzed and discussed allows designing and improving serious games.

Under this paradigm, one of the most used models of design-based research is presented by McKenney and Reeves (2012), which identifies three main phases that are implemented in an interactive and flexible way:

analysis/exploration, design/construction, and evaluation/reflection. A representation of this generic model, which was used in the present study, is presented in Figure 1.
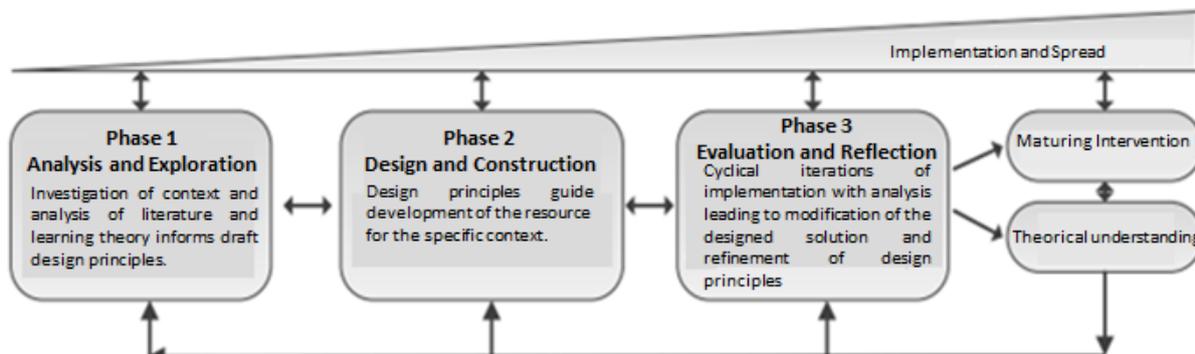
Figure 1. Design-Based Research Model by McKenney & Reeves (2012, page 77)

Research methodology

Phase 1: Analysis and exploration.
Contributions from different learning theories on the field of self-regulation were reviewed. At this point it was of vital importance to examine the theoretical findings of Bary Zimmerman. In the review of these theories, Zimmerman (2001) identifies 7 perspectives: operant, phenomenological, socio-cognitive, volitional, Vygostkian, constructivist and information processing. From the analysis of these perspectives the socio-cognitive vision of self-regulation was chosen for our educational research.

In addition, the review of scientific literature established the cyclical model of socio-cognitive researchers Zimmerman and Moylan (2009) as a self-regulated learning model for educational intervention with serious games. This model consists of three phases: planning, execution and self-reflection. According to what was reviewed both in the theoretical and social cognitive perspective and in the self-regulated learning model, self-regulated learning strategies was identified, which were used to assess the self-regulation of students once they used a serious game.

Then, an analysis of the serious game components carried was out to see if the strategies mentioned in the previous paragraph easily adapted to both the design and the mechanics of the game.

Phase 2: Design and construction.
The serious game was designed with scenarios from each didactic unit and presented the player with a sequence of educational challenges very similar to the cycle of socio-cognitive self-regulation (planning, execution and self-reflection) of Zimmerman and Moylan (2009). The way the player moves through the different scenarios while self-regulating is displayed in Figure 2.
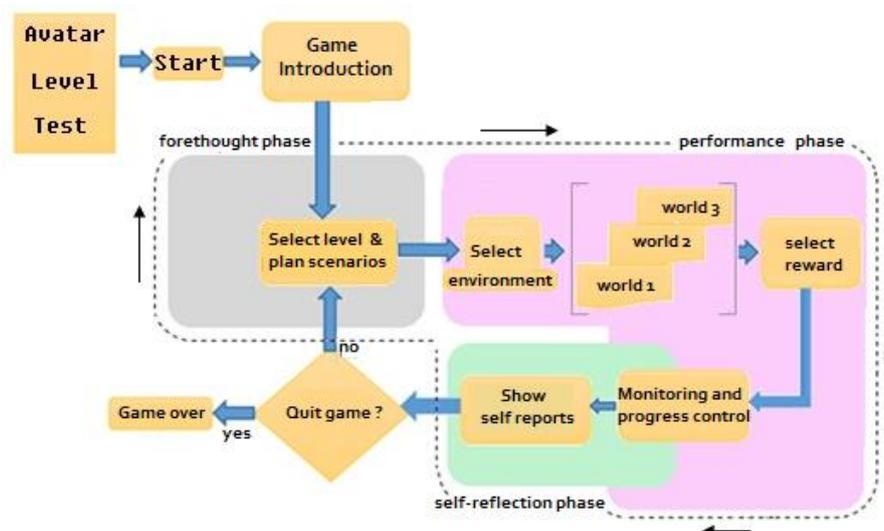
Figure 2. Sequence design of the game "Seré Investigador" and self-regulated learning

In the *forethought phase*, according to the legends each scenario had educational content and time to complete it, the player selected the scenarios according to the time he wanted to play and the learning outcomes he wanted to achieve.

In the *performance phase,* if the players want, they can first set up ambience and musical sounds, then during the game they can also configure the rewards they will receive if they succeed in the challenge presented by the game. In addition, while playing, the students may, if they wish at any time: choose clues and monitor the progress of what is played and learned. The clues play an important role in the visual environment of the game, as illustrated in Figure 3, since they are also self-regulation strategies adapted within the game (for example, information search is packaged in images of books).

In the *self-reflection* phase, as in the previous phase, one can monitor what has been played and learned; it is possible to analyze, if desired, self-reports prepared by means of the Trace Methodologies (automatic records of user actions within the serious game), and based on it, rethink new scenarios within the game, including new strategies.

Figure 3. Visual environment of the "Seré Investigador" serious game.

Phase 3: Evaluation and reflection

The serious game evaluation was carried out during the first semester of 2016; specifically the initial iteration was performed during the first mid-semester, and the last iteration in the second mid-semester. In total, two iterations were carried to educationally test the game, one iteration for each mid-semester.

In each iteration, the students used the serious game during the educational praxis of the Métodos Cuantitativos de Investigación course. At the end of the first semester, the studied students were interviewed using the Entrevista de Autorregulación Basada en Juego Serio (EABJS), this measurement was used as a pre-test; likewise, at the end of the second mid-semester the post-test was applied, with the same instrument to see the empowerment of self-regulation strategies promoted by the serious game.

Participants

In the evaluation process, 30 students enrolled in the course on Métodos Cuantitativos de Investigación participated in order to see if serious gaming promoted self-regulated learning strategies. The students belonged to the second semester of the UTMACH Sociology program.

Instruments to collect information

The data collection instrument for the present study (EABJS) was designed from the Self-Regulated Learning Interview Schedule (SRLIS), developed by socio-cognitive researchers Zimmerman and Martinez-Pons (1986). For the final instrument, 10 categories of self-regulation strategies were kept: Self-evaluation, organizing and transforming, goal-setting and planning, seeking information, keeping records and monitoring, environmental structuring, self-consequences, rehearsing and memorizing, seeking social assistance, reviewing records.

RESULTS

To ensure the reliability of the EABJS instrument, the Cronbach statistical test was applied. The instrument obtained a Cronbach's alpha of 0.961 (see Table 1).

Table 1. Cronbach's Coefficient Alpha of self-regulation strategies (EABJS)

Cronbach's alpha	Number of items
.961	10

Based on descriptive statistics (mean and standard deviation), differences were observed in pre-test and post-test measures on the use of self-regulation strategies.

Table 2. Mean and standard deviation pre and post test

	Pre-test	Post-test
self-regulation strategies	M(SD)	M(SD)
Self-evaluation	.68 (.589)	.76 (.554)
Organizing and transforming	.65 (.646)	.71 (.579)
Goal-setting and planning	.76 (.654)	.88 (.591)
Seeking information	.76 (.699)	.88 (.640)
Keeping records and monitoring	.76 (.781)	.79 (.687)
Environmental structuring	.50 (.615)	.59 (.609)
Self-consequences	.94 (.736)	1.03(.674)
Rehearsing and memorizing	.50 (.564)	.59 (.557)
Seeking social assistance	.47 (.615)	.56 (.613)
Reviewing records	.38 (.551)	.47 (.563)

According to the differences found in Table 2, the t-test for related samples was used for an intra-group analysis (Table 3) between the pre and post test means. All analyzes were performed using the SPSS v.22. Statistical software.

Table 3. Intra-group t-test of EABJS

self-regulation strategies	t	p
Self-evaluation	-1,989	,056
Organizing and transforming	-1,409	,169
Goal-setting and planning	-2,249	,032
Seeking information	-2,757	,010
Keeping records and monitoring	-1,795	,083
Environmental structuring	-1,439	,161
Self-consequences	-2,504	,018
Rehearsing and memorizing	-1,682	,103
Seeking social assistance	-1,882	,070
Reviewing records	-1,649	,110

The t-test for related samples was used to analyze statistically significant differences between the means of use of self-regulation strategies during the pre and post test. The above table does not show statistically significant differences in any of the strategies analyzed during the pre-test. However, in the post-test significant differences were observed in three variables: goal-setting and planning (t=-2.249, p=.032), seeking information (t=-2.757, p=.010), self-consequences (t = -2.504 , p=.018).

CONCLUSIONS

This study is a self-regulated learning approach using a serious game. Although serious games usually have some self-regulation strategies within their components, it is advisable to adapt them to fit a certain self-regulated learning model.

The cyclical self-regulated learning model of socio-cognitive researchers Zimmerman and Moylan (2009) favors the sequence of the game as the student learns.

The frequency of use of some self-regulation strategies increases when using a serious game in educational praxis.

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SETTING UP NEW LEARNING AND TEACHING ENVIRONMENTS – NATURE LAB ALTENBERG, AUSTRIA

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ABSTRACT
In 2012, the elementary school in Altenberg an der Rax, Austria was closed due to structural and demographic changes. Detected as an opportunity for future communal developments, this school was transformed into the nature lab Altenberg. Today it aims to be an innovative, practice-oriented competence-, teaching and research center. It sets an innovative framework for applied teaching and environmental education. The focuses are natural hazards in the eastern Alps and bordering regions, as well as human-environment interactions. Thereby, education is not only limited to university students but also accessible to pupils, interested laymen, the local population and other visitors. The nature lab and its surroundings can be denoted as a passable showcase for various processes and phenomena. As the sensitization for certain topics takes place in the realm of experience, absorbed information is processed on the factual and emotional level. The level of consciousness is enhanced through this process, which consequently influences future actions. This paper aims at drawing the conceptual framework for setting up such new learning and teaching environments with the example of the nature lab Altenberg.

INTRODUCTION
Educational facilities hold an extraordinary position in our society that exceeds the primary purpose of education. Especially in rural areas, schools represent a major part of social infrastructure and a space for social interaction. Moreover, teachers and teaching assistants are authority persons and role models who significantly shape social norms, values and behaviors. They hold a pivotal role in the transfer of the regional culture and understanding of the local environment (Henkel, 2004). Barley and Beesley (2007) state 'the school is the community' that results in a feeling of pride and a place for multifunctional usage by numerous groups.

The linkage between local public schools, communities and the emergent sustaining momentum for positive regional developments has already been promoted by numerous authors (Harmon & Schafft, 2009). But what happens when elementary schools in rural areas close due to structural and demographic changes and these pivotal places of social interaction and identity building are missing? Phenomena like selective exodus and the shut-down of social infrastructure result in a reinforcing negative feedback loop fostering the process of social erosion (Simić & Harfst, 2017). Social erosion denotes the process of transition of a space due to the runoff of certain elements and following shrinking-processes that accelerate one another (Giffinger & Kramar, 2008). This means that the shutdown of public infrastructure – e.g. public schools – can lead to and even boost further negative developments.

Due to compulsory education, pupils enter elementary schools by age six in Austria - primary education, four grades, ISCED 1. Alternatively, students visit special needs schools or other schools with organizational statute (e.g. Waldorf schools). The Austrian statistical office STATISTICS AUSTRIA (2017) documents a decline of 16.3 % within the number of elementary school pupils in the period 2000 (393 600) to 2015 (329 600) in Austria, showing a gradually positive tendency since 2014. In the province of Styria, the decline of pupils in general is extraordinary high compared to the Austrian average. In combination with administrative reforms (e.g. Styria municipal structural reform 2015) the educational patterns in Styria have also been changed. One of these changes was represented in the closing and restructuring of public schools. In the period school year 2000/2001 (559 primary schools) to school year 2015/2016 (461 primary schools) 98 elementary schools were closed in Styria (17.5 %). In total 188 schools were closed in Styria, which means that more than 50% of the closed schools were elementary schools.

THE SITUATION IN ALTENBERG AND THE DAWN OF THE NATURE LAB IN 2012
The elementary school in Altenberg an der Rax was shut down in 2012. Being aware of this serious development and knowing the specific role of elementary schools in such rural settings, the school was transformed into the nature lab Altenberg in the same year along with numerous project partners. Using the tangible and intangible remains of the former elementary school, this space was reinterpreted (Ziehl et al., 2012), still drawing on the former utilization as an educational facility, but adapting it to current changes. The nature lab aims to be an innovative, practice-oriented competence-, teaching and research center. Due to its topographic, geological, natural- and cultural conditions, the nature lab and its surroundings can be denoted as a passable showcase for different processes and phenomena. The main organizational pillars of the nature lab are teaching and research, economy and tourism, communal and regional development and a platform for knowledge and experience exchange.

With the help of the nature lab, the outside image and self-perception of the area should change from a shrinking, unattractive region into a learning region. Florida (1995) defines learning regions as reservoirs accumulating knowledge, ideas and innovation and providing the needed infrastructure for the knowledge transfer and knowledge generation. The nature lab thematically focuses on human-environment interactions, natural hazards and risk management utilizing endogenous human infrastructure i.e. the regional knowledge and understanding of the space and joins it with external knowledge and practices of universities etc. The nature lab itself is part of this learning region and serves as the headquarter but does not represent the learning region or space itself. It is important to embed and link such projects to a region and not only to one location or building (Simić & Harfst, 2017).

The overall positive impact on the region was already discussed in previous articles – i.e. positive impact on communal development, increasing number of incoming visitors, tourists and overnight stays, gradual image change and rising self confidence among the locals and a platform for numerous topics (Simić & Harfst, 2017). This paper aims at drawing the conceptual framework for setting up such new learning and teaching environments.

A CONCEPTUAL FRAMEWORK FOR NEW LEARNING AND TEACHING ENVIRONMENTS
The main paradigm of the organizational pillar teaching and research is based on the model of social action by Werlen (1993): The model rests upon the crucial understanding of 'action' as a 'reflexive and intentional activity'. All of our 'intentionally effecting or preventing a change in the world' is goal oriented and motivated by a specific intention. In turn, the intention is influenced by the socialization system and its norms, values and legislation but also by the subjective characteristics of the agent (person who sets an action). The action itself is a process of four sequences and intermediate reflection. It starts with the project of the action, a preparatory and anticipatory process in which the intention is created. This is followed by the definition of the situation which represents an interpretation of the intended goal; 'situation (i) is structured as situation (i')'. In the next step, the action is implemented which – in the final step - causes consequences for the environment, other actors and the actor. Actions produce and reproduce space.

In general, action is not possible without background information i.e. knowledge. Knowledge can be a premise for intentional actions but also the output of an action (Funke, 2017). Moreover, knowledge should be defined as a process undergoing changes and not a final state. It is a practice of codified, at most accessible information (Reitz, 2017). Looking at the model depicted in [Figure 1] there are two linking points – i.e. the socialization system and personal reflection and learning - to change the way how we produce and reproduce space by
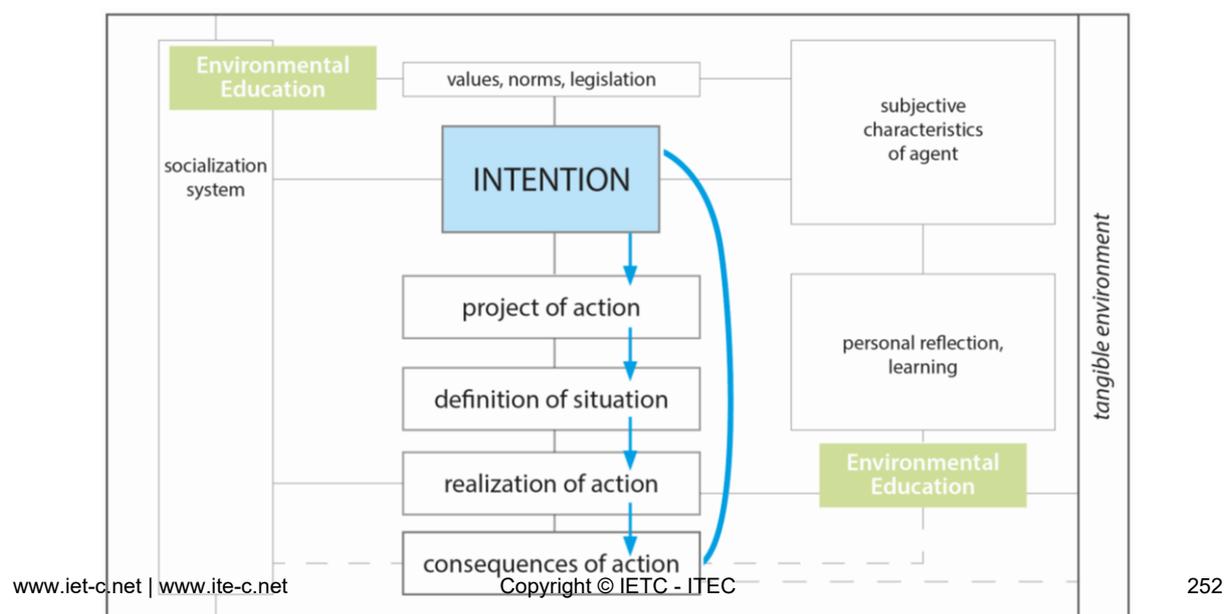
Figure 1 Conceptual Framework – nature lab Altenberg, own illustration based on Werlen (1993)

utilizing environmental education.

Following the definition of the Austrian Federal Ministry of Education (2017), environmental education raises awareness of the natural, cultural, technical, built up and social environment. It focuses on human-environment interactions, enhances the willingness and provides competences for shaping the environment. Environmental education fosters a sustainable future development in the interplay of individual, communal, ecological and economic conflicts of interest. This interpretation of environmental education shows progress decoupled from the classical approach of awareness-raising by additionally providing and teaching competences and motivating the willingness among the population for active participation.

The former elementary school was primarily addressing pupils. In the nature lab, education and knowledge are not only limited to pupils but mainly accessible to university students, the local population, interested layman and other visitors (Fischer & Simić, 2016). Thereby the function of a learning region – addressing different population strata and providing needed tangible and human infrastructure and resources – is embodied.

'Labs' in general refer to urban environments and metropolitan areas. They go hand in hand with project-based work and a proximity to research and innovation institutions (Schmidt et al., 2016). The main dimensions are openness, flexibility and collaboration (Schmidt & Brinks, 2017). The nature lab and its learning region follows the administrative boundaries of the municipality Neuberg an der Mürz and the nature park Mürzer Oberland. The municipality is located in the picturesque landscape of the Eastern Limestone Alps and can be described as a rural area. However, it is almost half way between the agglomerations of the cities Vienna and Graz and is well connected by infrastructure but also mentally and emotionally as this area has ever since been used as a summer retreat. The partner universities have a long-lasting research interest in this area and there are innovative regional actors. This shows that labs can also be found outside of agglomeration areas if there is a sufficient tangible and human infrastructure and a strong commitment among the decision makers, actors and other participating parties.

INSTRUMENTS OF KNOWLEDGE CREATION AND KNOWLEDGE TRANSFER
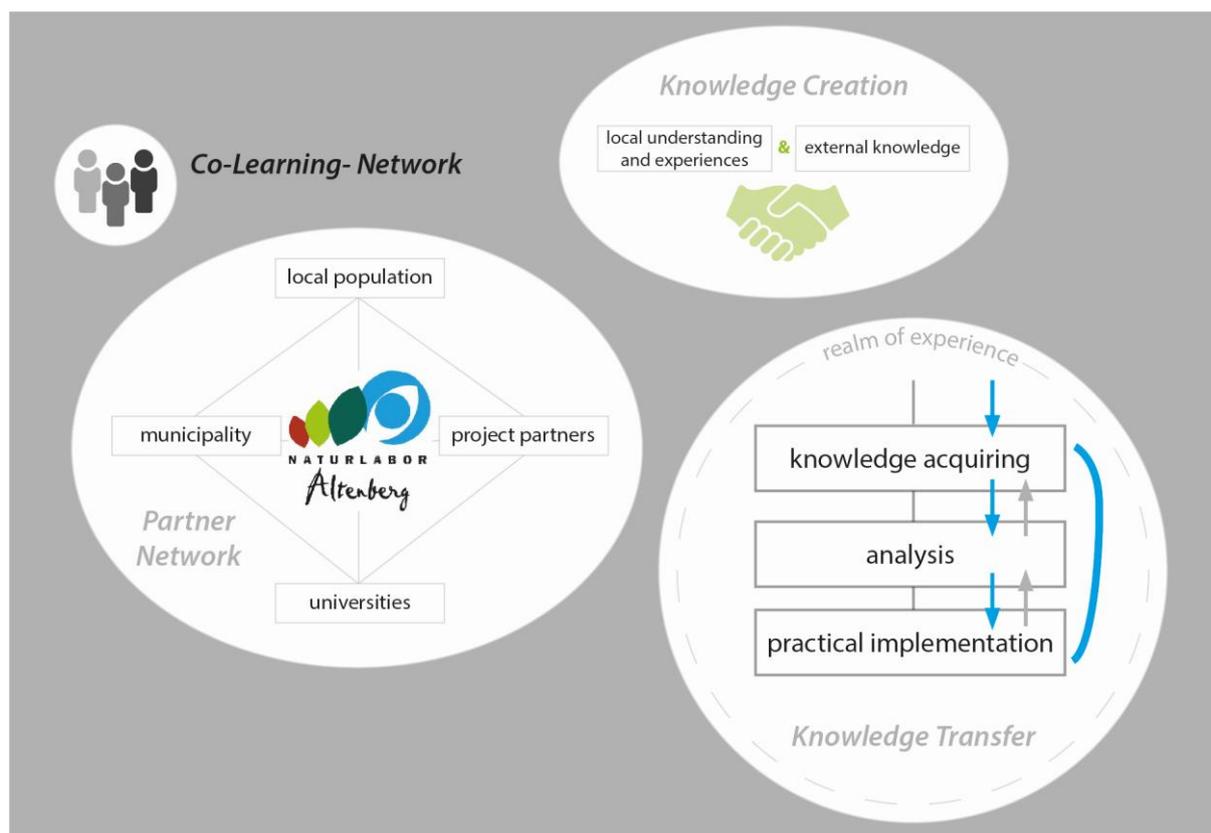
Figure 2 Environmental Education in the Nature Lab Altenberg (Simić 2017)

The process of knowledge creation and knowledge transfer is based on the nature lab's Co-Learning-Network approach [Figure 2]. The nature lab does not make use of one-sided teaching systems but enables knowledge creation and transfer as a mutual process in which all participating parties learn and broaden their knowledge in a specific field (Simić & Harfst, 2017). Moreover, the result is a comprehensive understanding of the region and

new competences for setting actions following the basic idea of environmental education.

The partner network is a non-hierarchical pattern with individual organizational relations (Simić & Harfst, 2017). The universities – e.g. University of Graz, University of Natural Resources and Life Sciences, Vienna – hold the role of the scientific partners within the network. The universities provide knowledge and experience, set main frameworks, use outcomes and gather regional knowledge for further research. They include the local population as local experts, who on the one hand share their regional knowledge, every-day practice and spatial understanding. On the other hand, the local population gains external knowledge, higher awareness for related topics and competences for setting actions. The participating population supports the nature lab by reintegrating it into everyday life. The universities assist the municipality in transformation processes and give guidance and advice. In turn, the municipality includes the nature lab and its scientific findings in developmental plans and assists with organizing events. The nature lab is the medium between the partners that offers space and infrastructure for applied teaching, fieldwork and excursions, participation processes and a place for social interaction (Simić & Harfst, 2017; Fischer, 2014). With this approach, all partners face each other at eye level and instead of creating frustration and a lack of understanding that often occur because of hierarchic organizational models, all partners learn from and with one other.

As mentioned above, the local understanding and experience is joined with external knowledge and thereby new knowledge is created and made accessible for all participating parties. The result is a comprehensive understanding of the region and new competences (Simić & Harfst, 2017). Local knowledge and practice is often neglected. But without the local knowledge and everyday practice, external input cannot be translated to the settings on site.

The created knowledge is transferred following the reflexive sequences of the model of social action. In a first step, knowledge is acquired using thematic input-presentations and the shared experience of the participants. In the next step, the gathered information is structured and analyzed during discussions in smaller groups and various exercises. The final sequence of one circle is shaped by stakeholder and interest-conflict workshops, for example. Intermediate reflections follow each step and enrich the quality. Reflection is a 'vital element' in learning and a 'generic term'. It is a main component during various stages of the learning process (Boud et al., 1985), from the initial learning to the process of representation of learning and upgrading of learning from lower surface level to higher levels of consciousness and knowledge (Moon, 1999).

The various stages of the knowledge transfer take place in the realm of experience and therefore the absorbed input is processed on the factual and emotional level. This specific sensitization for certain topics enhances the level of consciousness, which consequently influences future actions (Ebers et al., 1998).

DAILY ROUTINE IN THE NATURE LAB

The following section illustrates how this main framework and instruments of knowledge creation and transfer are embedded in the everyday practice of the nature lab [Figure 3].

Figure 3 Nature lab in practice

1) Together with Gergely Horváth, a colleague from the Eötvös Loránd University in Budapest, Wolfgang Fischer (on the right) is guiding an excursion along the geomorphological educational trail which is prepared in

an experience-based didactic way. At eight stations, the topics geological overview of the region, water, moraines, valley forms, karst hydrology, erosion and vegetation, ground moraines and anthropological morphology are illustrated and discussed right in the field together with the participants (students from Hungary and Austria during a bilateral exchange). Thereby the stations are not installed in the landscape as usual, which provides more flexibility when talking about a certain topic (Simić & Harfst, 2017). (Photo Simić, July 2014)

2) The voluntary fire brigade – rural social infrastructure with importance that goes far beyond the regular work of a fire brigade – takes students up to the Schneealm, where they explore the context between alpine farming (Almwirtschaft), touristic utilization, nature protection areas and other human-environment interactions. During the trip participants use the time to absorb input of the fire worker and raise question about the everyday life in the region. (Photo Simić, June 2014)

3) Innovative actors hold a key importance in the regional and communal development (Simić, 2017). The former mayor of Altenberg an der Rax (former independent municipality and today's cadastral municipality of the new municipality Neuberg an der Mürz since the Styria municipal structural reform in 2015) – Jakob Holzer – is accompanying an excursion and sharing real life experience from the very first day of the nature lab and how it developed over the last years. (Photo Simić, June 2016)

4) Leni – one of the oldest native 'Altenbergers' – is opening her doors regularly to invite visitors to listen to her personal stories, which she has documented in diaries, pictures and sketches for decades. This insight helps others to understand certain elements of the area and to get a local interpretation of the space, spatial tensions, challenges and chances. (Photo Simić, June 2016)

5) A group of geography students exploring the surroundings together with Jan Kopp (University of West Bohemia, Pilsen, Czech Republic), Wolfgang Fischer and Danko Simić focusing on the topics hydrology and climatology. Moreover, the students made a comparative analysis of hydrological systems on site and Czech examples. (Photo Simić, June 2014)

6) During an international summer school on *geodesign*, 17 students from nine different European countries and 11 partner universities spent three days in the nature lab. On the left: Wolfgang Sulzer, University of Graz. On the right: Gwosdz Krzysztof, Jagiellonian University in Cracow. (Photo Simić, September 2016)

7) Nature lab insight: The former classroom and today's lecture hall of the nature lab is equipped with modern presentation infrastructure and work materials. From 2013 to 2015 the nature lab hosted 27 university classes, field works and excursions organized by twelve different departments of the University of Graz and the University of Natural Resources and Life Sciences Vienna, five public events and a training center for becks. In 2014, 1200 overnight stays were recorded (Simić & Harfst, 2017).
On the right: A feeling of nostalgia; two students are heating the tiled stove. (Photo Simić, May 2013)

CONCLUSIONS

The paper on hand discusses the main conceptual framework of the nature lab Altenberg and how these innovative learning and teaching environments were set up. Based on the model of social action by Werlen, the nature lab utilizes environmental education as a key to provide knowledge, awareness and competences for future actions and developments. Thereby, education is not only limited to pupils but also accessible to mainly university students, interested layman, the local population, decision makers, actors and other visitors.

The nature lab makes use of the co-learning network that promotes equal network partners who face each other on the same level and learn from and with each other. Knowledge is created by joining the local experience, everyday practice and understanding of the surroundings with external knowledge. Thereby new knowledge and a comprehensive understanding of the region is developed.

Although labs are urban phenomena in general, this example proves that even rural areas can successfully transform into learning regions by utilizing endogenous potential and linking it with external knowledge and innovation, keeping in mind the main dimensions of openness, flexibility, collaboration and accessibility. The nature lab Altenberg sets positive regional impulses, functions as a platform for specialist presentations, seminars, conferences and excursions, it connects universities, institutions, experts, students, the local population and interested laymen and it offers modern IT-infrastructure, seminar and lecture halls.

The nature lab is continuously reinterpreting and redefining itself. At the moment, a conceptualization team is working on new concepts and frameworks focusing on how to embed the nature lab in the region and link it to

more than just the building of the former elementary school as well as dicussing how to tackle everyday challenges.

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SHARE AND TEACH: A NEW INTERACTIVE WAY OF DESIGNING TEACHING MATERIALS ON DIFFERENT DEVICES

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ABSTRACT

Still today, interactive tools and touch screen devices are used in a traditional way by many teachers to prepare educational materials without using the most of the possibilities offered by new technologies.

The objective of this research is to promote a new way of using interactive white boards (IWB). The project, named "Share and Teach", is dedicated to teachers and students of the primary school and proposes a new collaborative approach in managing and integrating training materials using interactive systems. In order to improve awareness among the users, this research has developed an innovative human machine interface (HMI) with a friendly graphic user interface (GUI) used to design educational items that can be accessed and modified through many kind of devices (IWB, pc, tablet, smart phone).

This tool lets users to save data also on cloud with the possibility to log in and to work on the platform from everywhere. Finally, this method allows teachers to share and compare the strengths and weaknesses of the different teaching methodologies.

Keywords: interactive white boards,, design, friendly graphic user interface, teaching, learning.

INTRODUCTION. CONTEXT OF REFERENCE

In recent years, the development and dissemination of information and communication technology has undergone considerable transformations, becoming an integral part of our lives. the daily life of us all.

Digital technologies have therefore become an infrastructure that enable much of human activity, from training to working , from fun to socialization, from online payment to the delivery of different types of services.

As a consequence and effect of this change, digital skills (Innovation Communication Technology) have also gained a significant place in the European education system since the Seventies. A huge amount of money has been invested to provide the school – from the primary school to the university - with technological equipment, in a climate of trust and general enthusiasm.

The history of educational technologies to improve students skills and learning is long and full of difficulties.

The continuous need of rethinking the level of learning settings to improve the students' performances promoted the development of innovative systems of learning and teaching.

The resulting school has to be inclusive and able to create a new way of designing lessons to increase students' participation and abilities. Today the use of ITC at school is supported by international politics and a considerable quantity of economic investments. For instance, in 2006, the European Commission fixed eight educational key competences * for the education of the citizens of the future. These are, as follow:

1.   Communication in one's mother tongue.

2. Communication in foreign languages.
3. Basic skills in maths and science.
4. Digital skills.
5. Learning to learn.
6. Social and civic responsibility.
7. Initiative and entrepreneuership.
8. Cultural and awareness.

* http://ec.europa.eu/education/policy/school/competences_en

Other drivers to the school change are due to the migration phenomena – multiethnic classrooms - and the need of inclusive teaching according to different cultures.

The traditional school is inadequate to the profound change of culture in the era of technology.. The contemporary society needs of people with new competences and the abilities of learning throughout their life. It's necessary to realize a changing to create a new dynamic school able to answer to the new society needs. Today the strategies on teaching research are not only based on contents, but also on learning methodologies. According to this direction a new focus is represented by the concept of lifelong learning.

The main items of teaching are:

1. the contents - know what - belonging to the cognitive area and including information and meanings.
2. The values - know why – belonging to the emotional and functional areas and responsible of the development of the personality.
3. The competences – know how – related to the conscious and creative application of the know how held in specific contexts.

The innovation for learning also requires new competences for teachers. They do not need only basic pedagogical teaching knowledge, but much more. The profile of the new teachers has to include the know-how in technological field in order to allow them to use and manage the potentiality of ICT.

According to the previous concept it is appropriate to quote the European Commission work that defined a common European framework, defining how teachers have to interact:

1. Themselves : teachers modifies their practice to changing contexts.
2. Students: teachers have to adjust their teaching methodologies according to a new school's vision.
3. Colleagues: teachers involve other teachers and share their methodologies with a professional community.
4. External context: teachers relate with students' parents and with the students' work areas.

These new kind of teachers are called "pioneer" teachers. For the development of such a professional figure, the new technologies are fundamental. The educator has to live in a virtual community while developing processes of innovative teaching, Inside the community teachers could compare, experiment and share their ideas and strategies with colleagues all over the world.

INTERACTIVE WHITE BOARDS AND THEIR ROLE IN LEARNING INNOVATION

In the contemporary scenario, the research for teaching technologies focuses on the users' needs in relation to new methodologies and strategic ways for learning.

The Interactive White Board (IWB) represents the main solution adopted at school to answer these needs, The IWB proposes a new inclusive learning model able to involve a large number of students to participate and to collaborate in active and interactive way to the classroom tasks. The results are better in comparison with the traditional methods.

The first IWB was designed about in 1990 for using in offices during meetings and presentations. Then the IWB starts to be used at school, as a new tool for teaching and learning. From 2007 the use of IWB has increased in both primary schools and secondary schools during lessons.

The Interactive White Board is a large interactive display, a standalone touch screen, to be used independently to perform the desired tasks and that could be controlled by the computer. Users can manipulate the virtual elements using fingers directly on the screen. The IWB allows users to integrate media contents into lectures supporting collaborative learning and offering a wide range of teaching opportunities. Consequently teachers, using IWB, are able to redesign and personalize their learning settings.

Summarizing the IWB peculiarities for learning are:

1. Stimulating attention and motivation improving learning in classroom.

2. Allowing the learning of concepts and content through innovative communicative means.
3. Letting the independent creation of learning content in a new way (i.e. realizing digital storytelling).
4. Developing metacognition processes changing the criteria of evaluation and self-evaluation.
5. Promoting the use of cooperative learning methodologies and the development of problem-solving skills.
6. Evolving autonomous learning processes (i.e. according to flipped class models).
7. Improving participation and engagement through meaningful learning forms, user-centred.
8. Students become actors of their own training path.

The use of the IWB redefines the learning setting and the model of instructional design. The didactic strategies change from a transmissive mode based on student's idea as a passive knowledge receiver to an interactive and collaborative mode, where know-how and knowledge are built according to direct experiences and interactions of students, teachers, learning materials living in that specific scenario.

What basically differentiates the IWB from the traditional blackboard or the common use of video projector is the possibility to give the access to knowledge through three different channels simultaneously.

Using indeed the IWB students could live multi-sensorial experiences, learning through three different senses at the same time: (Beeland, 2002) visual, auditive and tactile

Unfortunately despite of these potentialities, still today, the software generally diffused and used on IWB did not offer the possibility to exploit at the best the potentialities of this innovative interactive tool. Furthermore the graphic user interface is not easily accessible and usable and the digital tool results not friendly and not usually able to facilitate the use.

LEARNING SETTINGS STRATEGIES

The support of Interactive White Board in classroom could stimulate the attention and the motivation of students improving the learning of the whole class. Moreover it could allow the learning of concepts and content through various communicative media such as videos, images, documents, maps etc., also modifying and improving the traditional "frontal" lesson. The IWB could allow independent creation of learning content in innovative ways that could be shared by all the class (for example, through the realization of digital storytelling). Through the use of IWB it is also possible to implement metacognition processes (an individual's awareness of one's own ability and cognitive processes), this could change the criteria for evaluation and self-evaluation of the students. If used at the best of its potentiality the IWB is able to develop cooperative learning methodologies, developing problem solving skills. The IWB has also the ability to develop independent learning processes - according to flipped class models - increasing the skill of participating and engaging, creating learning methodologies focused on students.

Possible ways of use

- Introducing "Key Concept".
- Searching information.
- Presenting the content of lessons.
- Presenting different kind of video formats.
- Evaluating learning activities.
- Sharing the students' work.
- Saving lessons.

Main functions:

- Running the software that is loaded into the connected PC.
- Capturing and saving notes written on IWB to the connected PC.
- Controlling PC from IWB.
- Using software able to translate italic writing into digital text.
- Using computer software for digital drawing and other basic function of digital languages.

Possible operations for teachers:

1. Realizing "conceptual maps".
2. Making a brainstorming.

3.   Organizing and managing cooperative learning activities.
4.   Explaining frontal lessons.
5.   Implementing metacognition processes (awareness of individuals own ability and cognitive processes).
6.   Applying flipped classroom activities. Lessons that are moved at home as homework using full advantages of the online potential teaching materials. (Children have to research on topics defined in classroom).
7.   Designing and realizing "authentic tasks". Students have to build their knowledge in a active way, in real and complex context and then they have to use their know how demonstrating the acquired competence.

The aim of the use of IWB at primary school is to introduce a new contemporary tool in didactics able to develop the abilities of each child/student that are different according to their own growing.

More than three hundred teachers interviewed by Gfk Eurisko for Pearson Italia had very clear ideas: the didactics with the IWB are no longer the same, the relation with the children has improved and, it is always an advantage to have IWB in class. Though preparing lessons is more challenging (64% of them support it), 97% say they will not come back to the traditional method.

The use of IWB is effective, the students participate actively. In fact, 70% declare that they have seen an increase in the effectiveness of their teaching and, above all, it shows the satisfaction of seeing "enthusiasm, curiosity, willingness to participate and collaborate "on the face of the children.

THE AIM OF THE RESEARCH

The aim of this research is to promote a new way of using interactive white boards (IWB).

The research proposes a new interactive digital system tool able to design, integrate, manage and share educational items for teachers and students of the primary school starting from the interactive white boards (IWB). In order to spread a new practice on designing and managing educational items for teachers the aim of this research is to propose an innovative human machine interface (HMI) with a friendly graphic user interface (GUI) to be easily applied in different learning settings and in teaching methodologies. The HMI have to be accessed and modified through different kinds of devices (IWB, pc, tablet, smart phone) from everywhere.

The proposed GUI is dedicated to two different kind of users, teachers and students and it allows to interact with them according to different levels of interaction. The first level is dedicated to the teachers and allows them to design, manage, integrate and share educational items, also communicating with other teachers and specialists using the network. The second level of interface is dedicated to students of primary school and it allows them to interact and to share their lessons contents and their learning outcomes. with their class/ other classes.

 The research goal is also to find a new easy method letting teachers to share and compare the strengths and weaknesses of the different teaching methodologies all over the world. From this point of view the proposed human machine interface should be able to generate interaction among teachers and students around the world in a multicultural context, favouring internationalization.

The final goal of this research is to promote a new way of using interactive white boards (IWB) making them used according to their full potential.

METHODS OF RESEARCH

The research uses the interdisciplinary approach involving two main different disciplines: educational science and design. Then the referring theoretical frameworks of this research are:
1.   Universal design for learning (UDL) .
2.   Human Centred Design (HCD) .

The application of the Universal design for learning, about didactic and education models generates:

"A framework of reference for the planning of pathways that guarantee the maximum flexibility of the didactics aims, methods, and valuation, in order to optimize learning opportunities for all individuals"
(Rose, Gravel, 2016, p.27)

The UDL refers to a flexible method for teachers designing learning items and didactic paths. At the centre of this model there is the development of inclusive didactic methodologies.

The principals of UDL are:

1. The necessity of proposing a variety of methods of information, representation (and knowledge) planned to be learned.
2. The possibility of engaging in learning methods according to various expressive approaches.
3. The development and the use of didactic strategies centred on engagement and intrinsic motivation.

The second discipline involved in this research is the Design and the Human Centred Design approach (HCD). The HCD process defined in the ISO 13407 in 1999 ad systematized in 2010 with ISO 9241 - 210, represents a starting point of this research. It refers to the specificity of the interactive system, even though it is a resource to which the design can always refer when interactive system meant complexity of interactions determined by different entities.

The HCD, is related to getting information about the approach in question and to outlining useful design processes. In the Human Centred Design research, design, development, testing, and evaluation are the central activities of the field of human factors —with the aim of designing products for human use.

The Human Centred Design processes for interactive systems, ISO 13407 (1999), states: "Human-centred design is an approach to interactive system development that focuses specifically on making systems usable. It is a multi-disciplinary activity."

In particular the standard specifies that it is necessary to develop four activities to follow during the design of any interactive system. These activities are:

1. to understand and specify the context of use;
2. to specify user requests;
3. to produce design solutions;
4. to evaluate the project

The previous standard ISO 9241:210, 2010 at 4.1 identify six principles of human-centred design:

1. the project is based on explicit understanding of users, activities and environments;
2. the users are involved in all phases of design and development;
3. the design is guided and refined by the User-Centred evaluation;
4. the process is iterative;
5. the design considers the entire user experience;
6. the design team includes multidisciplinary skills and viewpoints.

Moreover the "User Centred Design (UCD) is a user interface design process that focuses on usability goals, user characteristics, environment, tasks, and workflow in the design of an interactive tool or products. The UCD follows a series of well-defined methods and techniques for analysis, design, and evaluation of software and web interfaces. The UCD process is an iterative process, where design and evaluation steps are built in from the first stage of projects, through implementation *(Shawn Lawton Henry*, 2007)

The User centred Design process is a concept methodology. The design is based on the explicit understanding of users, tasks, and environments; it is driven and refined by user-centred evaluation; and includes the whole user experience (UX). On the other hand the definition of the HCD has to be consider very wide. It's important to note that the UCD process does not specify exact methods for each phase.

This approach, must be understood in a broader sense as the authors Norman and Verganti said (2014, pp. 11), the HCD is like a design philosophy and not only a defined set of methods so the innovative line should start approaching users and observing their activities. Norman (2014, pp. 222) talking about the "design thinking", and how this distinguishes designers among the innovators who practice it, underlined that the human-centred design is one of the most effective method that designers have at their disposal to solve problems designing products and services. Moreover he points out that designers work according to their favourite procedures and the HCD approach could be applied using different procedures. These are really variations of the same general method, iteration of the four steps: observation, generation, creation of a prototype and verification.

TEACHERS NEEDS ACCORDING TO THE HCD (Human Centred Design) APPROACH

The above interdisciplinary method of approach represents the starting point we consider to developing the present research. This approach is open and adjustable to different situations and needs.

The process of analysis related to the application of the HCD approach starts from the observation of the users, that in this case are the teachers. The research studied their activities in classroom, at school and at home, deepening their different referring contexts of use and scenarios using interactive tools on different devices.

The research individuates teachers needs also observing them using IWB in classroom and using any other interactive digital systems for learning in different scenarios. This activity underlines that, generally, teachers did not manage to exploit the potentiality of the IWB because of the graphic user interface is not friendly and at the same time they did not find functions that they need.

According to this approach the results are that teachers need the possibility to:

1. managing, also online, their digital didactic materials and documents in a single tool.
2. Giving space to ideas. The possibility to compare various didactic methodologies with other colleague.
3. Using a flexible tool for keeping notes and for designing lessons.
4. Saving time in the research of didactic items for lessons in classroom.
5. Having the opportunity to interact with other teachers.
6. Keeping a personal and shareable diary with information on students, classrooms and teaching methodologies also in order to customize the leaning activities according to special needs of classes or students.

The above emerging needs could represent the basics of the second part of the present research centred on the design of a new interactive digital system tool. The IWB with its features is an interesting tool for developing a didactic design based on the above principles.

THE USE CASE: SURVEY TO A SAMPLE OF TEACHERS OF AN ITALIAN PRIMARY SCHOOL

The experimentation was set in a suburb of Rome, the capital of Italy. It consists in two activities interviews. and direct observation. The interviews have been carried out with 15 teachers from the first to the fifth class of the primary school inside the Comprehensive School *Calderini Tuccimei* in Rome. The questions aimed to investigate about the modality of use and interaction of teachers with the IWB. In particular the questions were asked to evaluate the following main contents:

- current way of using the IWB in the Italian primary school.
- The threats, the weakness and critical elements of IWB principles.
- The strengths, the potentiality of IWB for didactic activities.

Moreover the surveys asked teachers to specify the functionality they prefer or would like to use in IWB. The answers of the above questions represented an important point reference of the research because they identified the real way of the use of the IWB tool. The answers also underline that the primary users of this tool (IWB) have full control of the tool itself and over the spread of content to their classroom. Furthermore they are perfectly able to decide when and how use the IWB in their lessons.

In a second step teachers were invited to propose learning tools dedicated to the IWB to use in classes of primary school. The observation involved 3 classes - of the fifth class – and show how teachers and students use IWB. The remark underlined the difficulty of teachers and students to interact easily with the GUI of the IWB. The activities allowed to understand and verify teachers real needs, to evaluate their suggestions and moreover to individuate recognizable, useful and recurrent practices. The interesting data emerging from this survey resulted relevant to design the interactive digital system.

It is easy to understood that, also today, there are several difficulties to approaching the IWB at school. This tool, even after many years from its implementation at school, is not used at 100% of its potential. However, at the same time, it is strong the will to experimenting the understanding, and the full use of this new tool that could be an innovation for the teacher and students.

The results underline the elements for learning that are critical for teachers and students not allowing them to live pleasant experiences.

At the same time, the analysis helps to define a method to designing a new interactive tools able to be used in an easy and pleasant way on different devices.

SURVEY
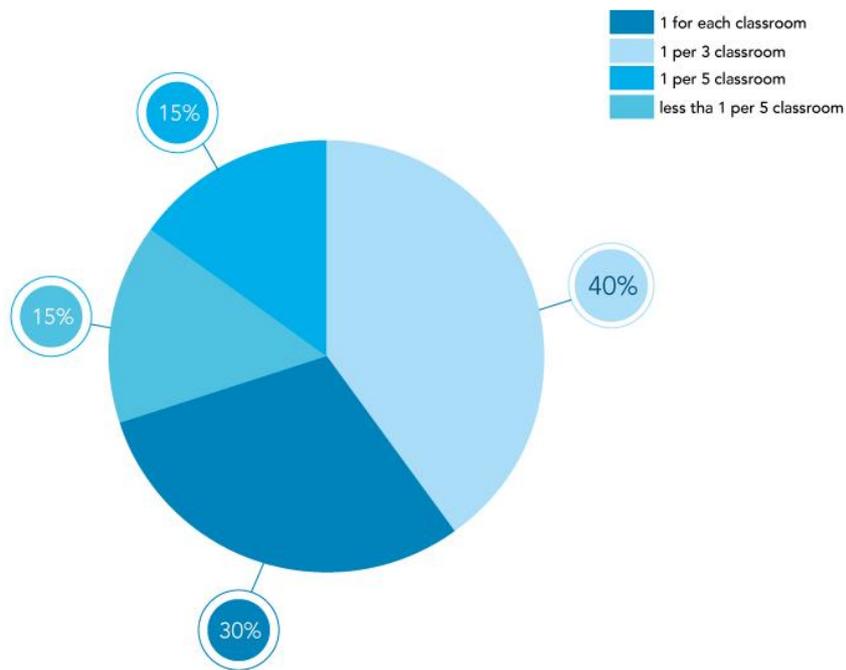
Fig. 1 Amount of IWB in Italian Classroom. Results show the lack of clarity on the availability of IWB within the Institute.
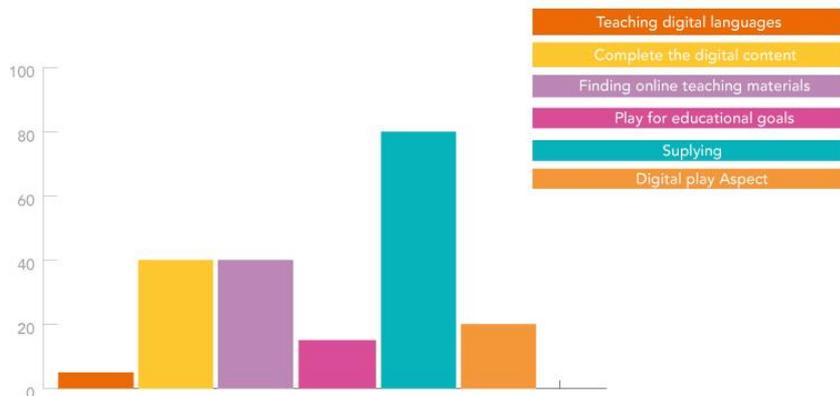
Fig. 2 "How do teachers use the IWB in classroom?" The use of the IWB as a tool for supplying teaching materials is preponderant while the play and the use for playing and for learning languages is not relevant.
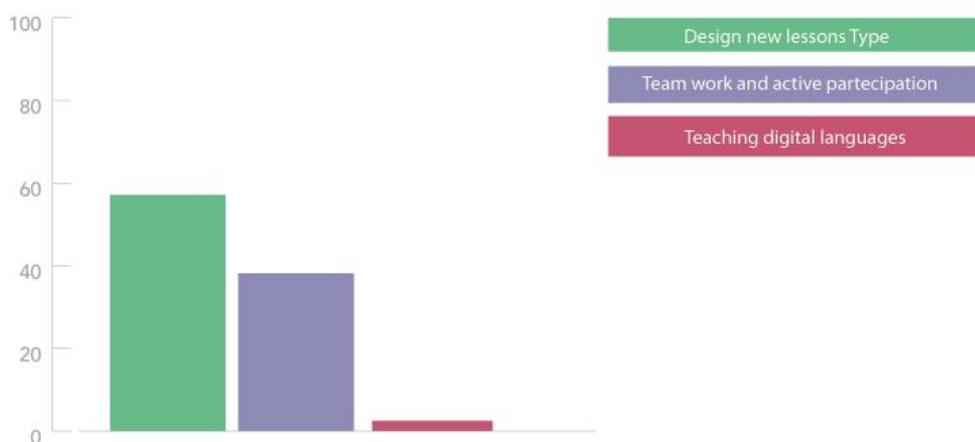
Fig. 3 How do teachers prefer to use the IWB? The lack of attention for languages learning is confirmed by the survey results. when asked to express their intentions towards using the IWB. In fact, 0% of respondents indicated the IWB use to implementing languages skills.
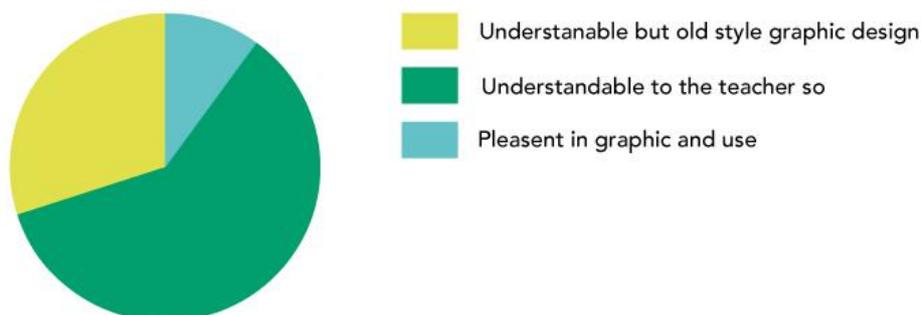
Fig. 4 What teachers think about the GUI of the IWB?.A 60% of the respondents state that IWB is understandable and therefore functional. However, this figure shows how the graphic factor and the use experience not taken into account.

THE PROPOSED HMI TOOL: SHARE AND TEACH

Share and teach: is the name of the innovative human machine interface (HMI) with a friendly graphic user interface (GUI) for designing educational items able to be accessed and modified through many kind of devices (IWB, pc, tablet, smart phone) using the network.

Share and Teach is a new tool for managing digital didactical material at primary school.

The starting points of the design of the new tool are the study results on teachers needs, summarized as follow:

1. managing work documents and the digital didactic materials in one single and online sharable content tool during all the school year.
2. Having a personal not official tool for saving notes and didactic materials useful for teachers during all the scholastic year.
3. Saving time in looking for classroom teaching material or lesson, having the opportunity to interact with other teachers.

4. Comparing and sharing learning tools and didactic items and teaching methodologies with other teachers in the network.
5. Having the possibility to compare and evaluate different didactic methods with various colleagues.
6. Keeping a shareable diary to notes any interesting information on class on students and on didactics for shaping teaching activities around the real needs.
7.

The main goals to reach with the development of *Share and teach* are, as follow:

1. Stimulating the use of IWB by teachers transforming all the first listed weaknesses in strengths.
2. Sharing digital educational material at territorial, regional, National and international level on the network.
3. Innovating the teaching material and the distribution system
4. Experimenting innovative ways to share and to internationalize the idea of a new kind of school.

The basic functions of *Share and teach* are:

1. Create / set up a personal profile
2. Access to a personal work folder
3. Quick access to school or teacher timetable
4. Access to a digital didactical material library
5. Quick access to a web search
6. Save materials from researches in a personal library
7. Save digital didactical material
8. Create digital material with IWB
9. Compare didactic material or methodologies with other teachers at school or all over the world

Share and teach is a tool with a GUI to be used on IWB during lessons in classroom, but it has the main purpose to facilitate the use of new technology in every moment of teacher's life. For this reason the tool is accessible from any type of device, tablet, pc and smartphone with a specially designed app version, to be upgraded in future. The Graphic User interface is designed to be friendly, simple and intuitive. It is composed of a hierarchical structure that start in the Homepage, where all content are accessible and visible by the user. (Map of content Fig. 5)

In the **Login page** (Fig.6) teachers (Users) can add their personal username and password and enter to the Homepage (Fig.7).

In the H**omepage** , the user can navigate in a simple and intuitive way. At the top of the screen the logged in person is identified.

During all the time of navigation experience the logged users has at their own disposal a menu that it is possibile to personalize, setting up the user profile, and checking private mail messages.

The core of Share and teach is in "My Dashboard**"** section (Fig. 8) accessible from the Homepage. In this section, teachers can visualize the lists of their digital teaching materials uploaded and manage them. They can upload and download their lessons, change and save them. It is also possible to open each item in a full screen to work, copy, modify and to save.

In the section **"My Dashboard"** there is a secondary menu that allows teachers to do several actions:

- check their bookmark lessons: choosing this menu item, teachers can resume the lesson at the point of interruption.
- Check their personal school agenda. Teachers can interface with the school schedule, displaying planned engagements or seeking a meeting. Moreover, they can add an event or write a   didactic observation with reference to the current date.
- View and share their class projects. The goal is to create communication among teachers, and classes.

From the Homepage it is possible to link to the **"Library"** section (Fig.9)

In this section teachers can find the official digital materials in a complete library divided in subjects of learning. From this section it can possible to go to two different secondary areas:

1. the **Personal Library**: where teachers could collect all the materials they prefer or create educational papers. The personal library can be organized in folders and subfolders, like the structure of a personal computer.

2. the **Saved Search**: where teachers could save useful links about interesting and favourite websites. The aim is to facilitate the availability of material and to save time.

From the Homepage it is possible to link to the **"Timetable"** section (Fig.10).

In this area the users can check the school time table in real time through personal login. The tool shows to the teacher his real time position in a classroom or in a meeting.

From homepage is possible to access the **"Search"** function (fig. 11) . This section allows user to researching online digital didactical material and to save the results in a favourite list in the secondary area called **Saved Search** inside the **"Library"** section and check them in a second moment.

In order to stimulate a better use of the IWB , this tool propose to the teacher to use creative activities .

The **"Create"** command (Fig.12) from the Homepage menu leads to a unified screen where the teacher can be find the commands to create educational content.

The **"Share"** section allows to send and share materials and documents to other teachers for observations and notes.

While the rescue functions are present in **"My Dashboard"**.
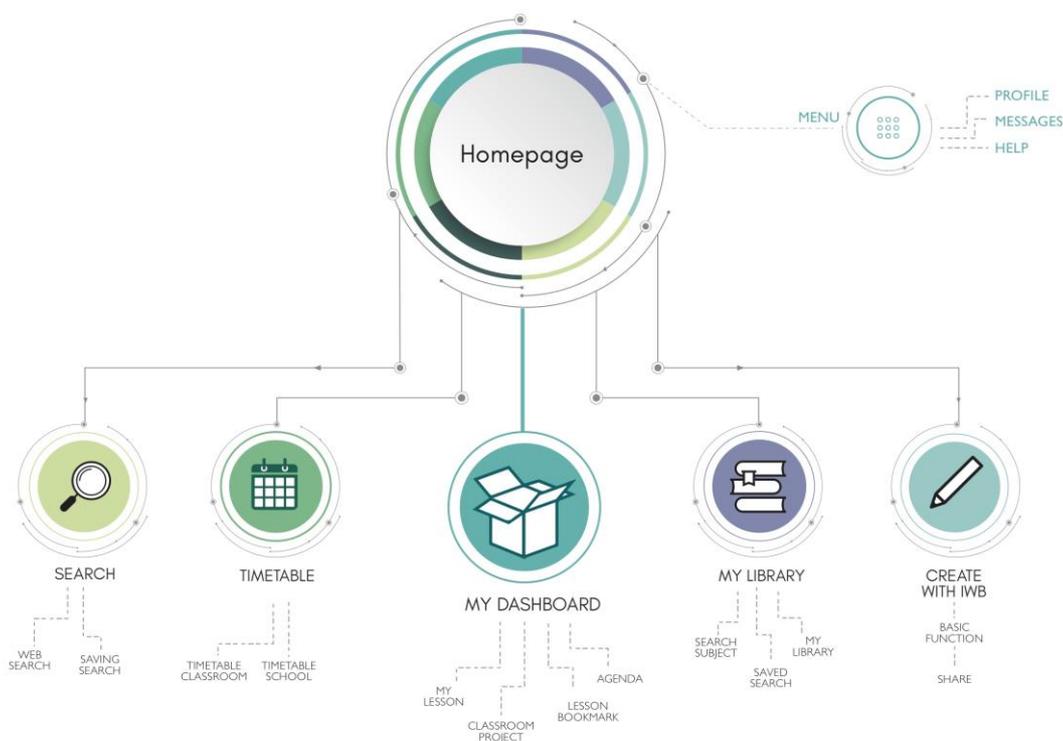
Fig. 5 *Share and Teach* map of content

Fig. 6 Login screen
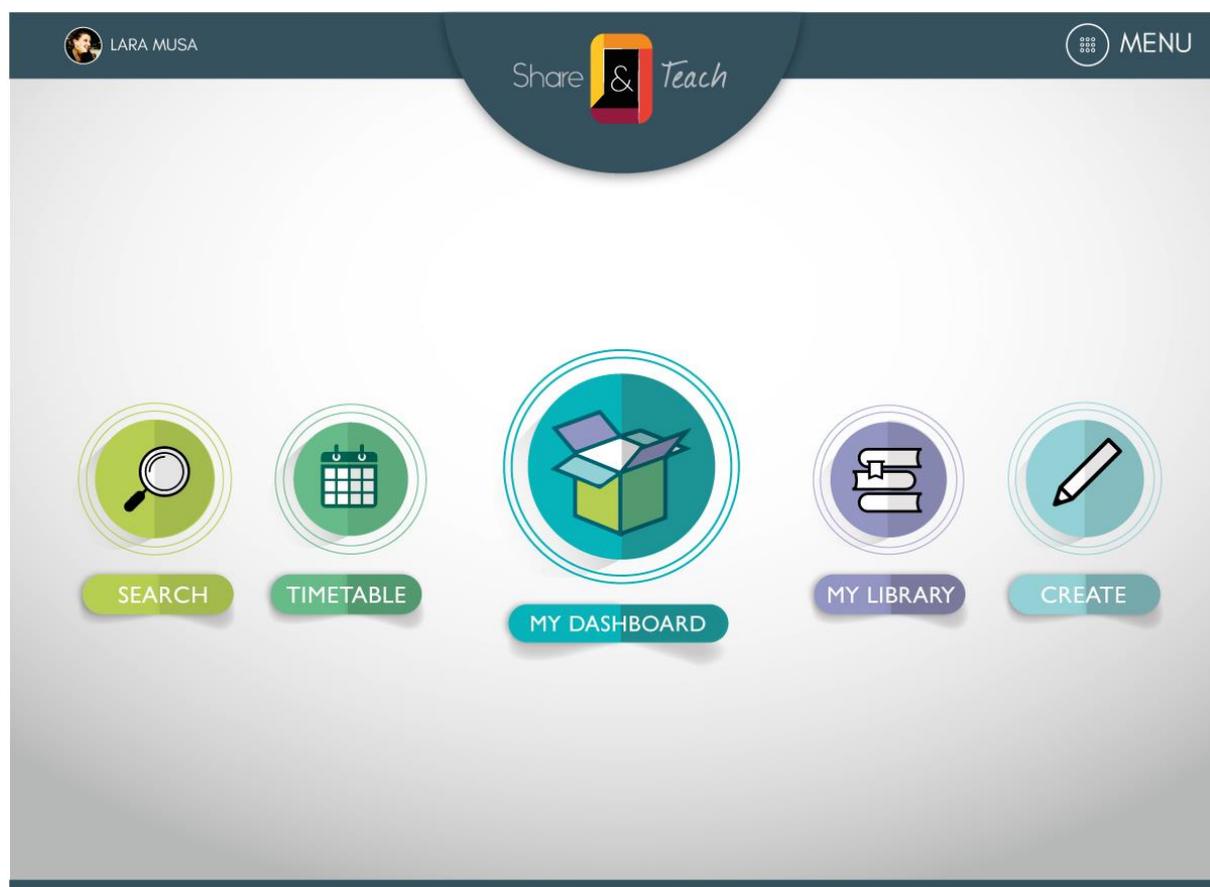
Fig. 7 Homepage screen
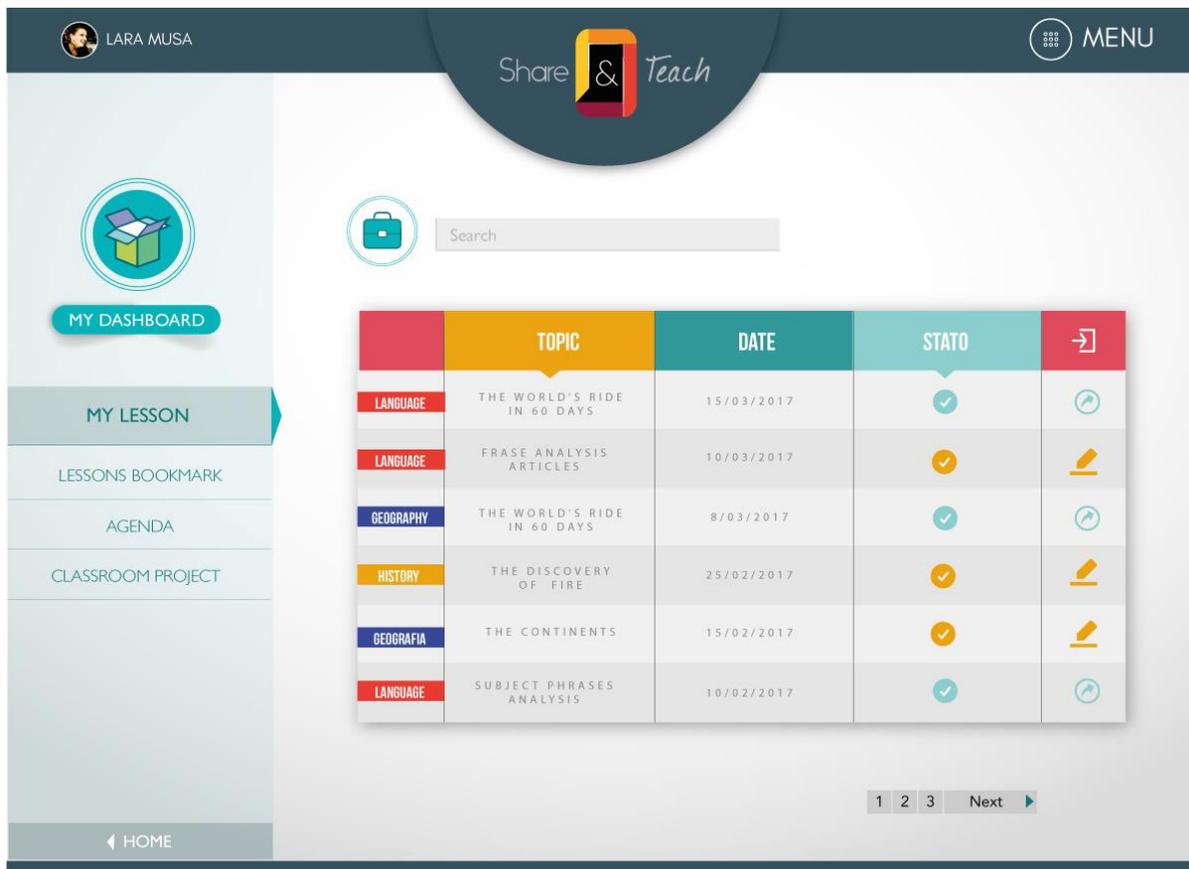
Fig. 7 My Dashboard

Fig. 9 My Library

Fig.10 Timetable

Fig.11 Search page

Fig. 12 Create with IWB

CONCLUSION AND PROPOSAL FOR THE FUTURE

The present work therefore aim to improve the overall quality of teaching research, to explore new challenges comparing different culture and sources of knowledge adapting the school community to the imminent changing of today society.

The tool, which works as a didactic social network, could be tested territorially, inside a small group of beta testers, in order to improve and evaluate the UX and the functionality of the tool itself.

This project, if developed inside an institutional framework, as the European Community, could provide an instrument to compare different didactic methodologies, to highlight their peculiarities, leading to an instantaneous development process, based on upgrades and improvements straight from beta-testing.

Outside the institutional context, the will to compare and sharing teaching methods is remarkable, although these are small scale projects, as internet forum or personal websites/blogs, in which teachers share their experiences, or in a smaller percentage, platforms involving also students from different countries.

In spite of its dimension, this phenomenon well demonstrates how a will to confront, share and improve is spreading inside school and education fields.

Share and Teach could represent a challenge for teaching and learning systems. its development and the online archive full of sharing different didactic materials from all over the world could become a sort of digital heritage.

To achieve an optimal use of these technologies, it's important to have a more conscientious approach and to reach a better understanding of technologies-educations relationship.

Nowadays technologies are an important part of day life, even in the field of education but digital natives are experiencing lack of proper instruments to mediate between their perception of reality and the educational standards offered by the school system. From this point of view, Italian teaching staff is behaving in a very innovative way, driven by the desire of educating children as adults of the future, facing every day new challenges and testing educative skills. Spreading technologies inside teaching mean to deal with many barriers, from logistic to intrinsic issue, like the natural obsolescence of every technological device.

It is therefore desirable to increase research efforts in educational technology field, to explore new approaches and generate new push to instruction.

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ASKING RIGHT QUESTIONS FOR IDENTIFICATION OF GIFTED AND TALENTED STUDENT CANDIDATES: A MACHINE LEARNING APPROACH

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Many children differ from others by one or more characteristics. All differences may lead to advantages and disadvantages for a child in the education life of them. This situation emphasizes the importance of identification. This is also an issue for gifted and talented students, too. Gifted and talented students may have challenges in their school environment despite their superior characteristics. In fact, gifted and talented students do not necessarily have high academic achievement or "good" features that teachers like students to have. That explains the difficulties which families and teachers experience in guiding gifted students for identification process. They usually fail to nominate students as gifted and talented, because they are so focused on school attitudes like neat hand writing, following the rules or high grades in Math and etc. This current situation is an important issue in gifted and talented education since early identification of gifted is of great importance in terms of education and support they will receive in their future education. Furthermore, being a good guide in this process as a parent and as a teacher is one of the key factors of the identification process. In the literature different assessment tools are developed to help the identification process of gifted and talented students regarding these problems. On one hand, forms in which too many questions are involved can lead to the reduction of the interest of the person filling out the form and the ability to give good answers to questions. Furthermore, this (garbage) input will produce (garbage) output (results of the analyzes). On the other hand, analyzes can take a long time.

In this study, it is aimed to find the best questions which parents and teachers should ask themselves to help to start identification process of gifted and talented student candidates by using machine learning techniques. In other words, the goal is eliminating redundant questions from the checklist and obtaining the best performance with minimum questions to identify gifted and talented student candidates correctly. In this scope, different feature selection methods which takes place in data pre-processing one of the most important stages of machine learning, are used. In this study, the data set was obtained with a checklist prepared for teachers in the context of research on "the development and effectiveness of training materials to increase the rate of diagnosis of gifted and talented students in different professions". The use of the checklist is intended to help teachers to identify the gifted and talented student candidates and so direct them to the official diagnostic centers.

SOCIAL CLASS IN EDUCATION: THE CAREER FUTURE FOR AN ASPIRING MIDDLE CLASS WOMAN IN EGYPT

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ABSTRACT

This paper is an attempt to analyze and contextualize the personal professional experience within an academic, theoretical lens. The personal experience referred to is illustrated in two professional interviews I have been through to work as an English language teacher, upon my college graduation, in two different well-established schools in Cairo, Egypt. Through this analysis, I hope to add new to the theoretical understanding of the practical. Thus, the paper's analysis of my first interview reveals how Labaree's 'social mobility' as a goal of education (1997), and Delpit's 'culture of power' (1988) are precisely and practically at work. The second interview is an elaborative example of Freire's 'cultural identity' (2005) as well as Delpit's 'culture hegemony' of schools (1988). Both schools consciously and separately create two different kinds of a 'homogenous culture' to which their students shall be exposed, and for which each school makes decisions regarding rejecting or integrating new elements or actors. I have been rejected in the first interview but got accepted for the position in the other school, yet my qualifications were the same at the time of both interviews.

The paper concludes with some remarks on the analyses of the two interviews and how they uncover some dangerous social illnesses that attack the minds and souls of people living in this 21st century. The most important remark is that people are packages. Personal qualifications do not matter as much if not well-packed with some other social privileges, such as belonging to the higher social class and attending well-reputed private language schools, if not the best of international schools. These assets matter much more than merit. They can be evidently seen at work when one applies to a teaching vacancy in Egypt. The absence of such assets limits and hardens, if not blocks, one's career aspirations. It is a serious issue that we, educators, need to address and handle. And for this I wrote this paper: to bring this issue to light and to open discussion on it.

SOCIAL STUDIES TEACHER CANDIDATES' VIEWS ABOUT AUGMENTED REALITY APPLICATION

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Augmented Reality which started to be used firstly in the training of the pilots in the 1990s, is used in many areas such as education, military, design, architecture, sports, and health in recent years. Especially, there are many studies that focus on advantages, limitations, and efficacy of AR in education field (Chen, Liu, Cheng & Huang, 2017). Literature shows that AR increase students' knowledge, skills and attitudes, and have a positive effect on students' attention to the course and content. Augmented Reality Applications are used especially in teaching history and geography subjects in the social studies course. This study aims at understanding social studies teacher candidates' views about augmented reality application and using augmented reality applications in the social studies course. Specific case study design in the framework of qualitative research approach method will be employed in this study. The participants of the present study were 60 second-grade teacher candidates who were attending the Science Technology Social Change in a State University in the Central Anatolia region.Researcher will give a two hours training about AR, then conducted sample practices during two weeks about using AR in the social studies course. Focus group interviews will be done at the end of practices. Moreover, the process will recorded with video camera. Content analysis will be used to analyze data which is obtained from focus group interview and video camera records. Finding will be supported with direct citations from student's views.

SPORT RISK MANAGEMENT PRACTICES, AMONG TRAINEES

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ABSTRACT
Competence of knowledge of risk management, among female coaches, can enhance organizational excellence in sports science and risk management approach to the sport. Competence development knowledge risk management coaches, it is important in the identification, evaluation and selection of operations in the sports industry to provide and ensure a safe environment for every sports program. Developed countries such as Australia and the United Kingdom were adopted, knowledge development model risk management standard. Model competency of knowledge of sports risk management can be helpful in controlling, preventing and minimizing the risk of accidents and injuries. This study was conducted to determine the competency of knowledge of risk management practices sports, among female teacher's teacher education institutes, in Malaysia. Risk management practices that were the identification, evaluation and selection operations. The study highlights the competency of sports knowledge of risk management practices, the dominant trainees. This review is for a review and a total of 62 respondents were teachers who were students at the Institute of Teacher Education. The findings of the analysis of the reliability and Cronbach alpha reliability individuals is 0.98 (very good) and the reliability of the item is 0-6 showed acceptable levels. After that the exact research by identifying competency knowledge of risk management practices in sport among trainee teachers and researchers determine the dominant factor based on the data analyzed using the Rasch model approach. The findings show that the competences of knowledge are at high level and the dominant element is the identification, selection and assessment operations.
Keywords: Competence Knowledge, Practice Manager, Risk Management Sports, Rasch model.

INTRODUCTION
Excellence of educational institutions, including sports institutions can be seen depending on the extent to which the investment of resources, including human resources to increase their competitive advantage, try to increase with the approach of science and risk management that considers the management concept that the most after seeing the development of knowledge as an important presence in achieving the goals institutions in general and one of the rare and important for mankind in this big world, and consider the development of risk management knowledge among coaches to achieve a new, different and steady (Bafirman, 2014, Schwarz, Hall & Shibli, 2010).

Competency development knowledge of risk management coaches is the identification of acquisition, valuation sharing and selection operations of intelligence, understanding, and expertise in sports organizations to assist in the achievement of the tasks, processes and operations and increase the level of performance and competence through methods and different techniques (Hassan, 2014; Bafirman 2014; Schwarz et al, 2010; and Revilla et al., 2009). Development of risk management competency knowledge of sports is the identification, evaluation, selection and implementation of operations (Hronek and Spengler, 2002; Carpenter, 2000; Fuller, 1999; Mulrooney and Farmer, 1998; and Van der Smissen, 1990).

Competence development of risk management knowledge of sport, is the implementation of the supervision, implementation and execution of training activities/ sports program (Esa, 2014; Craig & Matthew, 2011; and Borkowski, 2010) to ensure a safe sports environment.

Many sports organizations in the world have placed emphasis on competence development of risk management knowledge and strive to improve the effectiveness and performance of their sports organization. Competence development of risk management knowledge, the basic concepts associated with the economy. Competence development of risk management knowledge among coaches rarely emphasized or valid in the community, but essential capabilities and abilities, and personal qualities to be effective in managing the risk of sports exploited to Asian countries such as Malaysia (Stenmark, 2002). According Ehsani and Veisi (2012) risk management practices is a matter that requires new qualified coaches to achieve good performance in risk management for the organization. Female's sports leaders and coaches must be educated in the field of sports and have the training and experience to competently manage risk.

Many experts in the development of risk management competencies sports knowledge among coaches have identified competencies risk management knowledge is a sport that needs identification, setting a goal of recording/ documentation and dissemination of knowledge (Heisig et al, 2001; and Gherardi, 2006). The study aims to determine the knowledge, competencies and skills required by coaches in the performance of duties. Studies such as these have become key research areas in sports management and has gained the attention of many researchers (Barcelona & Ross, 2004; Case & Branch, 2003; Horch & Schuette, 2003; Peng, 2000; Toh, 1997; Jamieson, 1991; Skipper 1990; Kim, 1997; and Lambrecht, 1987). Although the number of research activities in this field of study increased, researchers Toh (1997) and Lambrecht (1987) have stressed the importance of continuing competency assessments required to be implemented effectively in the sports industry's rapidly changing social environment.

Accidents often occur in sports and co-curricular programs. Therefore, female need to master level coach education related to knowledge about risk environments (Chen, 2012; Kim, 1997; Buttel & Flinn, 1978). We can also expect that the knowledge of the environment will be associated with the risk of environmental concerns (Schahn & Holzer, 1990). Hines, Hungerford and Tomer (1986) explain that the individual environmental knowledge will adopt the environmentally responsible. In terms of knowledge, attitude is intermediate variables, and there is a significant relationship between knowledge and actual behavior of self-reported behavior. Therefore, it is better to study the actual behavior rather than relying on behavioral measures alone reported (Kim, 1997). Knowledge competence development of female coaches expressed or implied contained in the individual mind and rely on the experience, skills, institutions and their capabilities in mind, it is available in the form of meaningful information (Hassan, 2014).

Knowledge management among coaches is one of the most innovative and important in increasing efficiency and competence perceptions of risk management in sports organizations. Female leaders need effective risk management competencies to the agreement, the investment capacity for knowledge and power in decision-making related to risk management of sports organizations use human resource capacity to achieve progress and prosperity.

Significant differences have emerged on how to construct knowledge of risk management. In societies forward we see even greater benefits in the development of the knowledge competency risk sports among coaches and the implementation of a higher level, and this interest is less in developing countries like Malaysia, as a topic that does not receive the interest payable from researchers in the field of sports in particular.

THE INVOLVEMENT OF FEMALE IN THE SPORT
The involvements of female in sport are very different from one people by another people as well as among female of a country with other countries. But in the context of world sports, it turns out that the involvement of female is very significant. Female have now been able to escape their commitments or constraints of culture or customs, social, political and religious. Now female athletes have contributed numerous successes in the sport just like the men. Female today play an important role in sports. They have their energy at all levels of sport. They are also active in the field of sports coaching, the development of young athletes, sports management and so on. In addition, female also run a variety of activities and sports facilities and equipment; also have been able to become managers and leaders in sports administration.

Franklin (2008), in the debate on female and physical training, sports and participation in the Olympic Games since 1965 the country has proven harmless sport or physical harm suffered by athletes. On the other hand the benefits of female is a lot better when involved in sports. Franklin (2008) stated that there is no need to create the impression that if female were involved in a physical event, they will look like a man and not feminine. Physical activity is not a threat to femininity or feminine but should be part of its development process.

Due to the many negative responses on female in sports psychology there arises conflict on female. However Snyder and Spreitzer (1978) has shown that the gymnasts have a good psychological well-being. Kane and Greendorfer (1994) in his study stated that personality famous tennis players have a good level of emotional stability, ego strength and have a low frustration level. There are no proven occurrences of loss of feminine traits.

Physical education began to grow and learn to young female of the movement is graceful arms, hands, and head of the movement with music and physical exercises (Lee, 1983). Many private schools for girls have developed a rich curriculum of physical education consisting of activities such as swimming, running, cricket, archery, dance, gymnastics, and horseback riding (Lee, 1983). Until 1833 the academy and seminar for female is the highest learning situation for female, but the inclusion of female remains low in spite of institutional admission requirements does not require any qualification / training (Lucas, 1994). According to Lucas (1994), Oberlin College is one of the first to open its doors to both men and female (Lucas, 1994; Solomon, 1985). Oberlin has been considered a pioneer in educated female three female awarded a Bachelor of Arts in 1841 after the girls have completed the same course of study nine men (Lucas, 1994). From 1880 about one-third of colleges and universities in the United States have implemented some form of physical education and sports between men and female (Lucas, 1994). However, many men and female believe in the need to maintain separate spheres of society and they think education with an aberration (Solomon, 1985).

Disobedience to physical education in mixed classes can be traced back to the ideas of the glory of the nineteenth century femininity as "purity, piety, submission, and household and expectations that attend college will corrode or affect the properties of the feminine" coeds "(Lucas, 1994 , p. 205). Those who support same-sex schooling is often cited their concern for young girls and their exposure to the roughness of small boys (Urban and Wagoner, 1996). However, girls were taught to conduct themselves as young female and with the correct traditional gender roles have been strengthened not challenged in the classroom mix (Urban and Wagoner, 1996).

The nineteenth century ended, growth and much progress has taken place in elementary schools and colleges in the United States. It is estimated that less than one per cent of young female in the United States have attended college in 1870 have not yet twenty years later the number had risen to only 2.5 per cent (Lucas, 1994). Female, for the most part, are not allowed to participate in extracurricular activities sponsored by universities such as clubs, debating societies, music groups, or social and academic honoraries (Lucas, 1994). However, in 1887 a department of physical education in high school was established in Philadelphia, which was the first department of physical education for girls who have special teachers in the public high school in the United States (Lee, 1983). And, around the college in 1898 and more female began to participate in basketball competitions between education institutions and secondary schools participated in basketball competitions Interscholastic (Lee, 1983). It seems to open the way and the opportunity for female to grow academically and in sports.

BACKGROUND
A significant factor in influencing the performance of athletes among coaches (Harter, 1981; Horn, 1985; and Weiss, Ebbeck, McAuley and Weise, 1990). 1981 Harter theory explains that the practice of coaches in identifying risk is a significant element in the development of behavioral performance athletes. athletes who receive a consistent evaluation or consistent and positive than coaches will be able to develop competencies and personal capabilities and athletes improve athletic performance (Harter 1981). This means that coaches who are competent to carry out risk management practices can improve sports performance athletes in the sport and vice versa. They are supported by Smith, Smoll and Hunt (1989), Sander (1981) and Weiss (1987), stating that the behavior of coaches affect cognitive perception and attitude towards the competition athletes in sports competitions.

According to Rothe (2009), the competence of knowledge of risk management practices are among the methods to prevent and protect against problems and can be used to serve as a guideline in the present and future. This knowledge led to the competence of the aspects of prevention, protection and security to the school free of negative elements (Abdul Razak, Ismail and Panting, 2009; Che Lan, 2012) such as injury during sports programs.

Most of the risk management model in the range of risk management of the building, transportation, environment and business (MOE, 2012; Nurman, 2011; Bakhtiar, 2008; HIRARC, 2008; MIROS, 2007; Mohd. Amin, Abdul Ghani and Ab. Latif, 2005; MOE, 2002; Mukhtar, 2001). However, the competence of knowledge of risk management practices of female sports teachers is less emphasized. According Thye (2010), the school management and the Department of Education, which represents employers, has a general responsibility for ensuring the safety and welfare of teachers and support staff, as well as protect students, teachers and visitors.

PURPOSE OF THE STUDY
This study was conducted to determine the competence of knowledge of sport risk management practices among female trainees (CK-SRMP-FT), teacher education institutes (TEI) in Malaysia. Risk management practices that were the identification, evaluation and selection operations.

OBJECTIVES
This research aims to achieve the following objectives:
  i.   Identify the CK-SRMP-FT, TEI in Malaysia.
  ii.   Identifying competencies risk management practices for the sports dominant female trainees.

CONSEPTUAL FRAMEWORK
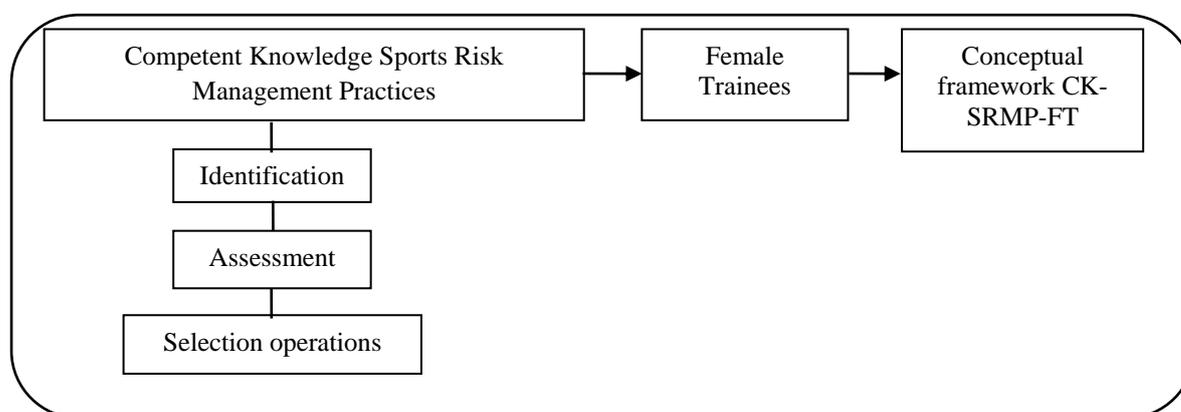
Figure 1: Conceptual framework

METHODOLOGY
This study was a survey done by identifying the research problem, define the objectives and scope of the study.

POPULATION AND SAMPLE
The study population for this research consists of teachers, are under study ITE across Malaysia, which has been selected as athletes representing the ITE, in sports SIPMA. Respondents in this study were 62 trainees have been selected for SIPMA. Because only 62 trainees were involved in SIPMA, researchers use purposive sampling method as described by Tenebaum and Discoll (2005). Researchers have used the entire population of trainees have been selected for SIPMA because the sample meet all the demands and requirements of the study.

INSTRUMENT
The researchers used questionnaires as an instrument for identifying competencies of knowledge of risk management practices sports, for female ITE student teachers in Malaysia. These instruments are validated using the Rasch model approach could consolidate the validity and reliability of the instrument. The findings of the analysis of the reliability and Cronbach alpha reliability individuals is 0.98 (very good) and the reliability of the item is 0-6 showed acceptable levels. According to Bond and Fox (2007) and Linacre (2004), the validity and reliability of the instrument is very important to maintain the accuracy of the instrument prone to defects. The higher the value and reliability level, the more accurate the data obtained in order to produce good research and good quality.

DATA ANALYSIS
In this study, quantitative data were analyzed using the software Winsteps with fully Rasch model approach. According to the Rasch (1980), Rasch measurement model is a model that formed as a result of the measurement that takes into consideration the ability or the ability of the respondents who answered questionnaires, tests or instruments. Analysis was done by looking at the mean score. According to Wiersma (2000), the mean value obtained is used as a yardstick to determine whether learning methods identified to be at high level (3.81-5.00), moderate (2.41-3.80) or low (1.00 – 2.40).

RESULT

Table 1: Analysis of the level of trainees approval to the overall competence of sports risk management.

Label	Competence of knowledge	Mean Score	Level
CKI	Identification	4.26	High
CKA	Assessment	4.20	High
CKS	Selection Operations	4.25	High

Table 2: Analysis of the level of trainees approval, the competence to the identification of sports risk management.

Label	Competence of identification	Mean Score	Level
CKI-LT	Liability and Torts	4.30	High
CKI-EF	Equipments and facilities	4.21	High
CKI-DC	Demographis Coach	4.30	High

Table 3: Analysis of the level of trainees approval, the competence of sports risk management Assessment.

Label	Competence of Assessment	Mean Score	Level
CKA-PC	Professional Circulars	4.10	High
CKA-ID	ISO documents	4.15	High
CKA-ERP	Existing Risk Practice	4.26	High

Table 4: Analysis of the level of trainees approval, the competence of selection operations sports risk management.

Label	Competence of selection operations	Mean Score	Level
CK-C	Communication	4.28	High
CK0-T	Technology	4.17	High
CKO-EMT	Emergency Management and Transportation	4.27	High

DISCUSSION
Based on the analysis, the respondents agreed with all CK-SRMP-FT listed in the questionnaire. Respondents were trainees from Institute of Teacher Education in Sports Education Institute Malaysia 2013. They give high approval to construct practice identification, followed by the selection and evaluation of operations. The findings are in line with Fuller (2007), Van de Smissen (2005), and Kaiser 1986. Risk management practices construct the identification, evaluation and selection of critical operations to recognize and implement the most effective approach for managing the various risks.

Results show that the respondents agreed with the highest level of the identification of appropriate constructs is practiced, namely liability and tort, equipment and facilities, and faculty demographics. This finding is in line

with Van de Smissen (2007) which states that the identification is an on-going process. Mulrooney and Farmer (1998) explains that the identified equipment, facilities, and the demographics of the coach is to prevent and avoid liability and tort actions in the sports program. Hasley (2012) and Tillman et.al (1996) explains that the use of proper equipment and facilities, lockable storage for all the equipment and facilities that are not used are among the strategies that are effective in managing risks. Stephen and James (2012) and Hasley (2012) also emphasizes on a hired coach must be qualified to teach, supervise, comply with regulations and proper risk management procedures.

CK-SRMP-FT through the selection operations of constructs communication, technology, transportation and emergency management approved the second highest of the respondents. The finding is consistent with studies Hasley (2012) and Hronek and Spengler (1997) which states that communication through proper instruction and selecting appropriate activities and surveillance is an important element in the risk management process. Proper instruction by coaches and sports teachers in the program not only helps ensure the safety and welfare of the students but also serves to eliminate the negligent behaviour of the individuals involved. They are supported by Stephen and James (2012) stating the need to undertake a risk monitoring system is operating in either manual or tech in any activity or program participation sport. Attarian (2012) explains that all sports programs must develop basic criteria and technology communication devices such as cellular or satellite phones that are suitable for use as emergency notification or response management consulting, medical or behaviour, in transport logistics and safety program.

The results of analysis of construct assessments SPRM via profesional circular , the ISO and the inherent risk warning also gained a high level of agreement of respondents. This finding is in line with Hasley (2012) and Langley and Hawkins (1999), which stressed that the organizers of events need to be aware of the status of the participants at all times and foresee the potential risks that can occur through selected activities. Coaches also need to enlighten students about the risks behind the activities of certain sports. Van Der Smissen (1990) explains, the organization must have a circular base and a standard as a reference and guide trainers to mitigate and control risks in the sports program. Hasley (2012) and Stephen and James (2012) states, through training programs, risk management, particularly in physical education, problem solving can be done effectively. It is associated with the process of making decisions about personal ability to be an important element to coach in coaching skills to anticipate the risks that may arise from certain sports activities. According Hasley (2012) and McGregor and Associates (2000), the administrator responsible for hiring qualified coaches and ensure that they are properly trained, that all coaches must attend workshops and conferences related duties.

CONCLUSION

Trainee teachers should be competent in risk management practices while on duty to carry out sports activities or certain sports program. Respondents agreed that competency knowledge of risk management practices appropriate to the sport practiced by trainees TEI according to the dominant construct is the identification, selection operation, and evaluation. Competence Knowledge of sports risk management practices of trainees can improve sports programs secure environment and add value to national sports organizations.

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STEERING THE KINDERGARTEN TOWARDS A LEARNING ORGANIZATION

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ABSTRACT

The modern approach to managing kindergartens understands the creation of conditions for continuous learning and development of all employees. It is designed to promote the development of research and reflexive skills of kindergarten teachers as tools for the development of educational practice. This is achieved through participatory action research that allows the conversion of the kindergarten into a learning organization. The development of practice in such an institution coincides with its transformation into an organization that is constantly changing, transforming, and evolving as a consequence of the development of kindergarten teachers' professional competences.

Keywords: learning organization, kindergarten, action research

1. The educational practice of the kindergarten is very complex, multilayered, and unpredictable, and in itself is highly resistant to change. No attempt to develop a practice that disregarded its complexity has lead to success. A curriculum-oriented approach to the development of competences, as promoted by the new Croatian National Curriculum for Early and Preschool Education, which came into force in 2015, requires changes in methods and forms of work. It can be the starting point for thinking and understanding the notion of quality and can encourage them to reflect on the ways in which their quality can develop in their specific conditions. However, good practice in the kindergarten and its curriculum should be developed by kindergarten teachers, through practice, and it is necessary to provide them with systematic support.

2. Domestic and world experiences have shown that short-term and occasional forms of professional learning do not suffice because they cannot lead to more serious changes in the quality of the educational practice and curricula. Effective professional teaching of kindergarten teachers should take place in the real context of the pedagogical work of the kindergarten teacher, i.e. within the kindergarten in which he or she work on a daily basis. It should also have a continuous character. Such a form of professional training of kindergarten teachers in the practice itself is usually associated with their involvement in *participatory action research*. This is an approach to professional development aimed at strengthening research and reflective skills of kindergarten teachers which are necessary to achieve gradual and continuous development of kindergartens "from the inside," which has shown to be very effective in Croatia in the past fifteen years. Such an approach to the development of practice and professional education of kindergarten teachers is gradually removing kindergarten teachers from the traditional role of mere program implementers. Rather, it helps them to create their professional autonomy and assume the role of a "critical intellectual," i.e. a "thinking practitioner."

Traditionalisms in the kindergarten practice can be the result of an outdated educational approach based on the *analytical approach*, and it manifests itself in various forms of process fragmentation. In practice, this means an artificial division of children's activities into areas that would correspond to particular school subjects such as language, math, science, etc. In early education, it is not appropriate to mechanically divide individual segments of the educational process, i.e. to separate them from a whole which includes all other segments. Abandoning this traditionalism in favor of the development of the holistic approach, i.e. the barrier to the path of developing an integrated curriculum, represents a lasting challenge for kindergarten teachers.

Furthermore, the traditional educational process is often shaped according to a strictly defined plan and program. Since the modern kindergarten is a complex system, i.e. a "living organism," the processes within it cannot be fully predicted. Instead, it is necessary to relativize the strength of the planned impacts in the educational process, in order to recognize and support situations that cannot be precisely and fully predicted. Thus, the concept of the *developmental* or *open curriculum* begins with the training of kindergarten teachers to recognize the opportunities for children's activities that occur spontaneously and to encourage them through various forms of indirect support. This requires the development of some new competences of kindergarten teachers, which are needed for systematic observation and understanding of children and their activities.

Kindergarten teachers should "embed" their educational activities in a multitude of unplanned situations that are naturally occurring.

The development of the kindergarten's educational practice includes the questioning of the existing understanding of children's learning. Abandoning the traditional understanding of knowledge as something static, which can be transmitted to children simultaneously and in a unified way, is the next challenge for kindergarten teachers on the path to realizing the contemporary curriculum. In shaping the contemporary curriculum, the kindergarten teacher is not a knowledge carrier and does not treat the child as a passive recipient. Contemporary education focuses on encouraging the child to contemplate and create new values and knowledge based on reflection rather than memorizing and repetition of the already existing knowledge. The child does not treat this knowledge as something that is adopted, but as being created in the mind of each individual, representing ultimately the personal, authentic construction of the person who is learning. Such a curriculum is realized through a rich, pedagogically prepared environment, and a quality social context that enables a child to engage in diverse social interactions with other children, as well as an unobtrusive but supportive approach for kindergarten teachers. And finally, the great challenge for kindergarten teachers in the process of building a contemporary curriculum can be the requirement to abandon any form of manipulation of children in favor of their autonomy and emancipation. The essence of such a practice is the self-determination and self-actualization of a child who is considered equal to a participant in the process of mutual learning with other children and adults.

 Collaboration, joint learning, and including kindergarten teachers into professional learning communities have an invaluable role in the development process of the curriculum. Professional learning communities are aimed at encouraging kindergarten tachers and all other subjects of the educational process to continuously exchange their professional expertise, insights, and knowledge as the basis of their mutual learning. Regular meetings, i.e. common discussions of kindergarten teachers at which they share their professional experiences and knowledge, and thus continuously build new ones, shape the "soul" of all professional learning communities. The aim of such exchanges is to deepen the understanding of the child, the overall educational process, and one's own role in its design as the basis for the development of the contemporary curriculum.

A few years ago, we started with a participatory action research exercise in the kindergarten Limač in Zagreb, so that together with kindergarten teachers and other kindergarten staff we could better acquaint ourselves and gradually develop the quality of their practice. We have been trying to help kindergarten teachers to recognize and eliminate different traditionalisms that do not correspond to the contemporary knowledge of early childhood education and learning. We felt that the quality of kindergarten practice cannot be developed by educating kindergarten teachers about what they should be doing. Instead, we have been trying to provide them with support to develop self-assessment tools and find out what makes their current practice good and what needs to be changed. Because, no one will change what he or she already believes is good.

 It would be much quicker and simpler to organize the entire educational process and children's activities in advance based on a strict plan. But this would deny us the opportunity to support the children in those activities that truly interest them, and which often start independently. And at the same time, children would be denied the opportunity to experience being in the role of co-creators of such activities if they were fully planned by adults in advance. As our kindergarten practice has developed, our role has been increasingly seen in creating the conditions for quality activities of children rather than in the precise planning of the activities themselves. In fact, we are increasingly coming to realize that we want to develop the kind of kindergarten in which the voice of children is heard and appreciated.

Over the last couple of years we have been conducting action-based participation research in the kindergarten Limač. This research has been led by the idea of connecting university researchers and researchers-practitioners from kindergartens with the aim of jointly building a better education theory and practice. In that sense, we are gradually turning into a professional learning community, which results in the professional development of all kindergarten staff and a continuity of building quality education and curriculum. It is a systematic development of institutions in the direction of creating innovative educational practices. The kindergarten stimulates and enhances the work of kindergarten teachers who are becoming more competent in the practice of new approaches, which are achieved through the exchange of understanding, knowledge, and experience. Thus, over time, the number of kindergarten teachers who are competent in the pursuit of innovative practices is increasing. They are capable of achieving meaningful impact on practice rather than take actions that create the illusion of improvement, but are superficial and do not reach the very core of that practice.
The aim of this kind of work with kindergartens is to create a community of critical, self-reflective agents that can change the practice on a much greater scale than the individual, and can gradually create a new, more humane, and more democratic educational policy. It enables participants to move from the lack of freedom and limitations toward freedom, autonomy, equality, cooperation, and promotion of democracy. It also leads and establishes self-critical communities of people working to free themselves from personal and institutional constraints that reduce their ability to live legitimate human and democratic values. That is why the ultimate

consequence of action research is much wider than the improvement of one kindergarten's educational practice. On the contrary, it is about developing kindergartens into professional learning communities whose participants connect and support each other in continuous learning and professional development based on strengthening their professional autonomy and emancipation. We can say that the ultimate goal is to develop a culture of self-reliant persons who are continually learning, both adults and children.

STRATEGIES ADOPTED BY ESP STUDENTS TO PERFORM ORAL PRESENTATIONS THROUGH VIDEOS

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ABSTRACT
This work aims at identifying the strategies that generate major differentiation in use among students enrolled in Technical English I and Technical English II, before, during, and after the development of video-based oral presentations. Sixty-nine students took part in the study. They recorded one video per week for over ten weeks. Those students who had recorded at least seven videos were considered for the study. The participants completed a questionnaire that was composed of forty-six Likert Scale items indicating strategies that students could apply before (24 items), during (14 items), and after (8) the recording of the videos. In the questionnaire, students reported the frequency with which they used those strategies. The data was analyzed by conducting an analysis of variance. The results show that the strategies for the recording of videos with significant differentiation in the population under study are the following. Before: the elaboration of storyboards, detailed review of the content, content rehearsal, memorization, and pronunciation of words practice. During: utilization of examples to illustrate ideas, use of mother tongue, repetition strategies, circumlocution, and recording the presentation several times. After: Comparison of their performance in the videos with their performance in previous videos. Students enrolled in Technical English I used more strategies than the ones enrolled in Technical English II.
Keywords: ESP students, videos, strategies, self-regulation, oral presentations.

INTRODUCTION
The most difficult skill to master in a foreign language context is the speaking ability due to the lack of exposure that English as a Foreign Language (EFL) students have to a fluent English speaking setting (Allen, 2016; Sarwar, Alam, Hussain, Shah, & Jabeen, 2014). No matter what a wonderful learning environment a teacher creates in their EFL class, whenever students listen to the word: Speaking, they panic. Their anxiety levels rise and they start to hesitate about their abilities (Fahim, 2016). Due to this fact, instructors seek different strategies to enhance students' speaking skills, among the most commonly used ones are video-making and small group

projects. Besides improving learners' speaking skills, these activities help teachers reduce learners' stress level since they have an opportunity to practice several times before presenting an oral assessment (Nazhnur, 2016).

Similarly, language learners use different strategies for the development of activities assigned by their teachers or when they are learning the language by themselves. The application of such strategies can be done consciously or unconsciously. For the purpose of this study, the authors have classified the strategies reported in existing literature into two main categories: Speaking strategies used before, during and after the development of oral activities and summarizing and analyzing content strategies.

Speaking strategies
Regarding speaking skills, there have been plenty of studies (Gallagher-Brett, 2007; Zhang & Goh, 2006; Allen, 2016; Fahim, 2016; Nazhnur, 2016) that analyze the strategies selected by students to improve this ability. For instance, it has been reported the use of the following strategies *before* the performance of speaking activities: 1) write prompts as a guide, 2) double check their pronunciation, 3) ask for the help of more knowledgeable people, for example, their family, friends or teacher. 4) say words out aloud before a presentation, 5) imitate spoken materials, 6) spend time working on grammar, 7) speak aloud, 8) speak in their heads, 9) read or watch videos 10) use mind maps as a preparation for their speaking performance, 11) rehearse, 12) repeat, 13) ask questions, 14) draft, 15) use video recordings, and 16) memorize.

The studies conducted by Zhang and Goh (2006), Nazhnur (2016), Yen, Hou, & Chang (2013), Fahim (2016), Karbalaei and Taji (2014), Salehi, Ebrahimi, Sattar & Shojaee (2015), and Rabab'ah (2013) show evidence of the following speaking strategies used by success-oriented students *during* speaking activities: 1) mentally correct verbal errors, 2) pay attention to their grammar, 3) use words with similar meanings in English, 4) use of examples to explain an idea, 5) read from a script, 6) watch themselves speaking English, 7) peer-to-peer correction to enhance their pronunciation and word choice, 8) self-monitoring, 9) switch to the mother tongue, 10) use mimes or gestures, 11) use a circumlocution -an indirect way of saying something, 12) coin words by participants adjusting or approximating the message, 13) word reduction, 14) use of definitions to describe an unknown word, 15) pronunciation awareness, 16) self-repair, and 17) repetition strategies.

In regard to strategies applied *after* students´ speaking activities, research indicates that EFL students apply a few strategies. Findings in Fahim (2016) and Yen, et al. (2013) suggest the use of the following strategies in this stage: 1) compare their first and last performance, 2) learn from their mistakes, 3) self-evaluate, and 4) reflect on their speaking experience.

To exemplify the use of strategies for the development of oral performance in language learners in depth, we cite Rabab'ah (2013) and Yen, et al.´s (2013) works. Rabab'ah´s (2013) found self-repair and repetition strategies in the oral discourse of German and Jordanian EFL learners who had to retell a story after reading it for an hour. Students used repetition as a resource to obtain a bit more time while retrieving a specific word to carry on with their stories. The participants also applied self-repair strategies when they realized they had made a mistake by adopting a different manner to explain their ideas, yet they were not always successful due to the lack of linguistic resources.

Yen, et al. (2013), on their hand, conducted a study with 42 university students from Taiwan attending to an English conversation course. These learners did a role-play task using Skype where they had to create a business scenario. The procedure was divided in 3 stages: the teacher preparing students for their role-play; practicing the conversation in class small groups; and, a Skype session between classmates performing the activity (role-play). As part of the qualitative results, the researchers noticed the existence of a common theme: peer-to-peer correction. The students helped each other by correcting the pronunciation or eliciting a missing word in their discourse. As a consequence, students learned from their mistakes and helped others notice theirs. The overall result showed this strategy as a meaningful experience that was also supported by the quantitative data which showed a significant improvement in the reduction of speaking errors from the pre-stage to the post-stage.

Summarizing and analyzing content strategies

After reviewing the strategies used by EFL students before, during and after their speaking performance, it is important to present their approaches regarding summarizing and analyzing content. Throughout the analysis of the literature, the following strategies emerged from the research works conducted by Gallagher-Brett (2007), Grünewald, Yang, and Meinel (2013), Marzuki, Prayogo, and Wahyudi (2016): 1) Students go back to their book annotations, but also other media formats, like images, or even links; 2) they interpret, weight and reflect on the content; 3) they participate in discussions and forums; 4) they ask referential questions; 5) explain their reasons and or ideas; 6) answer their friends' questions, and 7) help or ask for help from each other.

The aforementioned sections include a list of commonly used strategies reported by students and registered by researchers in the field when developing speaking activities. In this work, we intend to identify which strategies generated major differentiation in use among students enrolled in two ESP courses (Technical English I and Technical English II), before, during, and after the development of weekly video-based oral presentations. Specifically, the study intends to discover which strategies were significantly preferred inside each group of learners and which learners, whether those enrolled Technical English I or the ones enrolled in Technical English II, used more strategies for the accomplishment of the speaking task assigned week after week.

METHODOLOGY
Setting, Participants, and intervention process
The study was conducted at a public university in Ecuador, during the first academic semester (May-September) of the 2017-2018 school year. The participants of the study were 69 out of 94 students enrolled in the Technical English I (42 students) and Technical English II (27 students) courses offered in the Business Management major. 40 were female and 29 were male. The participants´ average age was 22.10, ranging from 20 to 30 years old. The students participated in the study voluntarily.

The participants developed one video per week for over ten weeks, between May and part of July 2017. In the videos, which were the outcome of their autonomous work, the participants recorded themselves performing an oral presentation of the content they studied in class in the previous week. The content of the video-based oral presentations consisted of the description of key concepts studied in class. Students who had developed at least seven videos up to when the data was collected we asked to volunteer for the study. This was the first time that both groups of learners developed this task.

Data collection period, Instrument, and analysis procedure
Data were collected between the last week of July and the first week of August 2017. A structured questionnaire was developed to identify the strategies that generated major differentiation in use among the participants of the study, before, during, and after the recording of the video-based oral presentations. The questionnaire was composed of items that asked about participants` age and gender and three Likert scales (see Tables 1, 2, and 3).

The three Likert scales contained items that required participants to indicate how often (*always, sometimes, rarely,* or *never*) they applied a set of strategies of self-regulatory nature before (24 strategies), during (14 strategies), and after (8 strategies) the recording of their video-based oral presentations. The participants completed the questionnaire via Google forms. Three external researchers validated the instrument. They revised it and reported the effectiveness of each item. Items were removed or restated, depending on the suggestions of the experts. The data were analyzed by conducting an Analysis of Variance using the IBM statistical software SPSS 22.0.

Ethical considerations
Informed consent was taken from the participants to assure the compliance with ethical protocols. Anonymity of participants` identity was guaranteed by having students complete the instruments without including their names on them.

Table 1: Pre-video recording strategies

N	To do the oral presentations through the videos:	Always	Sometimes	Rarely	Never
1	I pay attention to the way my teacher or other good speakers of English express themselves.				
2	I take notes about what is being explained in class.				
3	I make sure that my notes are clear and correct.				
4	I question my teacher about the material presented in class.				
5	I identify key ideas of the content studied in class.				
6	I review the content studied in class meticulously.				
7	I investigate about the topics studied in class in sources other than the ones provided in class.				
8	I organize the ideas of the content I am going to explain in the videos.				
9	I create a storyboard (outline in pictures) of my presentation.				
10	I ask for the help of more knowledgeable people (peers, family, friends, teacher, etc.) to organize the material/content of my presentation.				
11	I do a benchmark of what I am going to present with other classmates.				
12	I present a draft of what I am going to present to the teacher before recording my video presentation.				
13	I write scripts about what I am going to say in the video directly in English.				
14	I write scripts about what I am going to say in the video in Spanish and then translate them into English.				
15	I plan my performance in the video.				
16	I rehearse what I am going to explain in the presentation.				
17	I memorize part of what I am going to say in the video.				
18	I memorize everything I am going to say in the video.				
19	I practice the pronunciation of words.				
20	I double check the pronunciation of words.				
21	I ask more knowledgeable peers to evaluate my presentation before I record it.				
22	I simulate presentations to control timing.				
23	I run simulation presentations to evaluate my speech and the clarity on my subject.				

24	I make changes based on the simulated presentations.

Table 2. During-video recording strategies

N	While I video record the oral presentations:	Always	Sometimes	Rarely	Never
1	I mentally correct grammar, vocabulary, or pronunciation errors.				
2	I monitor (ask myself whether what I am doing is correct or not, whether it makes sense or not, whether I am reaching the objective of my presentation, whether I need to change something) the progress of my presentation.				
3	I have other people to monitor my presentation.				
4	I use examples to illustrate my ideas.				
5	I use definitions to describe words.				
6	I use mimes and gestures to make myself clear.				
7	I use self-repair to make ideas clear.				
8	I read from a script.				
9	I use synonyms when I forget some words.				
10	I switch to my mother tongue when I forget something.				
11	I improvise when I forget certain ideas.				
12	I use repetition strategies when I forget something.				
13	I use circumlocution to explain things.				
14	I record my presentation several times until I feel it is ready.				

Table 3. Post-video recording strategies

N	After I video record the oral presentations:	Always	Sometimes	Rarely	Never
1	I self-evaluate my presentations.				
2	I have more knowledgeable people (peers, friends, family, etc.) to evaluate my performance in the presentations.				
3	I list the pronunciation mistakes I have made in the videos.				
4	I list the vocabulary mistakes I have made in the videos.				
5	I list the grammar mistakes I have made in the videos.				
6	I compare my performance in the videos with my performance in previous videos.				
7	I compare my performance in my videos with the performance of my peers in their videos.				

8	I reflect on my speaking experience through the video presentations.

RESULTS

We performed an analysis of variance to a set of forty-six self-regulatory strategies that students used before, during, and after the production of their video-based oral presentations. The ANOVA enabled the identification of those strategies that produced a significant difference for the two groups of participants as reported in the F values and Degree of Significance for each group of strategies (see Tables 4, 5, and 6).

Table 4. ANOVA of pre-video recording strategies

Groups	Strategies	Sum of squares	df	Mean square	F	Sig.
Technical English I	Reviewing the content studied in class meticulously.	6,117	6	1,019	3,404	,010
	Rehearsing what is going to be explained in the presentation.	2,792	6	,465	2,483	,043
	Memorizing of part of what is going to be said in the video.	9,500	6	1,583	3,507	,009
	Practicing the pronunciation of words.	4,950	6	,825	2,486	,043
Technical English II	Creating of a storyboard (outline in pictures) of the presentation.	11,744	5	2,349	2,915	,038

From the set of twenty-four pre-video recording strategies, we could identify that the strategies that caused higher differentiation in the learners enrolled in Technical English I are associated with the detailed revision of the content that students learned in class; rehearsal of what is going to be explained in the video; memorization of certain parts that will be discussed; and, practice the correct way to say words. On the other hand, the responses of students enrolled in Technical English II showed an important tendency of this group towards the creation of storyboards (outline in pictures) of their presentations before developing their task.

We can clearly see that students enrolled in the beginning course (Technical English I) required more preparation prior to producing the task, therefore, resorting to more self-regulation strategies; this confirms the findings of Gallagher-Brett (2007) and Zhang & Goh (2006). The need for more strategies is acceptable as students have a low command of the language, implying that they need more practice before their final outcome is produced, and even requiring memorization. On the contrary, students with a higher command of English used fewer strategies (one in this case). This is in tune with Griffiths´ (2003) findings, who determined that New Zealand language learners with a low proficiency level used more social, cognitive, compensation, and metacognitive learning strategies than those learners who held a higher English proficiency level. A possible explanation for this event can be the learners´ level of confidence in regards to their English knowledge, command of the content, and capability to do the task.

Table 5. ANOVA of during-video recording strategies

Groups	Strategies	Sum of squares	df	Mean square	F	Sig.
Technical English I	Recording the presentation several times until feeling it is ready.	9,292	6	1,549	2,735	,029
Technical English II	Using examples to illustrate ideas.	7,467	5	1,493	2,977	,035
	Reading from a script.	19,467	5	3,893	7,300	,000
	Switching to one´s mother tongue when something is forgotten.	8,374	5	1,675	3,800	,013
	Using repetition strategies when something is forgotten.	8,207	5	1,641	2,611	,055
	Using circumlocution to explain things.	8,411	5	1,682	3,684	,015

Regarding the strategies used by the learners during the recording of their video-based oral presentations, we found that out of the fourteen self-regulation strategies selected for this study, recording the presentation several times until feeling it is ready is the strategy that caused a significant differentiation in students enrolled in

Technical English I. We believe that students have a high inclination towards this strategy due to their English proficiency level. Since they have a poor knowledge of English, they need more time to develop the task appropriately and the tiniest mistakes or knowledge gaps can cause them to repeat it. Another possible explanation for this finding could be, as reported by Zhang & Goh (2006), student lack of knowledge about how to use strategies in this phase.

Using examples to illustrate ideas; reading from a script; switching to their mother tongue and using repetition strategies when they forget something, and using circumlocution to explain things are the strategies that according to the statistical analysis of the students´ responses generated a significant differentiation in students enrolled in the Technical English II course. Conversely to the results reported for this group of students in the pre-video recording strategies, in this stage of the development of the task we notice that students use a higher number of strategies. Again, we attribute part of this outcome to the English proficiency knowledge of students. Due to they have more command of the language, they have more linguistic resources to illustrate or explain their ideas. In this case, we see students´ recurrence in use of supporting materials (scripts) which is certain sense is negative. It denotes students need for pre-video recording strategies more consistently.

Table 6. ANOVA of post-video recording strategies

Groups	Strategies	Sum of squares	df	Mean square	F	Sig.
Technical English I	Comparing one´s performance in the videos with his/her performance in previous videos.	15,008	6	2,501	2,952	,020

Similar to Fahim (2016) and Yen, et al.´s (2013) findings, after the development of their tasks, language learners who participated in this study showed the fewer use of self-regulation strategies. However, as seen in Table 6, the responses of learners enrolled in the Technical English course indicated a high level of significance in regards to the comparison of their performance in the videos with their performance in previous videos. We believe that this group of students tend to compare their performance as they need to self-evaluate their outcomes to develop the task appropriately. Their need for comparing their production is closely connected to the tendency of this group to recording their presentations several times until feeling they are ready, which was reported as a highly significant strategy during the recording of their video-based oral presentations. The responses of students enrolled in the Technical English II course showed no relevant differentiation in the strategies evaluated.

CONCLUSIONS

The purpose of this study was to identify the strategies that generated major differentiation in use among students enrolled in Technical English I and Technical English II, before, during, and after the development of video-based oral presentations. The results of the study bring us to conclude that the strategies that generated major differentiation in use in both groups of language learners depend on their command of the learners.

Students with a higher level of English (Technical English II) strive less to prepare for the oral presentations. But, they apply more strategies while recording the video. This result illustrates that students feel more confident to perform the oral presentations, therefore, they mainly create storyboards to follow their presentations. On the opposite, students with a lower level of English (Technical English I) struggle more to prepare for the oral presentations. Their English level forces them to do more things (apply more self-regulated strategies) to perform well in the task.

Regarding the strategies applied during the recording of the videos, low proficiency level learners take more time to submit their final product as they repeat their videos many times. This, in turn, prompts these learners to develop a sense of self-evaluation as they feel the need to compare the progression of their performance in their own videos. Foreign language teachers should consider these findings in order to support the learning process of their students. They should also reflect upon whether leaners do not use certain learning strategies with high concurrence due to their lack of knowledge about how to use them or not. If the answer is yes, then they should seek for ways to teach students to use those strategies, therefore, inducing them to take ownership of their learning process and become autonomous learners.

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STRESS AND MINDFULNESS IN THE TEACHING PROFESSION

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Stress and Burnout are highly prevalent in the teaching profession. Mindfulness-based interventions have proven to reduce stress. Whether this effect will hold in the group of working teachers is an open question. With regard to specific job-related demands, the posterargues for an integration of the working mechanisms of mindfulness into a well-established stress model of Lazarus (1984). Furthermore a sample of 22 German teachers who participated in mindfulness courses provided data on the question of how the course had helped them for their professional activity. Results show that most of them (N = 18) could benefit, mainly by being more self-aware, showing a flexibility of judgments and taking time to relax.In accordance with the presented model these results underline the importance of cognitive processes in coping when mindfulness practices are concerned. Theself-report data and the theoretical model provide a ground for behavioral research (e.g. of decision-making situations) which is lacking at the moment.

STUDENTS' CONCEPTUAL UNDERSTANDING AND ACHIEVEMENT IN ALGEBRA USING MATHEMATICAL PATTERNS

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ABSTRACT

The purpose of this study was to determine the influence of mathematical patterns on the student's performance in terms of conceptual understanding and achievement in college algebra and their perception towards the use of mathematical patterns. The study used the pretest-posttest quasi-experimental-control group design. Two sections were randomly chosen from the five sections that were officially enrolled in the first semester of school year 2014-2015. One group was randomly assigned as the control group and the second one as the experimental group. The control group had undergone the lecture-discussion while the experimental group underwent mathematical patterns. The study used three instruments: Mathematics Achievement and Conceptual Understanding Tests and the Interview Guide Questions. The performance of both groups of the students in the pretest and posttest were described in terms of the mean and standard deviation. The analysis of covariance (ANCOVA) was used to determine the effect of two teaching methods. Based on the analysis of the study, the results revealed that there was a significant difference in the student's achievements and conceptual understanding scores as influenced by the teaching method which is the use of mathematical patterns. Furthermore, he students in the experimental group expressed that mathematical patterns was enjoyable and interesting because it allowed them to develop their critical thinking and made mathematics learning easier for them. Based on the findings of the study, the researcher concluded that the use of mathematical patterns is an effective method of teaching in improving students' achievement and conceptual understanding. The researcher recommends that mathematical patterns may be used by mathematics teachers in their classes to help improve achievement and develop conceptual understanding even to pre-school, elementary and secondary levels.

Keywords: mathematical patterns, achievement, conceptual understanding

INTRODUCTION

Many students at the present are unable to continue college education after completing high school due to financial instability, early marriage and other family issues. Based on the initial investigation and interviews, many of the students who are enrolled in St. Rita's College of Balingasag come from the colleges and universities of Cagayan de Oro City, citing financial constraints as one of the major reasons for this move. In addition, the students' profile show that some are drop outs, transferees and some have started college education late due to the same reason mentioned earlier.

Learning mathematics requires a continuous process of acquisition of knowledge and critical thinking skills. Knowing the present set of students, acquisition of mathematical concept may be interesting and enjoyable if done through investigation of patterns that requires them to think deeply and critically for better conceptual understanding. This is necessary because of the abstract nature of mathematics.The patterns studied by mathematicians are for all practical purposes and as real as atomic particles studied by physicist (Fi, Degner, 2012). Pattern recognition is a critical component of success in mathematics. Students at all levels may be provided with opportunities to investigate and uncover patterns throughout their mathematical careers to allow them to explore situations because pattern recognition plays a vital role in the construction of important mathematical model (Quinn, 2005).

Moreover, the use of patterns is important in the abstraction of mathematical ideas which involves observation, representation and investigation of arrangements and relationships in social and physical phenomena and between mathematical objects themselves (Waters, 2004; English, 2004). It is essential for students to learn the nature of mathematical patterns for the development of spatial awareness, sequencing and ordering, comparison and classification of ideas. Thus, the development of pattern – based thinking, the use of patterns to analyze and solve problems is an extremely powerful tool for doing and understanding mathematics.In addition, the world trend for quality instruction is increasing because of global competitiveness. This requires high cognitive demand mathematics instruction because the National Mathematics Advisory Panel (2008) has noted that the differences in instruction lead to significant differences in student's achievement. Thus, the importance of high quality instruction that model a critical thinking classroom learning process is very necessary. The high cognitive demand instruction requires teachers who could design a comprehensive and engaging teaching – learning environment which uses effective visuals to help learners with a wide variety of learning styles to develop a strong conceptual understanding of mathematical concepts (Galvez, 2009) through patterns.

The use of patterns have shown promising effect on students' achievement which challenge the researcher if it will work among college students in St. Rita's College of Balingasag, hence, this research.

LITERATURE REVIEW
Mathematical Patterns

The Open University (1988) website stated that imagery is a powerful force for perception and understanding. Being able to "see" something mentally is a common metaphor for understanding it. An image may be of some geometrical shape, or of a graph or diagram, or it may be some set of symbols or some procedures. This means that if you really want to grasp a concept or idea, struggling to visualize is worthwhile. Diagrams or symbols on paper, or physical apparatus are of help. Image of geometrical shape among mathematical models use patterns. The geometric setting for many pattern problems is a sequence of two-dimensional shapes, which is ideally suited to support the recognition of algebraic patterns. Thus, geometric problems help students progress from predicting numerical patterns to expressing algebraic generalizations (Beigie, 2011).

Witzel (2003) and his colleagues conducted a study on students identified as having difficulty in learning algebra. The study found out that student who learned how to solve algebra transformation equations through concrete – pictorial approach (CPA) scored higher on post instruction and follow-uptests than the control peers receiving traditional instruction. Furthermore, students who used the concrete-pictorial approach sequence of instruction performed fewer procedural errors when solving for algebraic variables. This study has bearing with patterns.

Thornton (2001) points three reasons to re-evaluate the role of visualization in school mathematics: (1) mathematics is currently identified with the study of patterns; (2) visualization can often provide simple and powerful approaches to problem solving; and (3) teachers should recognize the importance of helping students develop a repertoire of techniques to approach mathematical situations.

Schulz (2011) said that students need to understand patterns, relation and functions to form mathematics concept. They should know how to analyze mathematical situations and structures using symbols; mathematical models to represents and understand quantitative relationships and analyze change in various contexts. A strong foundation in algebra is deemed necessary in the high school level and it is an important indicator in determining the readiness of students; however, the present study did not only consider patterns in algebra, but also other areas of mathematics like geometry. Furthermore, Vinogradova (2010) added that geometry can be used to help students visualize and better understand broad range of mathematical concepts through patterns.

Beigie (2011) found out in his study on the leap of patterns that geometric counting problems offer students a concrete and pictorial setting to follow the abstraction process from number patterns to algebraic expressions. It also allows them to solve problems because the underlying geometry is assisting the algebraic steps. He added that pattern recognition through counting lies at the foundational heart of algebraic thinking and geometric measurement and connects the two topics in a way that reinforces one another.

Latonio (2006) recommended in his exploratory study on students' learning readiness of algebra that the mathematic curriculum need to be expanded to include pattern recognition and extension which entail strategies other than counting. Furthermore, relations between objects and numbers need to be focused while the concept of the unknown need to be introduced through varying symbols used in arithmetical expressions and sentences.

The ability to evaluate numerical expressions using patterns and relationships is fundamental if students are to move from merely exploring patterns withy finite cases to describing patterns with symbols. This is a key element of making a successful transition from arithmetic to algebraic reasoning. Pattern exploration task gives the students opportunities to apply he algebraic rules and properties to familiar numerical expressions (Lo and Tsai, 2011).

Pattern exploration tasks may contribute to the development of abilities related to problem solving, through emphasizing the analysis of particular cases, organizing data systematically, conjecturing and generalizing. The Principles and Standards for School Mathematics (NCTM, 2000) acknowledges the importance of working with numeric, geometric and pictorial patterns. Thus, instructional mathematics programs should enable students to engage in activities involving the understanding of patterns, relations and functions (Barbosa, et al., 2007).

The focus on pattern exploration is frequent in the recent approaches o the study of algebra. The search for regularities in different contexts, the use of symbols and variables that represents patterns and generalization are important components of the mathematics curriculum in many countries (DEB, 2001). Working with patterns may be considered a unifying theme of mathematics teaching, appearing in different contexts and contributing to the development of several concepts (NCTM, 2000). In this research, the use of pattern exploration tasks has the main purpose of setting the environment to analyze the impact of the use of visual strategies in generalization.

Patten generalization has become an important feature of mathematics classrooms around the world. Sometimes these activities focus purely on given numerical terms, but the use of pictorial and figural patterns is now becoming part of the standard repertoire for such generalization exercises. From a pedagogic point of view, the investigation of pictorial patterns potentially allows for a meaningful way of arriving at and exploring algebraically equivalent expressions of generality. Thus, teachers still need a tool box of pedagogical strategies which they can draw on to encourage visual engagement with the pictorial context. Also, teachers should encourage visual engagement with patterning activities presented in a pictorial context (Samson, 2012).

Awareness of Mathematical Pattern and Structure (AMPS), which generalizes across mathematical concepts, can be a reliable measure and is correlated with general mathematical understanding (Mulligan and Mitchelmore, 2009). Because the concrete experience that these objects provide, it allows students o have a greater understanding of mathematical concepts which becomes the basis of their conceptual mathematical knowledge.

Cockcroft (1995) summarized that mathematics teaching at all levels should include opportunities for: a) exposition by the teacher, b) discussion between teachers and students, c) discussion among students, d) appropriate practical work, e) consolidation and practice of fundamental styles and routine, and f) problem solving investigation. The idea of Cockcroft is related to the present endeavour since the nature of patterns is similar to investigation process.

Conceptual Understanding and Achievement in Mathematics

The Common Core Standards in Mathematics (CCSM) stressed the importance of conceptual understanding as a key component of mathematical expertise. One hallmark of mathematical understanding is the ability to justify, in a way appropriate to the student's mathematical maturity, why a particular mathematical statement is true or where a mathematical rule comes from (Wiggins, 2014).

In the analysis of college students' performance at Divine Word College of Vigan, Cajindos (2010) recommended that there should be a thorough explanation of the subject matter through remedial classes for students. Teachers should be inspired and should motivate the students to love the subject to strengthen the attitude towards the subject. The teachers should also be updated with the recent trends and techniques in teaching mathematics to help improve students' conceptual understanding.

Ben-Hur (2006), Steffe and Thompson (2000) posited that learning mathematical concepts involves reflection. Learning new concepts starts from sharp perception and ends in the independent ability of application. This concept is somewhat related to learning by doing on which activities may be done by students after the concept is introduced. In patterns, to learn mathematical concepts and connect the previously learned concept to new situation needs reflection.

In the study of Tsai (2010) about the epistemological relationships on students' beliefs and perceptions of constructivist learning environments where they could (1) interact and negotiate meanings with others, (2) integrate their prior knowledge and experiences with newly constructed knowledge, and (3) meaningfully control their learning activities. The main thrust of the findings drawn from this study indicates that teachers need to be very aware of students' epistemological orientation towards their mathematical knowledge and conceptual understanding to be able to complement these preferences when designing learning experiences, especially to provide constructivist-based lessons to enhance mathematics learning for students who are epistemologically constructivist oriented. The use of pattern in teaching is a constructivist – based approach, and may be of help in improving the students' conceptual understanding.

Mathematics achievement is an assessment of performance to evaluate learning after giving instruction. Lambitco, et al. (2007) conducted a study to determine what factors affect students' achievement in college algebra. The results revealed that students achieve less in mathematics because it is regarded as a difficult subject and is abstract in nature. Their foundation in high school mathematics needs to be really good in order to be ready for college work. The students' mathematical ability must be high in order to obtain good performance in college algebra because learning mathematics is directly related to mathematical ability. They did not obtain the required mastery in the mathematical concepts, which they needed to possess upon entering college. The teaching methodologies related to the students achievement and mastery of mathematical concepts, thus using patterns in teaching may be appropriate for concept building.

Quimbo (2003) believed that education includes measures of the home learning environment and school inputs appropriate at the students level. Results suggest that by effectively providing basic learning materials in schools can help improve the mathematics achievement in the present endeavor as well as future life activities.

The Principles and Standards for School Mathematics recommended the use of materials in mathematical problem solving (NCTM, 2000). Japona (2000) also mentioned that teachers who teach with materials bring life to the students. It can reinforce, if properly motivated, on the students' achievement in understanding the abstract nature of mathematics. If students lack understanding of concepts, they are unlikely to construct the desired algebraic ideas. In his study on visual approach in teaching, it was revealed that visual approach was more effective in increasing g students' achievement than the traditional approach. The use of patterns is related o visual approach as a material in teaching mathematics because it includes pictures or images which will be observed by the students and discover the algebraic concept behind.

In addition, the study of Dadole (2007) on the use of structure representations revealed that the achievement scores of students who used structured representations were as good as students who did not use the faction strips. However, it has a significant effect on the retention scores of the high school students in mathematics. Patterns, like structure representation is another type of material which is used in teaching to help improve students' achievement and understanding.

Furthermore, in the study using a manipulative model conducted by Agot (2013), it showed that the use of model is better than that of the lecture – discussion method because it facilitates higher order thinking skills and provides students with high content knowledge, which is an effective and feasible option for teachers. The use of manipulative promotes high mathematics achievement among students since it can provide useful and concrete base in doing symbolic work including the equivalence of algebraic expressions. Manipulative models are like patterns. Only, his models are concrete while patterns use pictures, drawing, sketch and illustrations.

Perceptions

Algebra uses symbols for generalizing arithmetic. These symbols have different meanings and interpretations in different situations. According to Kieran (1992), students have different perceptions about these symbols, letters and signs. The study has revealed that the problems encountered by the students appeared to have connection with their lack of conceptual knowledge and it might have been result of teaching they experienced in learning Algebra at the secondary schooling level. In patterns, students encounter symbols and signs where perception is measured. This gives them opportunity to make connections from their previous understanding to the present.

Amoo & Rahman (2004) said that students' participation in the instructional process is critical and their perception presents methodological challenges. The knowledge of the way the students think and perceive can aid the teacher to reflect upon and adjust the teaching strategies to enhance students' understanding and achievement. Perception is the way the student's judge, or it is an attitude to an idea or object which determines what they think feel and behave towards that idea or objects. His has something to do with a disposition to act or react in a particular way as the students respond to a situation. In this study, students were asked to give judgment about their experiences with the use of patterns.

Kershner &Pointon (2002) pointed out that students' perceptions of appropriate practices that enable them to succeed in learning mathematics were identified through the use of interviews. Listening to the teacher was recognized as a key practice. These students noted that listening to the teacher was important when the teacher was introducing a new topic, explaining something difficult or giving instructions about a set task. They recognized that to be successful in learning mathematics there is a needed to do more than just listening to the teacher. In patterns, the students give their views about its usage and importance inside the classroom based on the given guide questions.

A study by Campbell, et al., and Haas (2002) showed that teaching strategies had influenced students' perceptions. Students with deep approaches to learning generally demonstrated a more sophisticated understanding of the learning opportunities offered to them than those students with surface approaches. When teachers focused strongly on actively engaging students and creating a supportive environment, the students with both deep and surface approaches focused only on the student - centered aspects of the class. In contrast, when traditional expository teaching methods were used exclusively, students with deep and surface approaches both focused on transmission and reproduction. In using patterns, students are deeply engaged, thus creating a student – centered classroom.

SUMMARY

Some of the studies mentioned in the previous pages were related to the present endeavor which was about mathematical patterns as a teaching strategy. A teaching strategy influenced student's achievement, perceptions and conceptual understanding in the study of Kieran (1992); Japona (2000); Campbell, et al. and Haas (2002); Quimbo (2003); Dadole, Lambitco, et Al. (2007); Cajindos &Tsai (2010).

A pattern uses visual imagery like geometrical shapes, numbers, symbols, graphs or diagrams. This is a powerful tool to help improve student's progress in perception and understanding as revealed in the research of The Open University (1988) & Beigie (2011). This is a necessity in forming mathematics concept which is possible when students are encouraged to analyze and visualize mathematical situations and structures using patterns (Thorton, 2001; Schulz 2011; and Vinogradova, 2010).

Through pattern exploration task, students are given opportunities to describe patterns with symbols, determine the relation between objects and numbers, and solve problems which may guide them in the successful transition of arithmetic and patterns to algebraic reasoning (NCTM, 2000; DEB, 2001; Latonio, 2006; Barbosa, et al., 2007; and Beigie, Lo & Tsai 2011). Thus, according to Samson (2012), pattern generalization is very important in the mathematics classroom.

RESULTS

Table 1. The Mean and Standard Deviation of the Students' Achievement Test Scores

| | Control Group | | Experimental Group | |
	Pretest	Posttest	Pretest	Posttest
Mean	4.29	8.02	4.03	9.55
Standard Deviation	2.83	3.25	2.88	3.23

Table 1 shows the mean and standard deviation of the pretest and posttest scores of the students' achievement. In the pretest, the mean of the control group is 4.29 while the experimental group is 4.03. This means that the students had low scores since the test had 20 items. This could be because they had not remembered what had been discussed during their high school algebra. It could be observed also that the mean of the control group is a little higher than that of the experimental group. In the posttest, the adjusted mean of the control group is 8.02 while the experimental group is 9.55. it can be seen that the experimental group has greater increase than the control group, although it has not reached 50% of the total number of items which is equivalent to 20 points. To determine if the method of teaching had an effect on the students' achievement, the analysis of covariance was used.

Furthermore, in the pretest, the standard deviation of the control group is 2.83 while that of the experimental group is 2.88. The results reveal that the students in both groups had dispersed scores. In the posttest, the standard deviation of the control group is 3.25 while that of the experimental group is 3.23. The standard deviation of the control group is greater than the experimental group and both groups have increased and the scores become more dispersed. This means that the students' scores of the control group were more heterogeneous than the experimental group because some had very low and others had high scores. Thus, the students in the control group became more heterogeneous after the treatment.

Table 2. The Analysis of Covariance of Students' Achievement Test Scores

Source of Variation	Adjusted Sum of Squares	df	Adjusted Mean Squares	F Computed	p-Value
Treatment	35.36	1	35.36	7.73	0.007*
Error Within	269.84	59	4.57		
Total	305.2	60			

*significant at p<0.05

Table 2 presents the result of the analysis of covariance of the pretest and posttest scores of the control and experimental groups. The analysis yielded an F – ratio of 7.73 with a P – value of 0.007, which is less than the critical value of 0.05 level of significance. This led to the rejection of the null hypothesis that there is no significant difference in the students' achievement scores as influenced by the teaching method. This implies that the use of mathematical patterns had significant influence on the students' achievement. This means that the adjusted posttest mean score of the experimental group which is 9.55 is higher than the posttest mean score of the control group which is 8.02. This implies that using patterns in learning the concepts of functions, sequences and series had significant effect in the students' achievement scores. This finding shows that pattern could effectively provide development of conceptual understanding and supports Quimbo's (2003) study which claimed that the use of mathematical patterns, have help students improved their mathematics achievement.

Table 3. The Mean and Standard Deviation of Students' Conceptual Understanding Test Scores

	Control Group		Experimental Group	
	Pretest	Posttest	Pretest	Posttest
Mean	3.13	9.20	2.10	9.88
Standard Deviation	2.26	2.01	1.80	2.68

Table 3 shows the mean and standard deviation of the pretest and posttest scores of students' conceptual understanding. In the pretest, the mean of the control group is 3.13 while the experimental group is 2.10. It can be observed that the mean score of the control group is higher than that of the experimental group. This means that the students from both groups showed only a little knowledge on the concepts of functions, sequences and series where they were expected to explain or justify their answers because the total number of points was 25. The control group achieves only 12.5% of the total test points while the experimental group earns 8.4%. In the posttest, the adjusted mean score of the control group is 9.20 while the experimental group is 9.88. The results reveal that the experimental group had greater increase in their mean score than the control group, although it has not reached 50% of the total points. To determine if there was a significant effect of the method of teaching on the students' conceptual understanding, the ANNOVA was used for further analysis.

Meanwhile, the standard deviation of the control group is 2.26 while that of the experimental group is 1.80. This indicates that the experimental group had less dispersed scores compared to the control group. But in the posttest, the standard deviation of the control group is reduced to 2.01 while that of the experimental group, it has increased to 2.68. The standard deviation of the experimental group is greater than the control group. This means that the students' scores of the experimental group became more dispersed compared to the control group. The experimental group became more heterogeneous after the treatment.

Table 4. The Analysis of Covariance for Students' Conceptual Understanding Test Scores

Source of Variation	Adjusted Sum of Squares	DF	Adjusted Mean Squares	F-computed	p-value
Treatment	13.04	1	13.04	4.27	0.043
Error Within	180.04	59	3.05		
Total	193.08	60			

Table 4 shows the result of the analysis of covariance of the pretest and posttest scores of the control and experimental groups. The analysis yielded an F – ratio of 4.27 with a P-value of 0.043, which is less than 0.05 level of significance. This led to the rejection of the null hypothesis that there is no significant difference in the students' conceptual understanding as influenced by the teaching method. This implies that the use of mathematical patterns had influenced the students' conceptual understanding on the topics included in the study. This implies further that working with patterns was a good method of teaching in mathematics because the students' scores in the experimental group had improved. This means that the posttest conceptual understanding of the experimental group of 9.88 is higher than the control group with a mean score of 9.20. This explains that the use of mathematical patterns in class had helped developed a good conceptual understanding of the students on the lesson discussed.

Student's Responses to the Question "How will you describe your experience using mathematical patterns?"

Learning mathematics through mathematical patterns is done through investigation, which means that students will observe and think of the connections between numbers, pictures and figures. Based from these observations, the students will develop a model which represents the whole problem. The following were the students' learning experiences:
a.) Math is fun.
Learning mathematics for many is neither easy nor fun. However, learning mathematics with the use of mathematical patterns caught the students' interest. Thus, the students find joy in doing problem solving.
- It is enjoying.
- I am just like playing while making connections of the data provided.

b.)Math needs tool.
Imagery is a powerful tool for perception and understanding. The use of mathematical patterns used images and figures that help bridge the concrete nature of mathematics to abstract. This means that the students learn mathematics slowly through self-observation, discovery and analysis. It helps me think well because the classroom atmosphere is silent. At first I just laugh because there is less talk from the instructor but it helps me understand the discussion. It is more or self-discovery and analysis. But I realize that there is a great advantage in thinking by myself and be able to share my own understanding to my seatmate.

The students enjoyed the activity with the use of patterns and enable them to think deeply because they were given time to think and analyze. This implies that the use of patterns was really effective in improving students' performance.

Table 5. Students' Responses to the Question "Do you think the use of mathematical patterns would be of help to other learners? Why?"

Responses	Frequency	Percentage
Yes	20	64.52
No	11	35.48
Total	31	100

Table 5 presents the students' belief in the usefulness of mathematical patterns in learning mathematics for other learners. More than sixty percent (64.52%) of the total participants believed that mathematical patterns were of help to other learners while thirty five percent (35.48%) did not believe that it was useful to other learners. This indicates that majority of the participants believed that the use of mathematical patterns would be of help to other learners.

The use of mathematical patterns was found effective in improving students' performance. It was recommended to other learners because it is helpful in developing new skills which is useful in the formulation of new concepts and ideas.

a.) Critical Thinking
- The use of mathematical patterns helped develop students' critical thinking and analysis of practical problems. And given enough time to perform the task, students may be able to perform better.
- Yes, because it allows us to improve our own thinking by ourselves.
- Yes, but maybe if they are given enough time. The time is very short.

b.) Conceptual Understanding
- Mathematical patterns helped improved the students' conceptual understanding. Conceptual understanding is the key component of mathematical expertise. This is the ability to justify, in a way appropriate to the students' mathematical maturity.
- Yes, because they may learn the way I learn and it might be easier for them to understand the topic.
- Yes, but not sure, students are different.
- Yes, because our previous understanding from high school was activated and able to connect from it.
- Yes, because the basic was used to help us understand the concept of algebra.
- Yes, because it might be difficult for us, but for them it would be easier and they can learn better.
- Yes because we are allowed to explain our ideas and present to our classmates.

However, there were some who did not believe in the ability of mathematical patterns to help other learners because of its content difficulty of the activity and due to less classroom discussion.

- No, because it is very difficult for a learning to take place without the constant talk and discussion of the teacher about the lesson.
- No, because I don't even get it myself how much more the other students.
- No, because we are expected to answer even if we don't have any discussion yet.

Majority of the students' responses indicated that the use of patterns was of help to other learners because it was also of help to them as shown in table 7. Thus, the use of mathematical patterns, which allowed students to become part of the learning process, was commendable to other learners.

FINDINGS

Based on the analysis, the following are the findings:

a) There is a significant difference in the students' achievement and conceptual understanding scores as influenced by the teaching method which is the use of mathematical patterns. The students in the experimental group who were taught using the mathematical patterns performed better than the control group where lecture – discussion method was used.

b) The students in the experimental group find mathematical patterns enjoyable and interesting, which allows them to develop their critical thinking and make mathematics learning easier for them. In addition, students believed that the use of mathematical patterns id helpful and useful in understanding mathematical concepts not only for themselves but also for other students.

CONCLUSIONS AND RECOMMENDATIONS

This study concluded that the use of mathematical patterns have caused better students' achievement and conceptual understanding than the lecture – discussion method and it is an acceptable method of learning by learners.

The researcher then recommends that mathematics teachers may use mathematical patterns in their classes to help students improve achievement and develop conceptual understanding in mathematics even for pre-school, elementary and secondary level. School administrators may motivate mathematics teachers to use mathematical patterns for classroom instruction especially in pre-school, elementary and secondary levels where all foundations of mathematics were first discussed. School administrators should expose mathematics teachers to the use of mathematical patterns through in-service training and similar studies may be conducted by other researchers who wish to investigate the use of mathematical patterns in the classroom considering other factors like student's mental ability, academic level, other disciplines and increase of time span of the study.

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STUDENTS' IMAGE OF SCIENCE AND SCIENTETS: KOCAELI VOCATIONAL SCHOOL SAMPLE

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ABSTRACT
Students' images of science and scientists may be one of the most stable fact that learned at school. In this study, we investigate vocational school students' images of science and scientists, with an analysis of how those images may be influenced by science textbooks. A modified Chambers' Draw-a-Scientist Test (DAST) was applied to 120 students from different programs as accounting, business management, chemistry and construction technology in Kocaeli vocational school. Results showed that technical programs students drew more indicators (i.e., lab apron, eyeglasses, facial features, research and knowledge symbols, and) than did social programs students. An analysis of individual drawings revealed an increase sophistication in technical programs' favor. It was found that students images considerably similar to what their textbook presented. As a result, it can be said that the textbooks have some degree of influence on students' image of science and scientists.
Key words: image of scientist, vocational school, Draw-a-Scientist Test (DAST)

INTRODUCTION

Students' image of science and scientists could be more stable and resistant to change than most other scientific knowledges learned at school (She, 1995). The main reason of this difference can be the combination of various influences at school, such as textbooks, teacher behavior, teacher personality, and science teacher gender (Sjoberg, 1993). Additionally, watching a wide range of television films, and searching of many academic web page and videos in the net. Mead (1957) conducted the first systematic investigation of standard images that students and instructors hold of science and scientists; The first systematic investigation of standard images that students hold of scientists was conducted by Mead and Metraus (1957) who asked student subjects to respond to open-ended statements designed to uncover both personal and impersonal images of scientists: '"The scientist is a man who wears a white coat and works in a laboratory. He is elderly or middle-aged and wears glasses …, he may wear a beard ...he is surrounded by equipment: test tubes, Bunsen burners, flasks and bottles … and weird machines ... One day he may straighten up and shout: 'Tve found itl I've found i t ! " … Through his work people will have new and better proudest…, he has to keep dangerous secrets …, his work may be dangerous..., he is always reading a book."

The basic characteristics of these popular stereotypes remained fix between 1945 and 1975, also this image had changed little since the beginning of the century, though his own research focused only on the post-war period was noticed by Basalla (1976). Later, Krajkovieh and Smith (1982) developed a 29-item Likert-type Image of Science and Scientists Scale based on Mead and Metraus's earlier instrument to measure these images in a more detailed version. In this study, a major drawback of both tools was their requirement of advanced reading and writhing skills, which restricted their use to older subjects.

An important and efficient test called Draw-a-Scientist Test based on the presence/absence of seven indicators in a subject's drawing of a scientist: lab coats, eyeglasses, facial features, research symbols, knowledge symbols, technology, and relevant captions was developed by Chambers (1983). He applied this test to analyze drawings made by over 4800 children in Canada, Australia and the U.S. The test test has also been used by Schibeci and Sorensen (1983), Schibeci (1986), and Maoldomhnaigh and Hufit (1988) to assess primary school pupils' images of scientists (She, 1995). Then, Kahle (1993) has noticed that 'since the test does not require reading or writing skills, it minimizes the possibility of "socially desirable" responses.'

Students' image of science and scientists might be influenced by their science textbooks because of textbooks are used as the primary source of information in the science classroom (Denning &Yore, 1989). There are a few research studies that examined the relationships between students' image of science and scientists and science textbooks (She, 1995); Raizen and Jones (1985) reported that 90 percent of science teachers use textbooks 90 to 95 percent of instructional time, Rosser (1990) and others have pointed out that science textbooks contain a wealth of examples involving guns, cars, footballs, and machinery--all topics that typically interest boys than girls and Sjoberg (1993) suggested that textbook content is a contributing factor in shaping students' images.

METHODS
The images of science and scientists held by Kocaeli Vocational School Students was analyzed by a modified Chambers' Draw-a-Scientist Test (DAST) procedure (1983). The test was applied to 120 students (65 male, 55 female) in 2016; these included 30 students from the programs that accounting, business management, chemistry and construction of Kocaeli Vocational School. Nine types of images were chosen as standard indicators: lab coat, eyeglasses, facial features (including beards, mustaches, or baldness), research symbols (scientific instruments and laboratory equipment such as test tubes, beakers, and scales), knowledge symbols (books, paper, or file cabinets), technology (i.e., computers or "black boxes" machines), relevant captions (such as formulae, Top Secret" or "Danger" signs, or taxonomic classifications, etc.), and natural objectives (animals, plants, etc.) (She, 1995). Individual drawing was analyzed and assigned scores from 1 to 8 to indicate the extent to which a standard image of a scientist was presented. Additional indicators such as scientist gender and working inside a lab were noted for further analysis. Reliability coefficient for two coders of the DAST of 0.86 ($p < 0.01$). Cross-coder reliability for the present study was measured at 88% agreement (She, 1995).

FINDINGS
The mean indicators drawn by students in the programs that accounting, business management, chemistry and construction were, respectively, 2.61, 2.53, 2.84, and 2.91, respectively, showing that the number of indicators in student illustrations was the same for different programs(Table 1).

Programs	Number of Students	Number of Indicators	Mean Indicators Per Student
Accounting	30	170	2.83
Business	30	162	2.60
Chemistry	30	184	2.97
Construction	30	192	3.06

Table 1. Frequency of Drawn Indicators According to Grade Level

Results showed that two-thirds (89%) of Accounting program student subjects drew zero or one of the nine indicators, that 62% of Business program student and 52% of Chemistry program student subjects drew one but no more than two indicators, and that 11% of Business and Construction program student and 52% of Chemistry program student students subjects drew three or more indicators. By Construction program students, 75% of student subjects drew at least two or three types of indicators, (Table 2). (N is number of students).

Indicator Scores		0	1	2	3	4	5	6
Accounting	N	2	4	6	7	7	3	1
	%	6.4	13.1	20	23.1	23.1	10	3,3
Business	N	1	3	6	8	8	2	0
	%	3,3	10	20	26.2	26.2	6.4	0
Chemistry	N	0	3	4	8	9	5	1
	%	0	10	13.1	26.2	33.3	3	3,3
Construction	N	0	2	5	5	9	7	2
	%	0	6.4	3	3	33.3	23.1	6.4

Table 2. Distribution of Indicator Scores by Programs

The most common indicator drawn by students regardless of grade were research symbols (i.e., test tube, beaker, alcoholic light, scale, and microscope); the majority of student's drawings depicted scientists at work inside a laboratory. Among four programs, five of the nine indicators drawn reached significant difference levels, including: lab coat (x^2 = 26.26), facial features (x^2 = 71.41), research symbols (x^2 = 24.65), technology (x^2 = 27.40), and relevant captions (x^2 = 34.42) (Table 3).

Indicator	Accounting		Business		Chemistry		Construction		x^2	p
	Yes	No	Yes	No	Yes	No	Yes	No		
Lab coat	2	28							26.26	.0241
Eyeglasses	4	26	14	16	19	11	4	26	25.49	.0126
Facial Features	4	26	2	28	14	16	2	28	71.41	.0025
Research Symbols	10	20	18	12	2	28	10	20	24.65	.0136
Knowledge Symbols	3	27	14	16	4	26	14	16	61.25	.0089
Technology	2	28	10	20	18	12	4	26	27.40	.0171
Relevant Captions	10	20	4	26	18	12	10	20	34.42	.0201
Nature Objects	8	22	10	20	4	26	5	25	3.25	.0521
Inside of Lab	14	16	18	12	10	20	2	28	28.51	.0181

Table 3. The Number of Standard Indicators, Chi-square Statistics, and Probability Across the Four Grade (p < .05)

RESULTS

The results of the present study show that the number of mean indicators drawn increased with different programs of the vocational high school, which supports similar findings reported by some of research mentioned in this study (Chambers, 1983; Schibeci and Sorensen, 1983; Schibeci, 1986) & Kahle, 1993). According to She (1995), 'the implications of such results are clear for both centralized and decentralized education systems having both types of textbook distribution systems: publishers must take care to promote gender-neutral, and positive images of science and scientists. While on the surface it may seem obvious that textbooks influence student images.'

For supporting to this finding, it is suggested that future studies include interviews with student subjects regarding the content of their drawings as well as the sources of their thinking. Finally, we can say that the textbooks have some degree of influence on students' image of science and scientists.

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STUDENTS' PERCEPTIONS OF E-ASSESSMENT AT SAUDI ELECTRONIC UNIVERSITY

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This study explored students' perceptions of E-assessment at Saudi Electronic University. The university recently implemented this mode of assessment in the learning management system it uses. Therefore it is importance to examine the students' perceptions of this mode at the university level. The results were encouraging. Students had positive perceptions of e-assessment and valued its features such as immediate feedback and unbiased grading.

STUDY ON THE CAPACITY AND READINESS TO IMPLEMENT INFORMATION TECHNOLOGY OF PERSONNEL IN HIGHER EDUCATIONAL INSTITUTIONS TO DRIVE THAILAND'S EDUCATION REFORM 4.0

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ABSTRACT

Capacity and readiness to implement Information and Communication Technology (ICT) of personnel of higher educational institutions is a mixed methods research of documentary research. This study, also covering the trends of capacity, readiness, obstacles, challenges, and development potentials of the personnel in such matter to drive Thailand's education reform in 4.0, employed a sample of 100 academic support staff of higher educational institutions. The findings are: 1. The trend of ICT applications in daily operations of personnel of higher education institutions was at a moderate level ($\bar{x}$ = 2.71), of which software package applications being the highest, followed by information search on the Internet; 2. Personnel of higher education institutions was at a moderate capacity and readiness ($\bar{x}$ = 3.43), high in information literacy, and moderate in ICT literacy and Internet media awareness. The obstacles and challenges presented in the implementation of ICT among the personnel were low ($\bar{x}$ = 2.41), and   3. ICT capacity and readiness development guidelines for personnel of higher education institutions to drive Thailand's education 4.0 are conception of ICT master plans, provision of ICT equipment, funding, and personnel. Personnel should be educated for proficient utilization of ICT.

INTRODUCTION

At present, information and communication technology (ICT) plays a vital role in all aspects of people's lives and at all levels, affecting individuals, public and private organizations and nations. ICT contributes to creating better quality of life and greater convenience, as well as being an instrument of all kinds of development. ICT also generates a country's wealth and improves its competitive edges over other countries. Therefore, countries around the world, whether developing or developed, need to be capable of effective ICT management in order to have the capability and capacity to use ICT to compete against other countries. Porter (1985) stated that in order to increase the capacity and capability of a country, importance must be placed on ICT as one of the factors affecting competition.

Therefore, it cannot be denied that modern ICT is considerably essential for the development of a country and it tends to become more and more crucial in the future as the world becomes smaller thanks to the advancement in communication technology. The world has become borderless and people around the world are able to communicate swiftly, leading to development and changes to the economy, society, politics and culture, as well as the application of ICT to modern educational system. ICT is also the driving force behind the country becoming a knowledge-based society and economy. Thus, ICT literacy is an important trend for future changes and individuals must possess ICT knowledge and understanding so that they can effectively use it in practice to increase the country's competitiveness.

In order to achieve Education Reform 4.0, it is important that new skill sets are developed to prepare personnel for the dynamics of the 21st century. Skills that have gain more importance in the 21st century are cognitive abilities, systems skills, complex problem solving, content skills and process skills.

While setting the direction toward the achievement of Education Reform 4.0, apart from considering the capacity and readiness of students and instructors, higher educational institutions must consider whether their personnel, especially academic support personnel, have the capacity and readiness to implement ICT in performing their work or providing support for teaching and classes in order to drive Education Reform 4.0.

Due to the aforementioned, I am interested in studying the ICT capacity and readiness of higher educational institution personnel to drive Education Reform 4.0.

RESEARCH OBJECTIVES

   1. To examine the state of ICT usage of personnel in higher educational institutions

   2. To examine the capacity, readiness, problems and obstacles relating to ICT usage of personnel in higher educational institutions

   3. To provide guidelines for the preparation of personnel in higher educational institutions for the implementation of ICT to drive Education Reform 4.0

SAMPLE GROUP
The sample group in this research consists of 100 personnel in the field of academic support, working in Faculty of Education of 10 public higher educational institutions. They were selected using cluster sampling.

RESULTS
The results of the study on capacity and readiness to implement ICT to drive Education Reform 4.0 of personnel in higher educational institutions are summarized below:

1. The analysis of the state of ICT usage among personnel in higher educational institutions revealed the followings [Figure 1]:
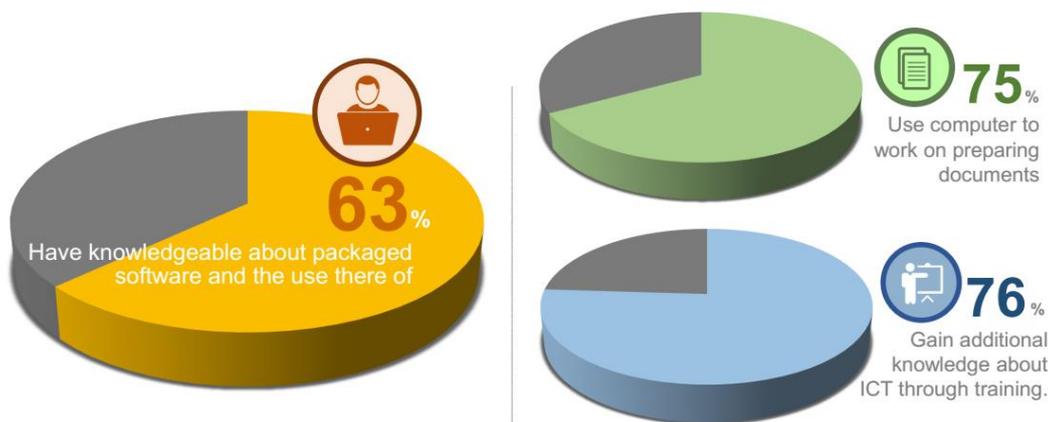
Figure l : The state of ICT usage among personnel in higher educational institutions

More than half (63.0%) of the individuals in the sample group are most knowledgeable about packaged software and the use thereof. The majority (75.0%) use computer to work on preparing documents. It is also found that the majority (76.0%) gain additional knowledge about ICT through training.

As for the state of ICT usage, it is found that the level of overall ICT usage for work among the sample group is moderate ($\bar{x}$ = 2.71) [Figure 2].
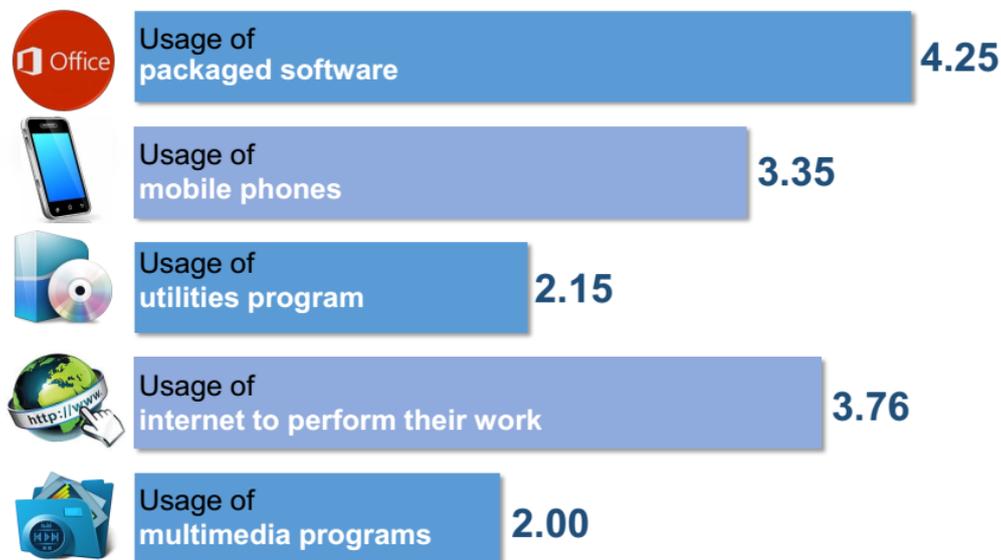
Figure 2 : The level of overall ICT usage for work among the sample group

High level of packaged software, e.g. MS Office including MS Word, MS Excel, MS PowerPoint and MS Access, is found ($\bar{x}$ = 4.25). The usage of internet to perform their work, such as information retrieval, internet connection, using e-mail, is also high ($\bar{x}$ = 3.76). The use of mobile phones to take photos, record videos and sound, send/receive image files, as well as using search engines, e.g. Google and Yahoo, for work is moderate ($\bar{x}$

= 3.35). Low usage level is found in the use of utilities program such as WinZip and Antivirus ($\bar{x}$ = 2.15) and multimedia programs such as Windows Media Player ($\bar{x}$ = 2.00).

It is also found that approximately half of the personnel in higher educational institutions (52.0%) have moderate knowledge about Education Reform 4.0 and the majority (77.0%) stated that they are ready to implement ICT to drive Education Reform 4.0.

    2. The analysis of capacity and readiness to implement ICT, ICT literacy, information literacy and media literacy of personnel in higher educational institutions revealed results as summarized below [Figure 3]:
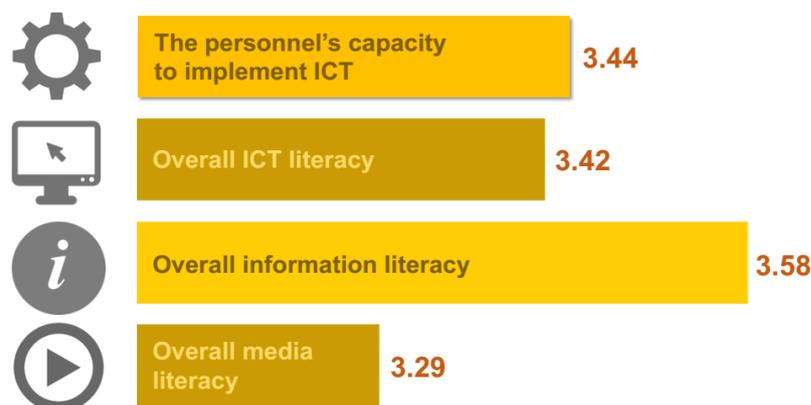
Figure 3 : The capacity and readiness to implement ICT

    2.5 Comparing the results of males and females, it is found that the overall capacity and readiness to implement ICT, ICT literacy and media literacy differ significantly between the two genders (p < 0.05).

    2.6 Comparing the results of groups divided by level of education, It is found that the overall capacity to use ICT of individuals with bachelor's degree and those with graduate degrees differ significantly (p < 0.05). The information literacy of the two groups is also significantly different (p < 0.05).

    2.7 Upon comparing the variance of capacity and readiness to implement ICT, ICT literacy, information literacy and media literacy between age groups, it is found that the personnel's overall capacity to implement ITC is significantly different (p < 0.05). It is also found the capacity to implement ICT of those who are 46 years old or older is significantly different from those who are 35 years old or younger or those between 36-45 years old. The ICT literacy of the 46+ age group is also significantly different from those who are 35 years old or younger. Information literacy and media literacy of 46+ age group is different from the 36-45 age group.

    2.8 Upon comparing the variance of capacity to implement ICT, ICT literacy, information literacy and media literacy between groups with different job duration, it is found that there is no significant difference.

    3. Issues and obstacles to the implementation of ICT
    It is found that in general, the level of issues and obstacles to the implementation of ICT among personnel in higher educational institutions is low ($\bar{x}$ = 2.41). When considering each aspect separately, the level of issues and obstacles is low in all aspects.

    4. The following guideline for the preparation of ICT implementation to drive Education Reform 4.0 is extracted from the information gathered.

    4.1 Each institution should devise its ICT master plan and use it as the guideline for ICT operation and management.

    4.2 Each institution should have all the ICT equipment necessary for its operation available. Regular maintenance and upgrade should be performed so that the equipment is able to support the operation continually and effectively.

    4.3 Budget should be allocated for the development of the institution's ICT to increase the agility and effectiveness of its operation.

4.4 The personnel's ICT competency should be developed in the following aspects:

1) Knowledge: The personnel should have the basic knowledge including ICT basic knowledge such as that about internet and computer usage, knowledge and understanding of communication technologies such as mobile phones, knowledge and understanding of referencing, etc.

2) Skills: The personnel should have the skills relating to information and internet usage, able to distinguish between true and false information and have the required expertise to use packaged software necessary for work, etc.

3) Attitude: The personnel should have favorable attitude toward ICT, make an effort to resolve issues accompanying the use of technology and keep themselves up-to-date with the advancement of ICT, etc.

4.5 The institution should be prepared for changes, for instance, in order to prepare for the changes caused by Education Reform 4.0, the leaders or the management of the institution must be prepared to provide information and share knowledge relating to such changes.

DISCUSSION

Findings from researching on capacity and readiness to implement ICT of personnel in higher educational institutions are discussed below:
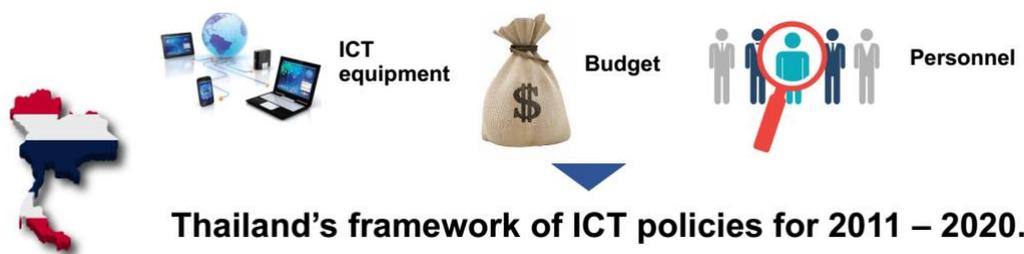
Figure 4 : Guideline for preparation to ICT implementation

1. The analysis of the state of ICT implementation in institutions of higher education revealed that the overall ICT usage level is moderate and the institutions, especially those in the fields relating to social science, have not fully utilized ICT. One of the reasons could be that the nature of such fields requires minimal use of ICT in classes. As most of the personnel only use packaged software, e.g. MS Office, and only use ICT for working on documents, to prepare them for external changes, e.g. Education Reform 4.0, the management should place importance on extending the personnel's knowledge on new technologies and increasing their ability to create innovation. The emphasis should be placed on universal technologies that allow the personnel to communicate with people around the world. It is also found that the majority of the personnel think that training is the most suitable way to acquire more ICT knowledge.

2. According to the analysis of the capacity to implement ICT, ICT literacy, information literacy and media literacy of personnel in higher educational institutions, their capacity is moderate, reflecting that they have not fully implemented ICT. This finding is in line with Doyle (1994)'s notion that the development of personal should start with realizing the potential of each individual and figuring out how to optimally use the individual's capability in the way that is most beneficial to the organization. Considering aspect by aspect, it is found that:

2.1 ICT literacy: although the personnel's overall knowledge about ICT is moderate, they possess good skills in identifying which communication device to use, be it computers or mobile phones. The personnel are capable of identifying which type of task is suitable for each device; accessing, retrieving and storing data, as well as assessing whether the information retrieved by using such communication devices is accurate and up-to-date. These are considered important for doing the job. This is in line with Horton (2008)'s statement on the importance of ICT on education that modern education relies on data retrieved and stored for using in planning, operating, monitoring and assessment. It is also found that male personnel have better ICT literacy comparing to the female counterparts. The reason could be that males are more courageous in learning and trying new things by trial and error. It is also found that age group is a differentiating factor. Those who are 46 years old or older have lower ICT literacy comparing to those who are 35 years old or younger. The reason could be that older

people have more difficulties in learning ICT comparing to the young due to physical condition, clarity of vision, hand dexterity and the ability to develop their brain to cope with new and changing technologies.

2.2 Information Literacy: It is found that the personnel have high information literacy, especially data retrieval and information usage skills. They know how to retrieve data and how to apply them to generate new knowledge. This is in line with Horton, Jr., F.W. (2008) notion that the society needs individuals who are capable of searching for, assessing, analyzing, and processing, managing and relaying information to others effectively and efficiently. SUNY Council of Library Directors Information Literacy Initiative (2003) also stated that one of the characteristics of an ICT literate is the ability to develop strategies for information retrieval and getting access to the source of information, as well as selecting information to generate new knowledge from.

Furthermore, it is found that personnel with a bachelor's degree possess higher ICT literacy comparing to those with a graduate degree because those with lower level of education need to rely on themselves in learning new things and ICT literacy results in self-learning process. The finding is similar to Association of College & Research Libraries (2000)'s view that ICT literacy is beneficial for individuals in many ways including creating self-learning environment and allowing the individuals to raise clear questions, develop critical and rational thinking. Information literacy is also considered lifelong learning.

2.3 Media Literacy: It is found that the personnel's overall media literacy is moderate. This is considered a good starting point for further development of media literacy as internet is currently an extremely important media. The findings revealed that the personnel possess good skill in setting a clear goal before using the internet, they think before referencing the data found on websites while doing their job and they are able to share their views and opinions on social media. This is in line with Bazalgette (2007)'s view that media literate persons are able to analyze the techniques, language and format employed by the media to relay the message. It is also found that media literacy of male and female personnel differs significantly, similar to the findings of Buckingham et. al (2005) and Livingstone et. al. (2007) that gender is a significant factor that correlates with the level of skills based on the personnel's access to media. For example, males have higher chance of creating content on websites and social communities than females.

In the same way, it is found that age is another significant factor for media literacy. Those who are 46 years old or older possess less media literacy comparing to those who are 35 years old or younger and those who are between 36-45 years old. Buckingham et. al. (2005) and Livingstone et. al. (2007) found that age is a factor that affects the personnel's access and response to media. The older group has less access to new media comparing to the younger groups but they have better critical understanding of the media.

3. In general, there are not many issues and obstacles to ICT implementation. Frequent issues include the inconvenience caused by using intranet/internet, available hi-tech devices being ineffective, computers infected by virus, the lack of opportunities to acquire more ICT knowledge and the lack of institution's emphasis on the implementation of ICT within the organization. Consistent with Whittaker's research (cited UNESCO, 2003), it is found that one of the main reasons of failures or mistakes relating to ICT implementation is the use technology not suitable for the needs of the organization. The problems found in this study should be resolved by the institution's top executives. Whittaker stated that the confidence instilled by the top executives is considered a major and crucial contribution to successful ICT implementation within the organization.

4. The management of higher educational institutions gives priority to the development of ICT master plan which gives positive contribution to the execution of such plan. This is in line with Chakravarty (2008)'s view that good practice of educational system development requires clear ICT policies and strategies, which are integrated into the whole educational system, and the promotion of ICT skills. Once there is a clear master plan and the institution is ready in terms of ICT equipment, budget and personnel, the implementation should be successful. As for the personnel, it is important that their ICT competencies are developed so that they can use ICT creatively and effectively, and possess good judgment and knowledge about ICT. The ICT personnel should also be developed to have the knowledge, capability and expertise at the internationally accepted level, in line with human capital development strategy within the framework of ICT policies for 2011 – 2020.

SUGGESTIONS
1. Educational institutions should prepare their personnel of all levels including the management, information technology officers, experts and operation officers; for the implementation of ICT by providing training courses or lectures so that they have the knowledge, skills and understanding of the potential and capability of ICT.

2. Knowledge exchange/community of practice/group activities should be organized to promote ICT to personnel, focusing on sharing useful tips, tricks and techniques.

3. The institutions should promote self-learning and co-working to create harmony within the organization.

4. The educational institutions should organize regular and continuous personnel development plan, so that their personnel can acquire the skills, knowledge and techniques that are necessary for doing their jobs. Examples are seminars, study trip and further education, etc.

5. ICT should be used to enhance the effectiveness of educational management and the provision of educational services. The institutions should develop software for the purpose of providing core services according to their missions at all levels, for example, e-Registration, e-Counseling, e-Testing, e-Loan, etc.

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SUGGESTING AN INTEGRATIVE NOS FLOW MAP FOR NATURE OF SCIENCE BASED ON HISTORY OF SCIENCE

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ABSTRACT

The purpose of this research lies in restricting the integrative NOS Flow map about the special theory of relativity which is a part of modern science and climate changes which is the most significant problem in this century.

  Nature of Science(NOS) are 'integrative domain' that combine a variety of science related social researches(McComas, Clough, & Almazroa, 1998) which are hidden qualities behind the essence of scientific concepts and scientific activities and epistemological perspective in science about the role of science socioculturally(Lederman, 1992). It is criticized in most precedent studies that students and teachers both lack the understanding about nature of science despite its importance (Oh, 2017, Submitted; Lederman, 1992; Rubba, Horner & Smith, 1981). It is very difficult to effectively teach NOS since the concept itself is complicated and abstract. Education using the history of science has been suggested as one of the methods to effectively teach the NOS (Conant, 1953; Rutherford, 2001). Since the knowledge formation process, accomplishments of scientists, and social conflicts are well-represented in the history of science, education using the history of science can suggest a variety of scientific cases to students and enable them to understand the correct developmental processes of science. Therefore, classes using the history of science can play a huge role in developing understanding about NOS and positive attitude towards science (Wandersee, 1995).

  According to Oh (2017), the following terms are used for the processes of science learning that consist of attitude, skill, and knowledge: Scientific attitudes refer to the social dimension, social and cultural changes, and subjectivity (theory-ladenness). Scientific skills do not refer to specific scientific methods but rather to imagination and creativity, observation and inference, and subjectivity (hypothesizing). Scientific knowledge refers to law and theories, and the elements of nature of science the NOS necessary to achieve wider scientific literacy (see Figure 1). In particular, subjectivity consists of hypothesizing (Skills, AAAS, 1989), and theory-ladenness (Attitudes, Martin, 2012).
Key Words: integrative NOS Flow map, special theory of relativity, climate changes, the history of science

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SUPPORTIVE LEARNING: LINEAR LEARNING AND COLLABORATIVE LEARNING

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This ia a conceptual paper which is trying to look at the educational technology is not limited to high technology. However, electronic educational technology, also known as e-learning, has become an important part of today's society, which consists of a wide variety of approaches to digitization, components and methods of delivery. In the literature, researchers used narrative literature review to describe the current states of both art and science in focused areas of inquiry. Researchers collect all the important points of discussion, and synthesis them here with reference to the specific field where this paper is originally based on. The findings show that Computer-based training (CBT) initially delivered content via CD-ROM, and is usually presented linear content, much like reading an online book or manual. Computer supported collaborative learning (CSCL) use teaching methods that are designed to encourage or require students to engage in learning tasks. CSCL is similar in concept to the term, "collaborative learning network", "e-learning 2.0" and (NCL).

TAX EDUCATION PROGRAM FOR TEACHERS IN HIGH SCHOOLS TO ENHANCE VOLUNTARY TAX COMPLIANCE

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ABSTRACT

This paper analyzed implementation of tax socialization program for teachers in high schools in the Regional Office of West Java II Directorate General Taxation from content and context of policy perspective. This study discusses tax socialization program as an effort to educate the elements shaping taxpayers' behaviors which are tax mentality, tax tension feeling, and tax morale. This program aimed at promoting teachers as the agents of socialization and the agents of change to instill knowledge and an awareness of tax responsibility to students as teachers are seen as respected figures by students. Tax education program is a long-term investment that needs to be introduced as early as possible to shape the behaviors of taxpayers which in turn, may enhance voluntary tax compliance from students as the future taxpayers.

*Keywords***:** *tax socialization, policy implementation, agent of change, voluntary tax compliance.*

INTRODUCTION

Taxation is main income of government and its success depends on the taxpayers. The amount of tax gained is influenced by the compliance of taxpayers in fulfilling their taxation obligation (Simanjuntak, 2012). At the moment, there are still many uncollected tax potentials due to taxpayers' low level of tax compliance.

The percentage of taxpayer compliance in Indonesia is still low. In 2016, from around 118 million work labour, registered tax payers only 36 million, and only 10,9 million (30,35%) paid their taxes or submitted their annual income tax return forms.

Tax compliance is influenced by two factors: external and internal factors. The experts in economics explain that there is a clear relationship between the external factors such as tax rate, income, audit and penalties to tax compliance. Meanwhile, research in psychology shows that both internal factors and external factors influence the tax compliance (Hofmann, 2008). According to Mohdali (2012), the main factor that influences tax compliance is not the economic factors (the external factors), but the effects of the government actions and the tax authority response towards taxpayers as the internal factor. There are three elements forming taxpayers' behavior that are tax mentality, tax tension feeling, and tax morale.

To improve taxpayers' behavior so that they possess voluntary tax compliance is through tax socialization. As a tax education effort, tax socialization enables taxpayers to possess adequate knowledge and understanding on the rights and procedures for fulfilling tax obligations (Winartati & Setyowati, 2016). This is related to adoption of the self-assessment system in Indonesia's taxation administration which requires the taxpayers to report their taxation obligation independently. It is hoped that tax education program may enhance voluntary of compliance from taxpayers.

The Directorate General of Taxation (DGT) is implementing the tax education program by introducing various socialization programs whose objectives are to provide counselling on and to promote the tax education program, and one program specially introduced by the DGT to enhance voluntary compliance is the tax socialization program. This program is given not only to the current taxpayers but also to prospective taxpayers such as students in high schools or equivalent. At the moment, before targeting students, tax socialization program is given to teachers in high schools or equivalent as a third party. Tax socialization program for the teachers in high schools or equivalent is currently implemented by the Counselling, Service, and Public Relation Section in the Regional Office of West Java II DGT.

This paper discusses the basis for implementation of tax socialization for teachers in high schools or equivalent, for teachers in the Regional Office of West Java II DGT, and the roles of tax socialization for teachers in the Regional Office of West Java II DGT seen from the elements shaping the behaviors of taxpayers.

THEORETICAL REVIEW

Tax policy is government instrument in taxation which has a certain target or is implemented to reach a certain objective in social and economic field. Tax_policy may support the economic and social development of a country (Devano, 2006). One of tax policies is tax socialization. Berger, as cited by Sunarto (2004), defines socialization as a process by which a child learns to be a participating member of society.

Tax socialization program is given to taxpayers and prospective taxpayers. Socialization is given to taxpayers so that they understand and are able to exercise their rights and fulfill their taxation obligation according to the applicable taxation regulations. Meanwhile, socialization to the prospective taxpayers aims at introducing taxation and providing an understanding to the next generation of the importance of taxation so that once they become taxpayers in the future, they will understand and dutifully fulfill their obligation (Directorate General of Taxation, 2012).

As a policy, to achieve its goals, tax socialization is carried out in the form of a program. Nugroho (2004) stated that to reach its goal, the policy needs to be implemented. Grindle (2008) explains that generally, process of implementation can start when the general objectives and aims have been set, the program actions have been designed, and the budget has been allocated for achieving the goals. In the program actions, there are two factors that influence the implementation and they are content of policy and context of policy. The expected outcome(s) that comes out from implementation of the activities is taxpayers' compliance. Nurmantu (2009) defines tax compliance as a condition when taxpayers fulfill their obligations and exercise their taxation rights.

Since tax socialization instills an understanding and provides knowledge, it is considered a form of tax education. Bahari and Ling (2009) state that tax education might have influenced people's attitudes towards taxation and tax compliance behaviors. Mohdali (2012) states that the main factor that influences taxpayers' compliance is not the economic factor. The psychological approach to fiscal also states that tax education should not only focus on the behaviors of taxpayers and the influence of a group, but also the influence of government actions and the effect of tax authority's response towards taxpayers' behaviors.

According to Schmolders (1970), as cited by Mohdali (2012), there are three elements shaping the behaviors of taxpayers: First is the tax mentality which includes taxpayers who hesitate to violate the law. This behavior is influenced by the social environment and personal experience. Second is the tax tension feeling which is the unequal distribution of tax load among taxpayers which creates dissatisfaction to current taxation system. The opinions of taxpayers to fairness and unfairness of the taxation system can also be identified as the influential factor in tax compliance behaviors. Third is the tax morale which is defined as the internal individual motivation that may derive from the religious belief or the moral values to pay taxes and intrinsic motivations. According to Graetz and Wilde as cited in Mohdali (2012), the tax morale can be described as the commitment to the responsibilities of citizenship and respect for the law.

Tax socialization program in high schools or equivalent places teachers as agents of tax socialization and agents of change. Agents of socialization are the parties which conduct socialization (Devano, 2006) while agents of change are individuals whose duty are to influence targets of change to make decisions according to the desired direction (Anwar, 2013). The agents of changes connect the source of change which can be in the form of innovation or policy with the community as the target of change. Tax socialization program attempts to enhance voluntary tax compliance in community. Kirchler and Wahl as cited by Mohdali (2012) state that voluntary tax compliance is originated from spontaneous willingness to cooperate, emanating from taxpayer's moral obligation to contribute to the public welfare.

RESEARCH METHODOLOGY

This study used qualitative approach to gain an understanding of implementation of tax socialization for teachers in high schools in Regional Office of West Java II DGT. This study can be classified as a descriptive study. Based on its significance, this study was pure research since its aim was only for academic purposes. Based on the duration, this study was cross-sectional since it was conducted between Marchs until June 2014 and could not be compared to other studies. Based on the data collection technique, the study used a field study and a desk study. Primary data were collected from in-depth interviews and secondary data were taken from the desk study to support the primary data obtained from field study.

RESULTS AND DISCUSSION

The tax socialization program for teachers in high schools was implemented based on the Letter of the Counselling, Service, and Public Relation Director Number S-641/PJ.09/2013 dated 29 April 2013 on the Implementation Guideline of Tax Socialization for Teachers. The next part of this paper discusses the basis for tax socialization program for teachers in high schools, the implementation of tax socialization for teachers in Regional Office of West Java II Directorate General of Taxation (DGT), and the roles of tax socialization for teachers seen from the elements shaping behaviors of taxpayer behaviors.

Considerations for Tax Socialization Program Implementation for the Teachers in High Schools

There are a few factors that become consideration for implementation of tax socialization program for teachers in high schools. First is limitation in the number of DGT employees. The number of students in high schools or equivalent education in Indonesia exceeds the number of DGT employees. According to I Putu Sudiana from the Directorate of Counselling, Service, and Public Relation in DGT, the number of employees in the tax offices in 2014 was 32,000 employees and only around 5,000 until 6,000 were in charge of conducting socialization. Meanwhile, based on the Gross/Net Enrollment Rate in early childhood, elementary, middle and high schools, and also higher education (including Islamic Religious Schools and equivalent) in 2012/2013, the number of students in high schools in Indonesia in 2013 was 9,828,067 students. The employees in tax offices will not be enough to conduct socialization program for the entire high school students. The number of teachers in high schools and equivalent, however, is 440,168 teachers according to the Summary of the Indonesia's Education Statistics in 2011/2012. This number is significantly larger than the 5,000 - 6,000 tax office employees who are in charge of the tax socialization program.

Second, the communities consider teachers as respected figures who are trusted and must be followed.   I Putu Sudiana states that until now, the communities still believe that teachers are role models that can be trusted and they deserve to be modeled and followed. The community's trust towards the teachers prompts DGT to provide socialization for the teachers in high schools and equivalent.

Third, an awareness on the importance of taxation needs to be instilled in students' mind. Awareness on the importance of taxation needs to be introduced early on since it is related to the effort of shaping people's behaviors. As explained by Dwi Astuti, the Head of Counselling, Service, and Public Relation of the Regional Office of West Java II DGT, the process of promoting tax awareness to the students in high schools will be a long-term investment.

Last consideration for the program is related to DGT's effort to include taxation materials in the School Curriculum. The socialization program for teachers aims at increasing taxation knowledge for teachers and at the same time providing preliminary information which is related to –DGT's effort to include taxation materials in the School Curriculum. Even though this effort to include the taxation materials in the curriculum has not shown any positive result, efforts to provide the knowledge, an understanding, and an awareness for the students through the teachers can still be carried out.

Based on the Letter of the Counselling, Service, and Public Relation Director Number S-641/PJ.09/2013 on the Implementation Guideline of Tax Socialization for Teachers, the program will mainly target teachers for high schools and equivalent level. There are two reasons why high school teachers were selected as target of tax socialization program. First, a limitation needs to be made in relation to the evaluation of the program implemented. Second, the implementation of the socialization program has a time and funding limitation. This time and funding limitation needs to be put into account due to the large number of teachers from the elementary to the high school level in Indonesia. The following Table shows the number of teachers based on their level and status in Indonesia in 2011/2012.

Table 1. The Number of Teachers in Indonesia in 2011/2012

No.	Level	Employment Status		
		Civil Servants	Non-civil servant	Total
1	Elementary schools and equivalent	1,074,701	475,575	1,550,276
2	Middle schools and equivalent	358,528	155,303	513,831
3	High schools and equivalent	240,519	199,649	440,168

Source: Taken from the Ministry of Education and Culture, A Summary of Education Statistics in Indonesia in 2011/2012.

It can be seen in Table 1 that while the number of elementary school teachers in Indonesia in 2011/2012 was 1,550,276 teachers and the number of middle school teachers was 513,831 teachers, the number of high school teachers in Indonesia was 440,168 teachers. If the teachers from all three levels are put together, the total is 2,504,275 teachers. With this kind of number, a large sum of money and a long period of time is needed to conduct the tax socialization for all teachers in all levels in Indonesia.

Second, the reason why high schools were selected was because the students in this age group is mature enough and ready for either the next level of education which is the higher education or work. This is in line with the strategy of DGT that states that more mature people are readier to accept and comply.

Implementation of Tax Socialization for Teachers in High Schools or Equivalent in the Regional Office of West Java II Directorate General Taxation
The implementation of the tax socialization program conducted by the DGT, which is the tax socialization for the teachers of high schools, is influenced by two factors: content of policy and context of policy. Next paragraph explains more about the content of policy and the context of policy which influence implementation of tax socialization program for teachers in high schools in Regional Office of West Java II DGT.

CONTENT OF POLICY
Content of policy is a factor that influences implementation of activities which according to Grindle includes 6 factors: influenced interest, type of benefits, desired degree of changes, decision-making position, implementation of the program, and resources involved.

The Influenced Interest
Tax socialization program for teachers in high schools implemented by the Regional Office of West Java II DGT as form of implementation of tax policy indeed has an interest. According to Irfitriyan Mahry, the Officer in the Pratama Bogor Tax Office, the only program's interest is to facilitate in-depth knowledge and understanding on taxation. The program's sole interest is to instill knowledge and understanding on taxation to the students through teachers so that students would understand. It is hoped that the program may help students develop a sense of responsibility towards taxation and enhance voluntary tax compliance.

Types of Benefits
There are benefits of tax socialization program for teachers in high schools implemented by Regional Office of West Java II DGT and these benefits can be felt in the wake of implementation activities. The program is a form of investment whose benefits can be felt in the next few years. The program should be given early on to prospective taxpayers. Even when objective of the program is to increase voluntary tax compliance of prospective taxpayers, the program has concrete benefits which can be felt directly by participants of the program, i.e. teachers.

Desired Degree of Changes
Tax socialization program has short-term and long-term objectives. The short-term objective is to promote an awareness from teachers as taxpayers themselves, while the long-term benefit is to promote teachers as agents of change by providing knowledge on taxation to their students. It is hoped that the program may increase a sense of responsibility from students towards taxation and it may change students' behaviors accordingly.

Decision-Making Position
According to Grindle, position or location of implementation of a policy can be geographical or organizational. Geographically, tax socialization program is held nationally and organizationally, the program is implemented by Regional Office of DGT across Indonesia. Based on Letter of the Director General of Taxation Number SE-98/PJ/2011, a national socialization program is implemented by all work units with a theme set by DGT Headquarter which in this case was the Central Office of Counselling, Service, and Public Relation. The procedure of implementation is regulated in Letter of Counselling, Service, and Public Relation Director Number S-641/PJ.09/2013, as a follow-up of Letter of Counselling, Service, and Public Relation Director Number S-30/PJ.09/2013 on Theme of Taxation Counselling Activities in 2013.

Program Implementation

The focus and main target of program is, in fact, students as prospective taxpayers. Based on Letter of Director General of Taxation Number SE-05/PJ/2013 on Procedures of Taxation Counselling Implementation, tasks and responsibilities of Regional Office of DGT are to conduct a socialization program by focusing on prospective taxpayers. Grindle explains that a person who is responsible for implementation of a program should be a person who is active, skillful, and more personally dedicated to the program compared to others.

Tax socialization program for teachers in high schools nd equivalent implemented by Regional Office of West Java II DGT is carried out by the exact people described by Grindle. Dwi Astuti, one of implementers, was really passionate to the program since she realized the importance of early tax education for students as a long-term investment whose benefits will be felt in the coming years.

Resources Involved

Implementation of the program requires various adequate resources such as humans, funds, facilities, and infrastructures for the program to be implemented successfully. Tax socialization program requires human resources such as facilitators and participants. Participants of the program were teachers from all subjects such as Social Study, Citizenship, Economics, and Accounting while facilitators were employees of DGT and local tax offices. The facility used in the program was local tax office as the place of socialization activities. Another resource used was the funding. Funding Budget is proposed every year by the Regional Office of DGT to the Headquarter for approval.

CONTEXT OF POLICY

The implementation of the tax socialization program conducted by the DGT, which is the tax socialization for the teachers of high schools is also influenced by the context of policy among which are the power, interest, and the strategies of the actors involved, characteristics of institutions and power, and the compliance and responsiveness.

Power, Interest, and the Strategies Made by the Actors Involved

Grindle states that each actor involved in a program has power, interest, and different strategies. Actors in the implementation of the tax socialization program for teachers have the power and authority to do so. The authority on the policy which constitutes 5M (Man, Money, Machine, Method, Material) is present in the hand of the Directorate of Counselling, Service, and Public Relation of the Central DGT. The tasks and the function of the Regional Office of DGT in this case is the Counselling, Service, and Public Relation Section of the Regional Office of DGT are as the executor of the tax socialization program. The Regional Tax Offices (KPP) of West Java II DGT which have the authority to conduct the tax socialization program for teachers in high schools in their service areas are KPP Pratama Cileungsi, KPP Pratama Karawang Utara, and KPP Pratama Bogor.

DGT as the actor with the interest to this program, which is maximum revenue from tax, provides tax socialization program for new taxpayers and registered taxpayers compared to prospective taxpayers. However, since the main tasks of DGT are to collect state revenue from tax and to achieve a very high target, potential taxpayers becomes the priority for the program.

The interest to collect revenue from tax which causes DGT to prioritize socialization program to new and registered taxpayers is reasonable. The current condition shows that tax is main income for the state since more than 70% of state revenue is from tax. Based on main data of the State Budget in the Financial Note and the State Budget Draft for 2014 Budget Year, revenue from tax in 2013 wofficersas Rp1,148 trillion while the total of state revenue was Rp1,502 trillion. This shows that 76.45% of state income was from tax.

Implementation of tax socialization program for teachers in high schools requires a careful strategy so that the program can be carried out successfully. One of the strategies in implementation was by including the taxation materials in school curriculum. This strategy may guarantee the continuity of tax socialization program for teachers. Another strategy carried out by Regional Office of West Java II DGT to guarantee success of the program was to form a counselling team and conduct other supporting strategies.

Characteristics of Institutions and Power

Characteristic of DGT is an institution that is focused on the revenue derived from tax. This is embedded in characteristics of DGT working units and tax officers that the collection of revenue from tax becomes priority. Tax socialization program becomes second priority next to the collection of revenue from tax. These characteristics affect implementation of tax socialization program for teachers in high schools whose real targets are the students as prospective taxpayers. This program is not done in a mass scale across Indonesia since many Regional Offices of DGT are not ready to implement it.

Compliance and Responsiveness
Grindle states that for a program to be successful, it requires supports, compliance and responsiveness of the agents of implementation. The Regional Office of DGT as executor of tax socialization program for teachers has compliance and good responsiveness to implementation of the program which heavily relies on responsiveness and passion of head of Counselling, Service, and Public Relation Section in local regional offices.

Changes in Teachers and Teachers' Acceptance of Tax Socialization Program
Changes felt by the teachers after attending the program were expansion of knowledge and understanding of taxation. These changes are expected to cause changes consecutively in students since knowledge and understanding gained during the program is passed on to students. It is hoped that the students' attitude towards taxation will change after understanding importance of taxation, function, and benefits of taxes.

At the beginning, teachers were not too enthusiastic about tax socialization program. They were wondering why the program needed to be carried out. However, after attending the program, teachers welcome it and wished that the program could be held more often in schools.

Challenges in Implementation of Tax Socialization
There were challenges of implementation of tax socialization program for teachers in Regional Office of West Java II DGT. First, it was difficult to convince Education Office and Ministry of Education and Culture the importance of tax socialization program for teachers and to convince them that the program needed to be implemented. The second challenge is that teachers had different teaching schedules and these different schedules needed to be matched with the days of the program. The third is difficulty in encouraging teachers to become participants of the program. The fourth is participants of the program were often unfocused during activities. The last is that there was limitation to time for the program and therefore, only a small number of materials were brought to the program.

Tax Socialization for Teacher Seen from the Elements Shaping Taxpayer's Behaviors
Tax socialization for teachers in high schools implemented by the Regional Office of West Java II DGT provides an understanding of taxation to teachers as effort to form behavior of taxpayers. According to Schmolders (1970), as cited by Mohdali (2012), there are three elements shaping behaviors of taxpayers. Tax mentality describes taxpayers who hesitate to violate the law. The mentality to comply with obligation to pay tax is influenced by social environment and personal experience. Tax tension feeling is opinions of taxpayers to taxation system. The unequal distribution of tax load among taxpayers may create dissatisfaction to current taxation system. Tax morale is defined as internal individual motivation that may derive from religious belief or moral values and intrinsic motivations to pay taxes. According to Graetz and Wilde (1985, p.385) as cited in Mohdali (2012), tax morale is described as commitment to responsibilities of citizenship and respect for law.

Tax socialization program for students is also an effort to shape behaviors of taxpayers early on. With tax socialization program given to teachers as agents of socialization and agents of change, it is hoped that program may shape tax mentality, tax tension feeling, and tax morale of prospective taxpayers. Tax is responsibility of the citizens, which in this case are taxpayers, to the state. Promoting awareness of their responsibility may help strengthen commitment of citizens to respect and obey the law. Tax socialization program for teachers is an effort to promote sense of responsibility on part of teachers to pass message to students on their responsibility to the state in term of taxation. Continuous implementation of tax socialization program may form the tax mentality, tax tension feeling, and tax morale of students which in turn, form the voluntary tax compliance.

Tax Education to Students through Tax Socialization to Teachers
Tax education provides knowledge and understanding to students of high schools as prospective taxpayers who in the future will become the taxpayers themselves. It is important to implement tax education due to its role in

dynamic development of taxation. The regulations and taxation system are always changing following national and global economic development.

Students in high schools as prospective taxpayers need to be equipped with an understanding and knowledge in taxation early on and continuously since so that when they have become taxpayers, they have a better understanding on taxation regulations and thus, obey them. In turn, they are expected to have the voluntary tax compliance. Tax socialization program for teachers implemented by DGT is an effort to provide tax education for students through their teachers as agents of learning.

Teachers as Agents of Tax Socialization
Taxation is new knowledge which a person cannot get from his family and friends. The teachers are the party who is charge of imparting knowledge and understanding of taxation to students. Irfitriyan Mahry explains that the effort to instill knowledge and understanding of taxation turns teachers into agents of tax socialization. Teachers may become DGT's partners to disseminate taxation materials to students since teachers are the one who directly face students. DGT needs to work in partnership with various parties with the capacity to convey knowledge on and provide an understanding of taxation. Teachers are seen to have capacity to become agents of tax socialization and to carry duty to instill values of taxation to students and community.

Teachers as Agents of Change
Implementation of tax socialization program for teachers in high schools turns teachers as the agents of change. Teachers become communication channel for DGT to disseminate knowledge on taxation to students. By becoming the agents of change, teachers are expected to help DGT share and instill knowledge on taxation to students and to community. A program cannot be implemented without the presence of agents of changes as connectors who communicate program to targeted parties.

Tax Socialization Program for Teachers as an Effort to Enhance Voluntary Tax Compliance to Students
By instilling knowledge and understanding of taxation to students as prospective taxpayers, it is hoped that students develop an awareness of their responsibility towards taxation. When students become mature and become taxpayers themselves, it is hoped that they carry out their obligation to pay tax. Educating the prospective taxpayers correctly will enhance voluntary tax compliance in the future.

CONCLUSION
1. The reasons for implementation of tax socialization for teachers in high schools among which are limited number of DGT employees, the view that teachers are respected figures and role models, the desire to promote an awareness of responsibility towards taxation, and effort to include taxation materials in 2013 school curriculum. The reasons why teachers were chosen to be targets of tax socialization program was limitation of survey for DGT evaluation, limitation of time and funding, and the fact that students in high schools are in the right age to understand importance of taxation. The program is expected to provide teachers with good knowledge and understanding of taxation which they then pass to their students with the hope that students have an awareness of their responsibility towards taxation and in turn, enhance voluntary tax compliance.

2. Implementation of tax socialization program conducted by the DGT, which is tax socialization for teachers of high schools and equivalent, is influenced by two factors: content of policy and context of policy. Changes did happen to teachers and there was positive acceptance from teachers. Some of challenges experienced by the program were convincing Education Office and Ministry of Education and Culture the importance of tax socialization program for teachers, matching teachers' schedules, encouraging teachers to attend the program, having unfocused teachers and having limited implementation time.

3. Tax socialization program for teachers in high schools implemented by the Regional Office of West Java II DGT attempted to promote teachers' commitment to take responsibility as taxpayers and as teachers to promote an awareness of responsibility towards taxation to students. Tax socialization program is hoped to give tax education to students through teachers. This allows teachers to become agents of tax socialization and agents of change. It is hoped that teachers are able to instill knowledge and understanding of taxation to students as the prospective taxpayers in order to promote an awareness of their responsibility towards taxation. It is also hoped that when students become taxpayers, they will develop voluntary tax compliance.

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TDIC INSERTION ANALYSIS IN THE PEDAGOGICAL PRACTICE OF TEACHERS OF THE BASIC EDUCATION OF THE CITY OF APUCARANA-PR-BRAZIL

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ABSTRACT: The use of TDIC (Information and Communication Digital Technologies) in the school context has grown exponentially in recent times. The proximity of students with technological resources facilitates the insertion of tools that help the teacher in knowledge construction with the students and broadens their digital literacy. In this sense, the objectives of this study are: to present the profile of teachers from three state schools in the city of Apucarana -PR-Brazil; to know their opinion about what resources can be used in the classroom and to understand why teachers do not use the technological resources in the school context. The types of research used were bibliographical, field and analytical. The results showed that teachers need training for the use of new technologies as well as investment and availability of these tools in school.
Keyword: Technology; Teaching Practice; Continuous formation.

INTRODUCTION

The use of new technologies in education has increasingly attracted the interest of researchers and professionals in the area of education. Technological tools arouse students' interest in learning, which sets up a strategy for learning content addressed in the disciplines. However, teachers' resistance to using new technologies in the school context will often prevent the student from being exposed to a school environment closer to their reality, which would facilitate their interest in classroom activities.

The technology applied to teaching and learning requires, according to Sarmiento (2010), the breakdown of cultural methods prior to the digital age, because technology brings about progress. However, there are questions that must be solved: Why the objection of part of the teachers in using new technological methods? Would it be the lack of knowledge and overwork that induces the teacher to refuse something new? Lack of physical or structural resources? Maybe lack of training? In this sense, in order to elucidate such questions, this study seeks to investigate the profile of teachers from three state schools in the city of Apucarana; know their opinion about which resources can be used in the classroom and understand the reasons why teachers do not use the technological resources in the school context

THEORETICAL REFERENCE

Teachers' behavior fully reflects in the school culture. According to the National Educational Bases and Guidelines Law (1996), although all teaching staff participate in the elaboration of the Political Pedagogical Project - PPP, the teacher is the main element to certify that what was planned is fully applied. In addition, it has the autonomy to change, if necessary, the Teaching Plan according to the learning and the needs of the class. Therefore, the methods adopted by the teacher have a great influence on the facilitation of student learning.

Thurler (2001) argues that there is a necessity to transform schools into organizations more susceptible to changes, keeping them in a constant transformation and accession to technologies context. The difficulty of most teachers in adopting the use of new technologies in their lesson plans delays school evolution. Teachers must be the connection between the current information that is very fast and reaches all through TV, the Internet, magazines, scientific knowledge, among others. They cannot only depend on the blackboard (Perrenen 1999, Saviani 1985). According to Cambi (1999), education must go far beyond chalk, blackboard and saliva.

Regardless of the student's level of study, dynamic and flexible classes can only improve learning. Adopting the reflexive training method advocated by Perrenoud (1999) - where the teacher can be the bridge between knowledge and the student, acting as a mediator - is the ideal for the student to learn, assuming that the eagerness to learn is what leads man to learn (RANCIÈRI, 2002). Perrenoud (1999) and Barbosa (2011) still draw attention to a practice based on innovation and cooperation. For this to happen, it is necessary to know that the school is not an exiled island and if the society lives in constant change, the educational context must keep up with these changes.

Very quickly, students have access to information, whether through TV, magazines, the Internet, video games, among others, and these media act as first educators of young people (CAMBI, 1999). However, this information is fragmented. Thus, it is necessary that the teacher instructs them regards reality and technology so that there is a partnership between means and ends (PERRENOUD, 1999).

Moran (2009) affirms that the difficulties of some teachers in using new methodologies are to blame technological means for facilitating dispersion, especially the Internet, due to the possibility of navigation, once it could lead students to areas of personal interest, which according to the teachers would be a waste of time with insignificant information. To Perrenoud (1999) and Saviani (2000), teachers must be the link between technological means and scientific knowledge.

According to Moran (2009), the difficulties of some teachers regarding technology are evident and the reasons for them are mainly dispersion, focus loss due to the great offer of parallel subjects that are available on the sites all the time, involvement with personal interests and at last, the concept that the process of setting with technological means would be a waste of time. The author also states that teachers must be constantly improving themselves so that, instead of passing knowledge, it is built and created in students. According to him, knowledge is a process created in the relationship between student and teacher, it belies the idea that it is possible to transfer knowledge. Overcoming difficulties is essential for the teachers, obtaining the link with the methods, collaborating to consolidate and expand the innovative pedagogies. However, according to Barbosa (2011), a practice focused on cooperation is necessary and, according to Gebran (2009), this interaction between teaching and technological means is what brings about the instigating teaching to the student.

MATERIALS AND METHODS

The types of research selected for the present study are bibliographical and field ones. The use of books, articles, periodicals, documents and official sites supported the bibliographic survey. To Gil (2008) this type of research obtains data from publications from other authors, which according to Marconi and Lakatos (1996) offers a basis for field research. After the bibliographic research, it is time for the field one, because the researcher has a base on the subject and can better distinguish the needs for the development of the material to be used in the research (MARCONI, LAKATOS, 1996).

Field research was adopted because it is a method in which data are observed and collected directly in the place where the study was done, characterized by direct contact with it, without any researcher's interference, since the data are observed and collected as they spontaneously occur (MARCONI, LAKATOS, 2006). Another reason for choosing this research style is the public's education degree, once all of them are teachers and thus they are graduated and have sufficient explanations to answer the objective questions allied to subjective ones.

As for the field study procedures, a questionnaire was developed with open and closed questions of multiple choice, because according to Gomes (2005) "a good questionnaire combines open and closed questions in a balanced way, takes the interviewee the shortest possible time to have it done and matches the research objectives ". In this document, the questions were proposed to answer the initial notes about the possible reasons that generate teachers' resistance to use new technologies in the school context.

The research public profile was random, named as accidental, where the researcher chooses the element that suits him better, for example: people who are present at the site at the time of data collection (MATTAR, 1996). This way, teachers from different disciplines from three state schools of the city of Apucarana-PR were interviewed. During the break, they were explained the purpose of the research and asked to answer the questionnaire. Ten questionnaires were distributed in each school, that is, 30 teachers participated in the research.

The deadline for answering the questionnaires was sufficient so that each teacher could answer them in a calm and concatenated way to avoid the distortions of a possible under peer pressure or even the supervision of the school board. At the end of the research, a total of 23 questionnaires were obtained. In general, the application of the questionnaire occurred quietly, however, many teachers did not answer the open questions, only the objective ones.

RESULTS AND DISCUSSIONS

In this section, the analysis of the data obtained with the result of the application of the questionnaire in the three public schools of the city of Apucarana-PR will be presented.

RECOGNITION OF THEACHERS' PROFILE

The results obtained with the first question show that, out of 23 informants surveyed, 7 are men, it means 30%, and 16 are women, representing 70%. The disproportionality of teachers' gender equality in this category is approached through the analysis of the latest research published in 2016 by INEP - National Institute of Studies and Research Anísio Teixeira, which describes that in 2015 the profile of teachers was analyzed and separated by regions and states. In Paraná, which is the case of the research presented in this article, out of 135 thousand teachers, 115 thousand are women and only 20 thousand are men. An even greater disparity of gender is observed, since the number of women in the education system in Paraná corresponds to 85% in relation to the number of teachers while the 20 thousand male teachers reach only 15% of the total. The second question was related to the time the informants worked as professionals. The results in figure 1 show that 19 teachers, 82% have been working at schools for more than 10 years, demonstrating that most of them already has a consolidated career.
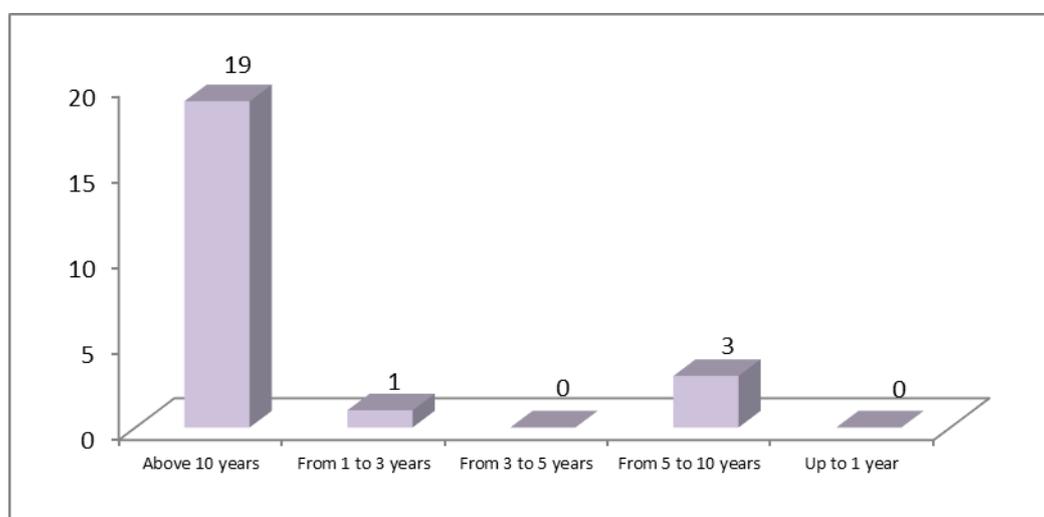
Graph 1: Time of experience as a teacher
Source: Elaborated by the authors (2016)

TECHNOLOGICAL RESOURSES

The third question dealt with the technological resources that can be used in classroom. Graph 2 shows the 10 most frequent options cited by informants. Among the answers given, the projector was the most cited element as a main tool to be used in the classroom, it was present in 87% of the answers, followed by the computer with 56%, the flash drive TV with 52%, the tablet with 43%, the Internet with 21%, the videos, the digital board and the cell phone are tied with 17% each and the radio with 13%. Out of 23 questioned people, 87% mentioned the projector as an essential tool to use in classroom, which corresponds to 20 people of the total.
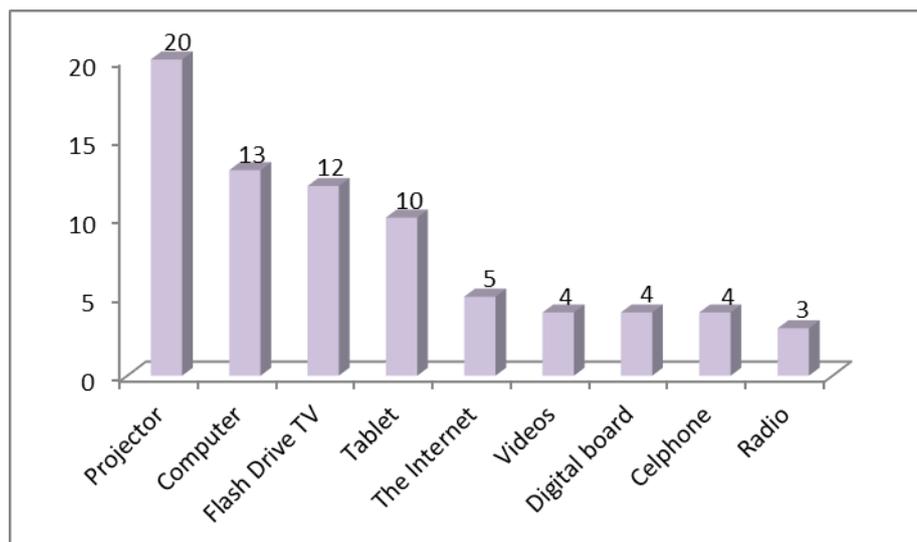
Graph 2: Technological resources which can be used in classroom.
Source: Elaborated by the authors (2016)

The fourth question sought to investigate which technological resources the informants used to prepare classes and materials. According to Leite (2004), technological resources are divided into two classes, the independent ones: that do not rely on electrical resources for their production or usage, and the dependent ones: which require electrical resources to be produced or used. In this regard, a list of independent and dependent resources was available, where they could indicate all those used by teachers in the preparation of their lessons.

In the result of this question the flash drive was obtained as main tool for the preparation of lessons, out of the 23 informants 21 opined in this matter which represents 91% of them, after that comes the computer with 20 votes, that is, 87% of the total, followed by the Internet with 19 responses corresponding to 82%. The blackboard and videos equaled 18 votes and 78%, afterwards the projector occupies 70% of the votes with its 16 voters and as the least cited come the tablet with 7 votes equaling 30%, the software mentioned by 2 teachers representing 8% and both the digital board and the book had only 1 mention equivalent to only 0.5% of the votes.

As shown in graph 3, it can be seen the two classifications of technological resources defined by Leite (2004) were mentioned, but the independent resources - which are those that do not depend on electric energy for their use - were presented by only 2 teachers, the book and the blackboard represent a low percentage, less than 1% of the total answers given. Few teachers considered them as a technological resource.
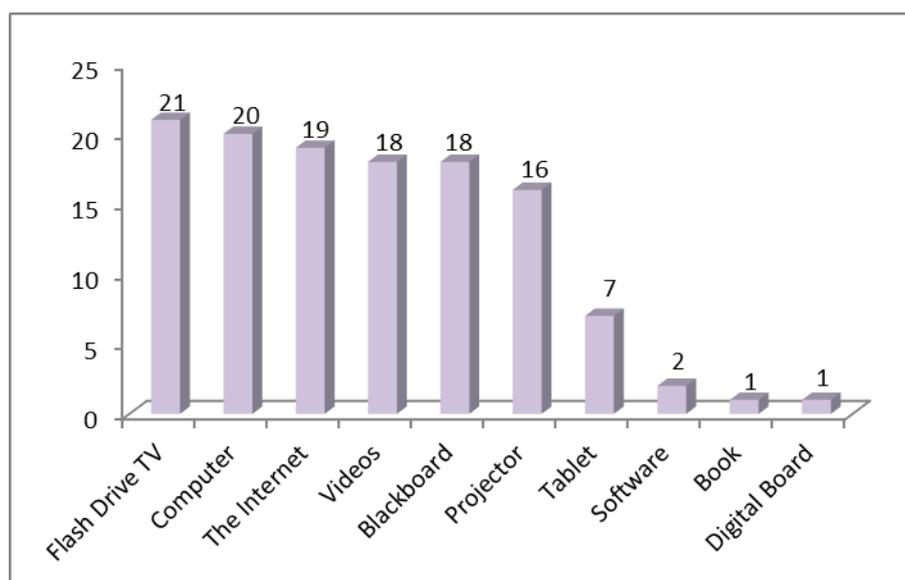
Graph 3: Technological resources used to prepare lessons and materials.
Source: Elaborated by the authors (2016).

TRAINING FOR ICT USE

The fourth question is related to the training of teachers in relation to the use of technologies in the educational context, it questioned the participation in courses for the use of technological tools. If the answer were negative, there would be no need to answer the following question, but if the answer were affirmative, the next question questioned whether the courses were promoted by a public or private institution. Out of 23 informants questioned about participating in courses to use technological tools, 14 of them, that is, 60% answered that they participated in training to use the mentioned technologies. On this fact, Moran (2009) assures that teachers must be in constant improvement, that is, 40% of those investigated did not seek to improve their practice regarding the use of technologies in the educational context.

All 14 teachers who participated in continuing education answered that the course was offered by the school which they worked at. However, 9% of teachers, that is 2 teachers, also sought to improve themselves by taking private courses at the same time. Here it gets very clear when Cysneiros (1999) argues that even though schools have technologies to offer, it does not mean they are being used properly, because the technological resources are not used by teachers in a satisfactory way, since the training provided by schools to teachers are not sufficient to master the resources. As we could see, even with the training at their school, some informants felt the need to improve their performance by looking for more course options.

The issue number 7 sought to know why teachers do not use technological resources in classrooms. This questioning was carried out subjectively with some space for the teacher to comment, however, it was not what happened. Only 16 teachers, 70% of the total, of the 23 participants opined. From the options offered, lack of technologies mastery was the most cited topic, 8 out of 16 teachers who answered this question, that is 50% of those who answered this topic, believe that lack of technological tools mastery is the main factor that justifies the disuse of technological resources.

The insufficient class time for the use of technological resources was the second item in the ranking and 4 teachers out of 16 who answered, 25%, cited it as a decisive factor for the use of the tools. These numbers represent practically one-fifth of all teachers which is a high number of dissatisfaction with the amount of class hours or even hour-activity - period teachers have available to prepare lessons. In addition, this research happened in a scenario where the teachers of Paraná were entitled to 35% of their workload in hour-activity, which represents 7 classes for a standard 20 hours a week or 14 classes for a complete standard 40 hours a week.

However, from 2017's school year on, these numbers for defining the hour-activity have changed. Through Resolution 113/2017 - GS / SEED, the Secretary of State for Education, on January 16 of this year, defined the working day for teachers of the State Basic Education Network of Paraná to be adjusted by the number of hours - activity. For 20-hour patterns, 15 of these are intended for time in classroom and only the other 5 are the hour-activity, which would be the time for the teacher to prepare their lessons, different from previous years where 13 hours were intended to time in classroom and 7 hours were at the teacher's disposal to prepare lessons. Yet, for the 40 hour-pattern it changes from 26 to 30 the number of classes in classroom and decreases from 14 to 10 the number of hour-activity class. A significant reduction of approximately 30% of the activity-hours, which directly interferes with the teacher's preparation time. If the teachers have any interest in using new technologies to deliver content, they may have to do it at home.

Thirdly, teachers chose the fact that technologies are actually working, 18% which is equivalent to 3 of the 16 teachers who opined about this matter, believe that the possibility of technologies malfunctioning is one of the reasons for being apprehensive about using them. Some of them, more precisely 12% that corresponds to 2 teachers, still claimed that there is no problem at all, they just do not use them. And to conclude this inquiry, 6 other options were tied in the votes, 6% each, which means that only 1 out of 16 teachers who were exposed and went on the unfavorable conditions of the classroom, better development of activities, insufficient equipment, laziness, delay in installation and resource availability.
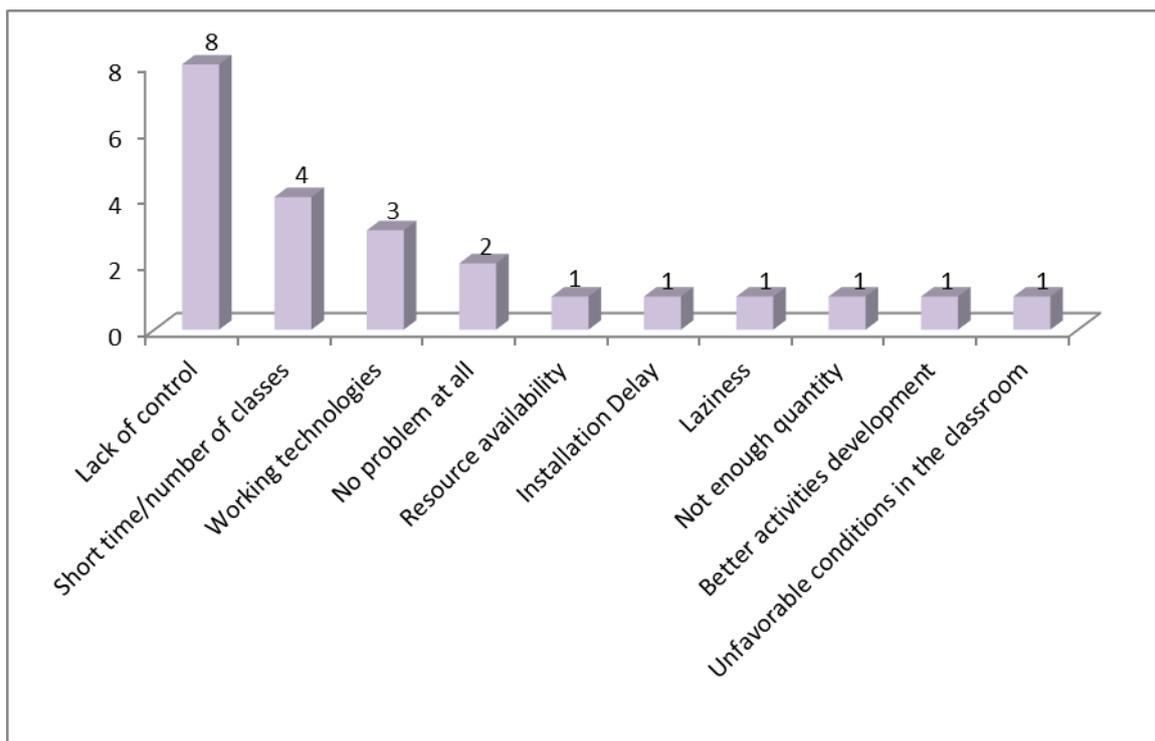
Graph 4: What are the reasons why teachers do not use tecnological resources?
Source: Elaboated by the authors (2016)

Regarding the suggestions teachers must increase the rate of use of technologies in classroom, 12 teachers, 52%, took notes. Graph 5 shows that the teacher training option was presented by 75% of the answers given, that is, out of 12 teachers who answered, 9 believe teacher training is fundamental to encouraging the use of technological resources. This information confirms once again the concept of Libane (1998) when he defends the need to integrate new technologies into the teachers' curricula and the development of skills to create favorable attitudes to the use of these technologies. Besides that, teachers asking for an ideal training shows that until now, as Gebran (2009) stated, teachers are still far from technologies and therefore the most mentioned option is teacher training.

The second option most pointed by the informants was the investment in equipment. Out of 12 informants 7, or approximately 60%, answered that there is a need for improvement in equipment investment which proves what Stahl (1997) stated when he cited the difficulties with investing in equipment procurement as one of the impediments to the use of technologies in education. Third, teachers cited the availability of equipment as a factor that disfavored the use of technology. To 4 out of 12 informants, that is approximately 33%, the lack of availability reduces the use of technologies. It is noticed that in this case the solution of the second most cited question - investment in equipment - would also solve the problem of the third item - unavailability of equipment - and it could make more teachers use technological means in their classes.

The maintenance of equipment was also cited by 2 teachers, 16%, asserting that the process of using technologies is a chain where several factors are interdependent. In the sequence, 8 options were cited with the same number of votes, only 1 vote out of 12 informants, which corresponds to 0.8% of the teachers who opined. Access to the Internet, change in curriculum, facilities for the teacher to acquire materials, improvements in classroom conditions, blogs, e-mails and incentive projects, classroom-based resources and longer time for preparation of classes were the 8 questions voted by only 1 teacher. Although there was only one vote for each of the matters above it is possible to realize that both are related, because how is there access to blogs to support the teacher didactics if there is no Internet access at school? Or how to set up classroom equipment if there is not enough time for class preparation? Therefore, it should be borne in mind that teachers have listed various adjustments to be made so that the use of technologies in class is more common to the teacher's daily life.
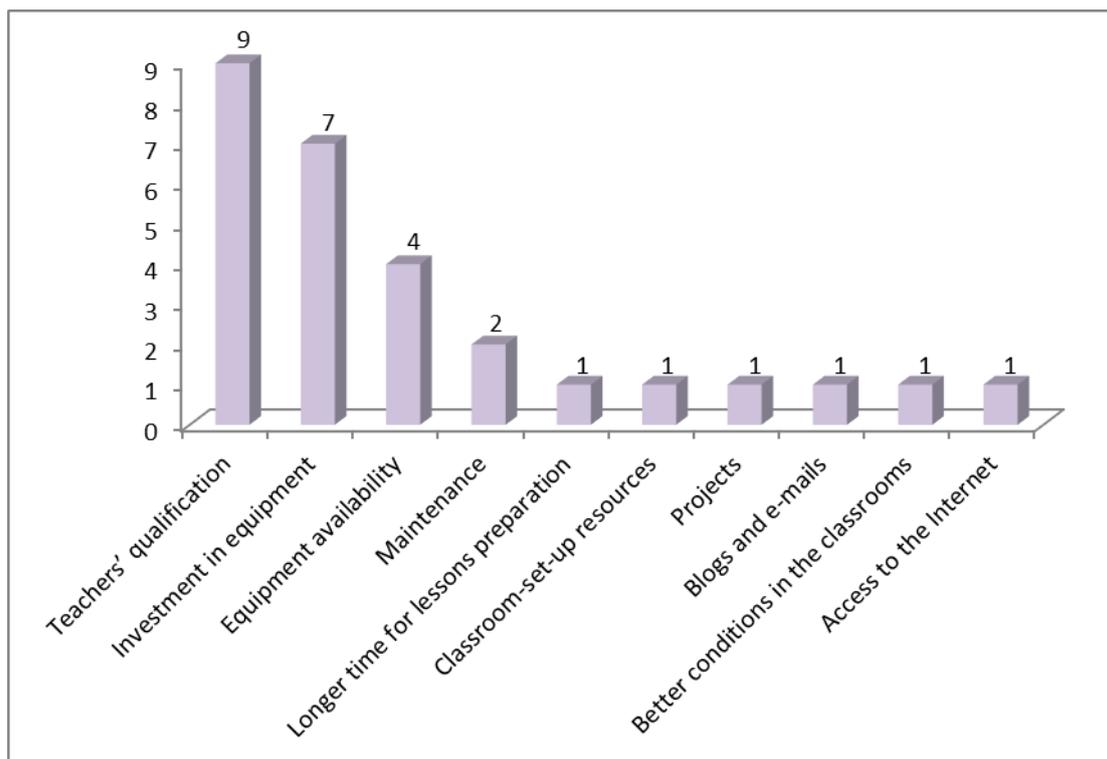
Graph 5: What is the suggestion for using Technologies in classroom?
Source: Elaborated by the authors (2016)

CONCLUSÃO

The results of the study showed that most the informants are women and the prevalence of teachers is experienced professionals, once more than 80% have more than 10 years of experience. Teachers consider as technological resources numerous tools that vary from a book to a video, but the projector remains prominent occupying the first place when it comes to technological resources. However, this was not the most pointed option when they were asked what resources they use in the classroom. The teachers rated the projector as the fourth piece of equipment used in class behind the flash drive TV, the computer and the Internet.

The data also showed the points that lead teachers to resist to the use of technological resources in the preparation of their lessons and presented options that may help them increase their use. The main reason which undermines the use of the technologies cited by the teachers is the lack of mastery of the tools.

As a suggestion of improvement in the increase of technological resources use, the predominant answers indicated the need for teacher training in relation to this knowledge, which comes to the foregoing question when they clearly pointed out the lack of control.

Despite being accomplished, the training has not sufficiently fulfilled the objective of building knowledge with the teacher, in addition, besides minimizing insipidity, it would also give the teachers a better procedural structure to organize their planning in a more dynamic way and even, after personal organization, reduce time of lesson plans. Which would make time to perfect their future lesson plans. Showing that there is synergy between the knowledge the teacher wants to pass and the technology the student wants to use and learn is a method that might help in understanding the contents.

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TEACHER CANDIDATES' AWARENESS OF SPECIAL EDUCATION

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Special education is specially designed instruction, support, and services to provide students with an identified disability. Special Education programs and services adapt content, teaching methodology and delivery instruction to meet the appropriate needs of each child. Teachers should be aware of their needs. The aim of our study is to see the awareness level of teacher candidates about special education who will teach primary school students. The sample of this study for which qualitative research methods were used includes 20 teacher candidates who study at Istanbul University in the academic year of 2016-2017. Data gathered from the results of the open-ended questions that were asked to the participants have been analyzed with the method of content analysis. Every teacher may encounter children in their class who need special education. It is important to be conscious of this issue. According to those results, in our suggestions we mention about how teachers are more aware and how they approach children who need special education.

TEACHER CANDIDATES' AWARENESS OF TECHNOLOGIES USED IN SPECIAL EDUCATION

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The number of children who need special education and the people around them have been increasing in our education system. From this viewpoint, educational activities that are provided to them are important for the society to grow and brighten. Using "technology" is a must for children with disabilities as it's crucial for education in general term. "Technology" in special education includes all the new ideas, approaches and methods that would improve learning process. What is more important is that these students should be diagnosed at the earliest age possible and get the very education they need. The aim of our study is to see the awareness level of teacher candidates who will teach primary school students about the technologies which can be used for the students with learning disabilities and to inform them about this subject. The sample of this study for which qualitative research methods were used includes 50 teacher candidates who study at Istanbul University in the academic year of 2016-2017. Data gathered from the results of the open-ended questions that were asked to the participants have been analyzed with the method of content analysis. According to those results, some suggestions on how to raise teacher candidates' awareness about the needs of students with disabilities were made

TEACHER REPRESENTATIONS ON THE USE OF DIGITAL TOOLS IN ELEMENTARY SCHOOL CLASSROOMS: A CASE OF 12 TEACHERS' STATEMENTS

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This study describes the first work-package of a longitudinal research work. This first study aims to collect representations of 12 elementary school teachers in a French Polynesian context concerning the use of digital tools in teaching situations. To what extent do teachers know about digital tools? How do they use them in their classroom? How does the use of digital tools change teaching practices and interactions in the classroom? What is the added value of these tools for learning? How do teachers feel about using these digital tools in their teaching? On the one hand, the theories on social representations will be summoned to understand the dynamics of the use or non-use of an instrument in teaching. On the other hand, the interactionist perspective will be referred to in order to understand the statements of the teachers as regards teaching situations which employed scaffolding techniques with or without digital tools. The study uses a descriptive qualitative research methodology. This first work-package was conducted by using semi-directed interviews, with 12 elementary school teachers from French Polynesia. The sampling was carried out according to the principle of empirical saturation andmaximum variation. The analysis of the data (currently in progress) is based on the anchored theorization method with axial manual coding and triangulation.

TEACHERS AND STUDENTS' PERCEPTIONS OF TEACHING AND LEARNING ENGLISH IN SMALL CLASSES: A CASE OF ECUADOR

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ABSTRACT

The English language teaching learning process in small classes may turn challenging for some teachers but also rewarding because of the results obtained. In our country, the majority of high schools have a big number of students in the English courses and this may be one of the causes for language low achievement. For this reason, this study is aimed at exploring teachers and students' perceptions on the benefits, strategies and resources, students' feelings, and the possible limitations the teaching and learning of English in small classes may yield to promote changes in the number of students in Ecuadorian English classrooms. The findings show that small classes help teachers design, apply activities, use strategies, and resources that make it easier for students to interact, participate, and receive appropriate feedback. Regarding students, they feel relaxed and motivated to learn English among few students; however, the fact that teachers' control of the small class allows them to address students more frequently, make students feel anxious.

Keywords: small classes, teachers and students' perceptions, benefits, strategies and resources, students´ feelings, limitations

INTRODUCTION
One of the most common obstacles that English teachers face in Ecuadorian high schools is the amount of students per class, which may have a positive or negative influence on the teaching and learning of the English language. The average number of students per class in public high schools is 40. In this sense, teachers make efforts to improve their teaching skills in order to overcome problems that appear in relation to the assigned class size. According to Harmer (2007) large classes present bigger challenges than small ones. But working with small groups may imply a necessity to overcome some specific challenges since as it is stated by Schreiner (as cited in Zayed 2016) working with small classes increases student anxiety. Despite the fact that the problem mainly lies on large classes, this study focuses on small classes. For this reason, the purpose of this paper is to identify teachers and students' perceptions of the benefits, strategies and resources, students' feelings, and the possible limitations in teaching and learning English in small classes. These results will be presented to our society as a contribution for the improvement of this field.

LITERATURE REVIEW
Small classes
Deciding on the appropriate number of students in an English class has been discussed by field experts for some time. According to Finn, Pannozzo, and Achilles (2003) cited in Bray and Kehle (2011), when a class has less than 20 students, it is considered to be a small class. In fact, most EFL instructors prefer teaching groups of about 15 students which is similar to the above mentioned number. Folger (1989) cited in Bray and Kehle (2011) highlights that the benefits of small classes are reflected in students' learning behaviors; students' social behaviors; and student-teacher interactions. Regarding students´ learning and social behaviors, students demonstrate more academic commitment which results in higher achievement. In addition, the author states that small classes provide opportunities for more active students' participation in regards of discussions and question-answer activities. In relation to student-teacher interactions, Folger (1989) reports that there are more opportunities for personalized instruction which helps to identify students' weaknesses.

Likewise, Exley and Dennick (2004, p. 3) state that "in a small group, students can be encouraged to talk, think, and share much more readily than in a large group. Communication is at the heart of small group teaching of any kind and a crucial first step is the willingness of the students to speak to the tutor and to each other." In addition, the authors claim that teachers benefit from small groups because they can provide feedback to all students; this support can be given during whole group or individual performance by providing advice on personal problems or in any issue that students may face.

Managing learning in small classes
Success in the teaching-learning process involves different aspects; it goes from the design and implementation of good and flexible lesson plans to the application of accurate classroom management strategies.

The current literature review focuses on some of the aspects that are more relevant at the moment of teaching a lesson; aspects such as: instruction, feedback and timing. Regarding instructions, Harmer (2007) assures that there are two general rules that teachers have to consider when providing instructions because they must be as simple and clear as possible, and they must be logical. Nunan (1996) highlights that providing clear instructions is an ability that teachers have to develop to improve ESL, and EFL learners' performance.

Consequently, before an instruction is given, teachers have to consider students' previous knowledge, the message they want to convey, and the order in which the information must be used and presented; afterwards, the teacher must confirm students´ understanding by requesting a student to explain the activity to be performed.

The time set for students to complete tasks is also an important aspect in managing learning. In this sense, Levin and Long (1981) have identified a subdivision. First, allocated time which is the space of time that teachers consider enough to develop the activity. Second, time on task which is the amount of time that students are engaged during the assigned task. Finally, academic learning time that is the moment in which learners develop the activity, and reach a high level of productivity.

Another aspect that is relevant to be included in managing learning is feedback; to this regard, Harmer (2011) states that in order to increase motivation, and enhance learning environment, it is important to provide feedback to students. In this sense, Ackerman and Gross (2010), affirm that both positive and negative feedback lead to successful performance. The authors highlight that the nature of feedback is negative since it focuses on the weak points of students' performance and motivates improvement. On the other hand, Ackerman and Gross point out that positive feedback emphasizes on positive aspects of an assignment which will increase students' sense of achievement, but it is important to consider that pupils will not improve much if they only receive positive feedback.

Learning environment in English classes
Dornyei and Murphey (2003, p. 77) have emphasized that being creative and flexible in the classroom build a relaxing learning environment; for instance, the arrangement of desks promotes interaction and communication which at the same time conveys powerful effects on students' participation, leadership opportunities and affective potential of group member. The authors highlight that it is not easy to suggest an ideal seating arrangement since it will depend on the purpose and needs.

In the same regard, Harmer (2001) states that the physical appearance of the classroom and the emotional atmosphere of lessons have positive results on students' motivation to learn. Thus, it is important to present an attractive classroom that generates an appropriate atmosphere where students can work on different activities without having problems when moving around the classroom if working individually or in groups. In the same fashion, Zubizarreta (2010) states that the environment in small classes allows collaboration, mentoring, active learning, and community building which are benefits used by teachers and learners to reach their goals.

Strategies and resources to teach English
Regarding strategies, Robert, Kaplan, and Richard (1997) affirm that the use of the target language, group work and pair work are considered useful strategies that contribute to enhance communication in small classes. Another technique suggested by Wilbert and Marilla (2010) is discussion which can be used with any group size but it is more effective when used in smaller classes. By applying discussions, students are expected to integrate, apply, and think. These skills allow teachers to understand students´ point of view.

Teacher-student, and student-student interaction in small classes
According to Exley and Dennick (2004) teaching small groups allow instructors to boost students´ interaction. By interacting, students share their opinions and help each other understand difficult concepts and explanations. In addition, Johnston (1990) (as cited in Bray and Kehle, 2011) states that small classes let students have frequent interaction with their teachers. As a result of the interaction among teachers and students in small classes, Zahorik (1999) (as cited in Bray and Kehle, 2011) explains that students get positive outcomes which increases enthusiasm and self-confidence.

Previous Studies
Previous studies have been devoted to discover whether or not small classes benefit English language teaching and learning. Blatchford, Russell, Bassett, Brown, and Martin (2006) conducted a longitudinal research design study aimed at determining the effects of class size on teaching in English primary schools of pupils aged 8-11 years. The sample for this study involved 202 schools, chosen by stratified random sampling. The data was gathered by using a multi-method approach, integrating qualitative information from teachers' end-of-year accounts and data from case studies with quantitative information from systematic observations. The authors concluded that there was more individual attention in smaller classes, a more active role for pupils, and beneficial effects on the quality of teaching.

A similar study conducted by Din (1999) focuses on the functions and benefits of small classes to both teachers and students. For the purpose of this study, full-time teachers with five or more years of experience in a school district were selected. A questionnaire that contained open-ended questions related to Chinese rural teachers' perceptions regarding class size was applied to each of the selected teachers. The results permitted to reach to the conclusion that Chinese rural teachers think that there is not a relation between class size and student achievement. Nevertheless, they consider that small classes promote classroom management, interaction between teacher and students, and personalized feedback from teachers; and reduce teachers' working time.

Harfit (2012) conducted a small-scale exploratory study that aimed at examining whether and how class size reduction might help to alleviate language learning anxiety, which has long been seen as an obstacle to second language acquisition. To develop the study, the author applied multiple case studies in 4 Hong Kong secondary schools. Each case study involved one teacher teaching English language to first language Chinese students in a reduced-size class and a large class of the same year grade, and of similar academic ability. Multiple interviews were applied to four teachers and 231 students. Students' interview focused on their perspectives and experiences of studying in large and reduced-size classes. The research findings revealed that students' sense of anxiety can be reduced in smaller classes.

Galton and Pell (2012) conducted a study with the purpose of establishing the benefits of teaching in a small class. In addition, the study sought to find if there was improvement in the student's' participation and quality of teaching in a reduced class. For this research, 37 primary schools participated voluntarily. In order to gather the information, the sample was divided in 3 cohorts that were observed and recorded in a 3 year period. During the first 2 years, reduced classes were chosen to be observed. In the last year of the study, both normal and reduced classes were observed. In addition to the observation, researchers recorded the student-student and student-teacher interaction. The authors concluded that students in small classes do not get more of the teachers' complete attention, than students in regular classes. Also, teacher-student interaction in normal classes is really brief compared to interaction in small classes where interaction is longer.

METHOD
Participants
This study was conducted in Ecuador. The sample consisted of 1146 students and 84 teachers from three regions of the country, Coast, Highlands, and Amazon. The participants belonged to different schools, high schools, and language academies where English is taught as a foreign language. The sample included learners from diverse socio-economic status.

Procedures
A mixed method research design was selected to conduct this study. In order to collect the data, 2 instruments were designed, a questionnaire for teachers and students; and an observation sheet. The questionnaires were designed in English and were aimed at gathering teachers and students' opinions regarding the teaching and learning of English in small classes in Ecuador.

The observation sheet included questions to support what teachers and students answered in the questionnaires. These questionnaires and the observation sheet were validated by experienced teachers. Secondary researchers of around the country were trained in order to apply these instruments.

ANALYSIS

Table1: Teachers and students' perceptions of teaching English in small classes in Ecuador									
Description		Teachers' perceptions				Students' perceptions			
		Totally disagree	Disagree	Agree	Totally agree	Totally disagree	Disagree	Agree	Totally agree
		%	%	%	%	%	%	%	%
Benefits of teaching and learning English in small classes	1. The designed activities help students to apply what they have been taught.	2.44	2.44	31.71	63.41	0.88	5.1	39.93	54.09
	2. The students are attentive and participate in class activities.	2.44	3.66	32.93	60.98	1.32	12.05	50.75	35.88
	3. Classroom space allows students to properly do the activities designed.	3.66	6.1	30.49	59.76	1.58	7.3	37.03	54.09
	4. Appropriate feedback can be given.	2.44	3.66	31.71	62.2	1.85	8.88	35.88	53.39
	5. Activities that allow more interaction	2.44	6.1	26.83	64.63	2.64	8.27	40.55	48.55

	among students are performed.								
	6. There is more interaction between the teacher and the students.	2.44	1.22	30.49	65.85	1.32	5.54	30.87	62.27
	7. It is easier to remember students' names.	2.44	2.44	24.39	70.73	1.23	7.39	23.48	67.9
Strategies and resources that favor the English teaching in small classes.	8. Design and apply activities that allow student to practice listening, speaking, reading, writing skills.	0.31	4.27	29.56	65.85	1.3	7.72	33.07	55.43
	9. Design and apply group work activities.	0	3.65	34.14	62.19	1.85	11.96	37.82	48.37
	10. Design and apply individual activities.	1.22	3.66	21.95	73.17	1.5	6.07	32.1	60.33
	11. Use technological tools	3.66	12.2	30.49	53.66	11.26	2.9	32.54	34.3
	12. Use didactic materials.	0	10.98	30.49	58.54	5.36	18.56	37.03	39.05
Students' feelings when learning English in small classes.	13. They are relaxed when speaking in front of their classmates.	1.22	6.1	43.9	48.78	2.9	10.47	36.94	49.69
	14. They feel part of the class because the teacher gives them more opportunities to participate.	1.22	1.22	20.73	76.83	2.11	9.94	37.82	50.13
	15. They are motivated to participate because of the small number of students.	1.22	7.32	28.05	63.41	1.5	10.2	38.87	49.43
	16. They are at ease because they can healthy compete with their classmates.	0	4.88	30.49	64.63	2.02	9.41	37.82	50.75
Limitations of learning English in small classes.	17. There is anxiety among students because there is more control form the part of the teacher.	12.2	26.83	46.34	14.63	11.52	21.11	37.38	29.99

Findings in table 1 reveal that an important number of teachers 63.41% and 31.71% totally agree and agree in relation to item 1. In the same way, 54.09% of students totally agree and a 39.93% of them agree on the fact that the activities applied in classes help students to practice what they have been taught. These results indicate that the small number of students in the class allows teachers to design activities that enhance students to move from theory to practice, thus reinforcing their knowledge; resulting in the achievement of English language goals. On the contrary, 2.44% of teachers totally disagree and disagree respectively and a small percentage of students 0.88% totally disagree and 5.1% disagree. These results indicate that a small amount of students believe that they do not benefit from the activities their teachers apply during the lessons because of the level of difficulty of the types of activities used do not allow learners to improve their knowledge of the English language.

The positive results obtained in item 1 were also confirmed through classroom observations where most of the activities used were well designed considering the contents studied during the lessons and the different learning preferences; that is the reason why students seem to be motivated and feel confident to participate. These findings are supported by Folger (1989) cited in Bray and Kehle (2011) who argue that students in small classes participate in activities such as discussions and question-answer providing them opportunities for applying what they have learned. Similarly, Exley and Dennick (2004) claim that students may be engaged in activities that allow them to talk, think and share. Through this strategy they can demonstrate their competence in the English language.

In regard to item number 2, the results presented in table 1 show that 60.98% and 32.93% of teachers totally agree and agree respectively. Similarly, students' responses show that 50.75% and 35.88% of them agree and totally agree on the fact that in small classes, students respond attentively and with enthusiasm to the planned activities, they are keen to participate with more confidence with their peers. In contrast to these positive results, table 1 also shows that a small percentage of teachers 3.66% and 2.44% disagree and totally disagree, in that order; in the same perspective 12.05%, and 1.32%, disagree and totally disagree respectively to the aspects mentioned above. In addition to the results above, the class observation evidenced that classrooms with a small number of students allow teachers to manage the class better and also facilitate students to actively participate in class, and be attentive most of the time during the lesson. In regard to students' responsiveness and willingness to participate in small classes, Exley and Denneck (2004) emphasize that in small classes, teachers can easily motivate students to think and share among them and participate in class. Regarding motivation, Zahorik (1999) (as cited in Bray and Kehle, 2011) emphasizes that when students get positive outcomes, their enthusiasm and self-confidence boosts. Besides, the authors emphasize that communication is inherent to small classrooms. Based on the aforementioned information, teaching in small classes not only promotes students motivation but also enhances enthusiasm and self-confidence; therefore, it is more productive to work with small classes.

As it can be seen, 59.76% and 30.49% of the teachers agree and totally agree respectively on the statement presented in item 3; likewise, a high percentage of students (54.09% totally agree and 37.03% agree) perceived that in classrooms with a low number of students, the space can be used effectively for different activities. There is enough room to arrange seats in different ways which at the same time suits the performance of a variety of activities. On the other hand, a low percentage of teachers (3, 66 % totally disagree and 6, 1% disagree) and a low percentage of students (1.58% totally disagree and 7.3% disagree) think that classroom space does not influence in the performance of activities in small classes. In addition to the above results, through the observations, it was evidenced that students were eager to collaborate when teachers asked to arrange seats according to the activities. These results are supported by Dornyei and Murphey (2003, p. 77) who highlight that the arrangement of desks promotes interaction and communication which enhances students' participation, leadership opportunities and group work.

As it is observed, 62.2% of teachers totally agree and 31.71% of them agree with the issue stated in item 4. Comparably, 53.39% of students totally agree and 35.88% of them agree on the fact that in classes with a small number of students it is possible to provide effective and timely feedback as part of the learning process. As a result, students benefit from small classes since teachers have enough time to address personal students´ mistakes by giving them immediate feedback favoring meaningful learning. These results are aligned with Harmer's ideas (2011) who states that in order to promote motivation, and to enhance learning environment, it is important to provide feedback to students. On the other hand, a small percentage of teachers, 3.66% disagree and 2.44% totally disagree, and a similar small percentage of students, 8.88% disagree and 1.85% totally disagree on the fact that appropriate feedback is given. In addition to the above mentioned results, the observation corroborated that teachers give appropriate feedback in classes with a reduced number of students by solving each student concerns. In this sense, Ackerman and Gross (2010), affirm that both positive and negative feedback lead to successful performance. The authors highlight that the nature of feedback is negative since it focuses on the weak points of students' performance and motivates improvement. On the other hand, these authors point out that positive feedback emphasizes on positive aspects of an assignment which will increase students' sense of achievement, but it is important to consider that pupils will not improve much if they only receive positive feedback.

The results show that in item five 64.63% of teachers totally agree, and 26.83% of the teachers agree on the fact that carrying out activities in small classes allow more interaction amongst students. Moreover, the results also show that 48.55% of students totally agree and 40.55% of students agree on the same fact. In this regard Exley and Dennick (2004) state that interaction increases in small classes because students are able to share their thoughts and help each other when facing difficulties. At the same time, results in item 5 show that 2.44% of the teachers totally disagree and 6.1% disagree on this same item.

Furthermore, 2.64% of students totally disagree and 8.27% disagree on the fact that activities in small classes permit interaction among students. These results concur with the class observation where the majority of students had the opportunity to share ideas and participate in discussions; while just a few number of students did not participate at all when working in groups. Indeed, they did not use the target language at all.

Regarding item 6, there is more interaction between teachers and students when working in small classes, the statistical analysis provided the following results; 65.85% and 30.49% of participant teachers totally agree and agree, correspondingly. In the same line, 62.27% and 30.87% of participant students totally agree and agree, in that order. Conversely to positive results, table one shows that a small percentage of teachers and students do not agree on the fact stated in item 6. In this sense, 2.44% and 1.22% of teachers totally disagree and disagree, respectively; likewise, 5.54% and 1.32% of students disagree and totally disagree, correspondingly.

It is important to highlight that the statistical results presented above are closely related to the anecdotic data gathered during the class observation, in which it was evident that interaction between teachers and students was more frequent and productive in the sense that teachers were able to personalize the information.

Not only statistical results and observation data confirm the increase of interaction between teachers and students in small classes, but also authorities in the field highlight the fact that students interact more frequently with their teachers in small classes (Johnston, 1990 in Bray & Kehle, 2011). The improvement of interaction in small classes takes place among students, and also between teachers and students. In the first case, the interaction is a means to share information and support learning while in the case of student teacher interaction, the teacher use it to encourage students participation, as Exley and Dennick (2004) concluded. From all of the evidence, it is clearly inferred that small classrooms become an appropriate environment for interaction to take place.

As shown in item seven, 70.73% and 24.39% of teachers totally agree and agree respectively. A similar percentage of students, 67.90% and 23.48% totally agree and agree. These results suggest that a big amount of teachers and students consider that learning students' names in small classes is not a problem because a small group of students make the task of learning students' names easier. On the contrary, a small percentage of teachers (2.44% totally disagree and disagree respectively) while 7.39% and 1.23% of students totally disagree and disagree. From the observations conducted, it was encountered that in most of the lessons, teachers call students by their names. It was also evident that calling students by their names is a good strategy that provides some benefits in the classroom; for example, the students who participated in this study feel more comfortable and confident during the development of each activity.

The statistical data obtained from teachers in item 8 show that 65.85% and 29.56% totally agree and agree respectively; this is confirmed with students' data, 55.43% and 33.07% totally agree and agree on the fact that in small classes, teachers can design and apply activities that allow students to strengthen the listening, speaking, reading, and writing skills. On the other hand, a low percentage of teachers, that is 4.27% totally disagree and 0.31% disagree and a similar tendency among students that represents 7.72% who totally disagree and 1.3% who disagree correspondingly. In addition to the above results, the class observation evidenced that classrooms with a small number of students offer an appropriate environment to develop the four skills but mainly the speaking skill because all students have the same opportunities to participate in the activities which is challenging when teaching large classes. To this respect, Ur (1996) states that speaking is the most important skill among the four language skills because people who know a language are referred to as speakers of that language. Thus, students in small classes are exposed to a vast amount of practice that help them to achieve the communicative competence.

With regard to item 9, findings show that 62.19% and 34.14% of teachers totally agree and agree respectively. Regarding students responses, 48.37% and 37.82% of them totally agree and agree correspondingly. These results signify that a large percentage of teachers and students consider that group work activities are easy to develop in small classes. On the other hand, a small percentage of teachers 3.65% disagree and 1.85% and 11.96% of students totally disagree and disagree on the fact that group work activities are applied in small classes. In addition to these results, the observations conducted in the sample classrooms confirm that most of the activities applied during the lesson are developed in groups where students can have more opportunities for verbal interaction, they help each member of the group to accomplish the assigned tasks and enjoy participating in every group work activity. In this respect, Robert, Kaplan, and Richard (1997) claim that group work is an excellent strategy that benefit teachers and students in small classes in the sense that communication is enhanced.

Results in item ten show that 73.17% of teachers totally agree and 21.95% agree that designing and applying individual activities favor the English teaching is small classes. In addition, 60.33% of students totally agree and 32.1% agree on the same fact. Contrary to the previous results 1.22 % of teachers totally disagree and 3.66 disagree on the fact that designing and applying individual activities favor the English teaching in small classes. A similar tendency was obtained from the students in which 1.5% of them totally disagree and 6.07% disagree. Contrasting the results with the observations, it can be affirmed that making students work on individual activities allows them to give more thought, participate and express their ideas; thus, favoring English learning.

Results in table 1, item 11 demonstrate that 53.66% and 30.49% of teachers totally agree and agree respectively with the fact that small classes allow the use of technological tools. Similarly, 34.3% (totally agree) and 32.54% (agree) of students agree with this fact. On the other hand, 3.66% and 12.2 % of teachers (totally disagree and agree respectively) do not consider that technological tools are used in small classes to teach English; likewise, a low percentage of students (11.26% totally disagree and 2.9% disagree) have the same perception. These results have been supported by the observations done in the classrooms where technological resources such as laptops, cd players, digital books, and overhead projectors were used to present the different topics as well as to involve students in a wide variety of activities. The use of technology provides positive advantages; for this reason, Bonilla and Espinoza (2014) suggest its use in order to make students be more interested in the subject, to decrease the time that is spend in learning , and to offer more opportunities to learn in untraditional ways.

In regard to the use of didactic material, the results obtained in item 12 are the following: 58.54% and 30.49% of teachers totally agree and agree respectively on the fact that it is easier to use a variety of didactic materials in a small class; this fact is corroborated by 39.05% of students who totally agree and 37.03% of students who agree. In contrast to these positive results, 10.98% of teachers totally disagree as well as 5.36% and 18.56% of students (totally disagree and disagree) consider that small classes do not favor the teaching and learning of English by using didactic materials. The observations confirmed the results provided by the majority of teachers and students since didactic materials such as flashcards, pictures, dictionaries, photocopies, posters, maps, and books were used to teach different contents.

Considering that speaking skill is one of the most difficult skills to be developed; in the current analysis, item 13 aims to prove if the statement 'In small classes, students are relaxed when speaking in front of their classmates,' is right or wrong. Taking as the base the information gathered from the statistical report, it is seen that 48.78%, and 43.9% of teachers totally agree and agree, respectively; in the same regard, 49.69% and 36.94% of students totally agree and agree with the fact that 'In small classes, students are relaxed when speaking in front of their classmates'. On the other hand, 6.1% and 1.22% of teachers disagree and totally disagree to the fact that 'In small classes, students are relaxed when speaking in front of their classmates;' in the same line, 10.47% and 2.9% of students disagree and totally disagree on the statement being analyzed. In regard to the influence of class size on the development of the speaking skill, it is stated that a small class is the perfect place for learners to develop willingness to improve their speaking skills (Yashima, 2002). The results of the current analysis plus the fact presented by the expert on the field have contributed to confirm that 'in small classes, students are relaxed when speaking in front of their classmates.'

In the case of item 14, the trend is that the majority of the teachers, that is 76.83% of them, totally agree and 20.73% who agree on the fact that small classes favor students´ language learning because they can be provided with more opportunities to participate in class. These opinions are corroborated by students´ perceptions since 50.13% of them totally agree and 37.82% agree that in small classes there is more likelihood of student active participation in the learning process which fosters a high level of energy and enthusiasm in the classroom learning environment. It is evident that in small classes it is feasible to ask each student to participate. The percentage of teachers who totally disagree and disagree on the statement posted in item 14 is only 1.22%; the same happens with the students who totally disagree since it reaches only 9.94% and the ones who disagree is only 2.11% who consider that in small classes they do not feel part of the class because teachers do not provide them equal opportunities to participate. The class observations corroborated what was mentioned by the majority of students because it was evident that students feel part of the class because the teacher is constantly calling on their names for interactive participation. According to Harfitt (2015) it is clearly noticeable that small classes seem to be characterized by more collective identity through increased participation.

Motivation is a crucial aspect in the teaching learning process of the English language; motivation can be intrinsic or extrinsic, and it can be triggered by many different factors: affective, physical, among others. In the analysis of item 15 from the current study, the influence of a physical aspect in the motivation to learn English is observed: 'Students are motivated to participate because of the small number of students.'

 In regard to the fact stated in item fifteen, an amount of 63.41% and 28.05% of teachers express that they totally agree and agree, in that order, on the fact that students are motivated to participate because of the small class size. The same positive results are seen on the student's side 49.43% and 38.87% of students responded that they totally agree and agree respectively on the fact that students feel motivated to participate because of the small number of students. Conversely to positive results, it is seen that 7.32% and 1.22% of teachers disagree and totally disagree on the fact that students are motivated to participate because of the small number of students. In the same sense, 10.2% and 1.5% of students disagree and totally disagree, to the statement being analyzed, accordingly. In regard to small classes as an aspect that motivates students' participation, Exley and Dennick (2004, p. 3) state that in small groups, "students can be *encouraged* to talk, think, and share much more readily than in a large group." The authors also state that "Communication is at the heart of small group teaching of any kind and a crucial first step is the *willingness* of the students to speak to the tutor and to each other."

All in all , it can be assured, based on the information above, that there is a direct relation between motivation and number of students in class which means the smaller the number of the students, the higher the degree of motivation, and vice versa.

With respect to item 16, 30.49% and 64.63% of teachers totally agree and agree and 37.82% and 50.75% of students totally agree and agree respectively on the fact that small classes provide an adequate environment in which students can healthy compete. On the other hand, 4.88% of teachers disagree and a small percentage of students 2.02% and 9.41% totally disagree and disagree respectively. The positive results obtained in this item were verified with the observations performed in the classrooms where teachers apply activities in which students can healthy compete. While the activities were performed, it was perceived that students work collaboratively and the different groups compete in a healthy environment. As it is stated by Zubizarreta (2010), the environment in small classes allows collaboration, mentoring, active learning, and community building which help teachers and students to accomplish their goals.

Nevertheless, working with a small number of students can also generate students' anxiety as it is demonstrated in the results obtained in item 17 which show that 14.63% of teachers totally agree on the fact that in small classes students are more controlled, which may them feel anxious when working in the classroom, and 46.83% of them affirmed that they agree. Comparing these results with students´ perceptions, it was found that 29.99% totally agree and 37.38% agree; on the contrary, 12.2 and 26.86 of teachers totally disagree and disagree while 11.52% and 21.11% of students totally disagree and disagree that there is anxiety among students because there is more control from the teachers' side. During the class observations, it was confirmed that some students do not feel comfortable in small classrooms due to the fact that the teacher monitors them all the time. It is aligned with Schreiner (as cited in Zayed 2016) point of view who states that working with small classes increases the level of anxiety in students.

CONCLUSIONS
Teaching English in small classes provide more benefits than limitations. Teachers have the opportunity to apply varied resources, strategies, and activities that involve working in groups or individually. They allow students to put into practice what they have been taught in a more interactive manner without worrying about space limitation. Another benefit is that students feel more confident to interact among them because of the sense of empathy and respect that builds up in small classes; additionally, communication between students and teachers becomes at ease because teachers are capable to personalize feedback which helps to increase students' sense of belonging. On the other hand, it was found that small classes increase students' anxiety when they feel that teachers control or monitor them all the time which inhibits them at times. This represents a limitation to be considered for further studies.

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TEACHERS' ATTITUDES INVESTIGATED TOWARDS STUDENTS WITH AUTISM SPECTRUM DISORDER

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ABSTRACT

This study was undertaken to determine the attitudes of primary public regular school teachers towards the inclusion of students with Autism Spectrum Disorder (ASD) in Malaysia. The purpose of this research is to measure the teachers' awareness of, and attitudes towards students with Autism Spectrum Disorder (ASD) inclusive education in the mainstream schools. This study is conducted with 100 participants from 3 primary schools Kuala Lumpur, Selangor in Malaysia, who completed a survey that covered socio-demographic information and teaching experience, attitudes of inclusion within their school, experience and knowledge of ASDs, influences on inclusion of pupils with ASDs, ability to cope with behaviors associated with ASDs, and benefits and problems associated with inclusion of pupils with ASD in mainstream

Analysis was quantitative, the independent variables were gender, age, and experience of teaching children with Special Educational Needs (SEN); the dependent variables were knowledge of Autism and attitude towards children with ASD. Very few differences in knowledge or attitude were found among the different groups of teacher educational background. The findings were no significant differences in either knowledge or attitude were found in age or gender. The study shows, that whilst teachers with experience of teaching children with SEN had more knowledge, they also did not have more positive attitudes as compared to others from different majors. In general, the study revealed that most teachers had a moderate level of knowledge on SEN. The concern of inclusive education for teachers, teacher educators and children with ASD alike that there may possibly be no interrelatedness between knowledge, attitudes, and experience.
Keywords: Autism Spectrum Disorder, teachers' attitudes, inclusive education, inclusion, teachers' training

INTRODUCTION

Teacher attitude is a moderating variable that can influence the successful implementation of effective interventions within the inclusive classroom. Autism is a complex developmental disability that typically appears during the first **3 years** of life due to a neurological disorder that affects the functioning of the brain. It is **4** more **times** prevalent in boys than girls. Autism shows no racial, ethnic or social boundaries, and cuts across family income, lifestyle and educational levels. Autism and its associated behaviors have been estimated to occur in as many as **1 in 68** newborns (CDC, 2014). That would mean approximate 9000 children in Malaysia are born with Autism every year. Ministry of Health Malaysia, the prevalence of ASD in Malaysia was approximately 1.6 in 1000 (MaHTAS, 2014). As the number of school-age children diagnosed with ASD increases drastically, the inclusion of these children in the regular education classroom have become a major educational concern.

Research has demonstrated many benefits of inclusion for students with ASD, especially positive social interactions and peer modeling (von der Embse, Brown, & Fortain, 2011). However, including students with ASD in the regular classroom can be challenging because ASD is characterized by symptoms in two domains: social communication for instance problems adapting behavior to fit various social contexts, poor eye contact, and abnormal facial expression and behaviors and interests such as unusual interests and stereotyped body movements (American Psychiatric Association, 2013; Hall, 2012). Behaviors in both domains play an important role in impacting the daily functioning of students with ASD, especially in their interactions with peers, teachers, and other personnel within a school setting.

Therefore, the purpose of this study was twofold: (a) to investigate in-service teachers' attitudes towards students with ASD; and (b) to examine the implications of the attitudes on professional practice. The following literature review defines teacher attitudes and discusses existing studies on teacher attitudes related to students with ASD. The rationale and research questions for this study are then presented. This study investigated on the specific inclusion of students with ASD in the general education classroom by addressing the needs of the teachers.

Autism Spectrum Disorder Definition

Autistic Disorder. Autistic Disorder, also known as classic autism, is characterized by impairments in "social interaction, communication, and behavior with restricted and stereotyped interests" (Tonge & Brereton, 2001, p. 672). Autistic Disorder can be clearly diagnosed by "30-36 months," yet symptoms are more commonly noticed "during the second year of life" (Tonge & Brereton, 2011, p. 672). The cognitive ability of children with Autistic Disorder can range from severe to moderate disabilities. However, usually a cognitive assessment "reveals a scatter of abilities with more difficulty in verbal and language skills" and this is coupled with a "better performance in visual motor activities" (Tonge & Brereton, 2011, p. 673). Children with Autistic Disorder also fail to make eye contact and lack facial expression while they also "tend to follow their impulses regardless of the situation" (Vernon & Rhodes, 2009, p. 6). Roughly one third of children with Autistic Disorder are nonverbal. The majority of children with Autism Disorder has IQ scores described labeling them with an "intellectual disability;" however, one third have an IQ score of average or above average (Ryan et al., 2011, p. 57).

Classes of Autism Spectrum disorders consist of "Autistic disorder, Asperger's disorder, and Pervasive Developmental problems - no longer in any other case specified (PDD-NOS) (Gerdts & Bernier, 2011, p. 1). Every of these disorders has their personal set of characteristics, but they have a tendency to overlap and are grouped into the ASD identify. Autistic disorder is characterized by means of social, communication, and behavior restrictions. Asperger's disorder is a form of autism wherein youngsters show the characteristics of Autistic sickness, but lack the cognitive and speech delays. Children categorized with PDD-NOS have Autistic characteristics, however they do now not match underneath a particular labeling or disorder. Rett Syndrome and early life Disintegrative disease (CDD) can also be labeled beneath the ASD umbrella (Ryan et al., 2011).

ASDs are characterized by means of students "being impaired in the ability to communicate, recognize the language, play, broaden social skills, and relate to others" (Raymond, 2008, p. 197). In 1943, Kanner first created a set of 7 functions of individuals with autism. These seven functions had been: (a) incapacity to relate themselves to human beings and situations, (b) poor language improvement, (c) echolalia, (d) awesome rote memory, (e) perseveration and repetitive behavior, (f) anxiously obsessive with sameness, (g) suitable cognitive potentialities and typically normal appearance (Vernon & Rhodes, 2009, p. 6). In diagnosing autism, children ought to portray capabilities in 3 distinct areas consisting of impairment of communication or social capabilities, stereotypical behaviors like rocking

and finger actions, and sooner or later, there has to be a delay in ability improvement earlier than age three. Social interactions are tormented by autism and characterized by means of minimal to no eye contact and unawareness to social occasions. Conversation usual, was minimized and blanketed repetition with nearly robot speech. Kids with ASD are also characterized by means of set exercises and gross and best motor abilities being very repetitive. Cognitively, kids with ASD might also have intellectual retardation or have characteristics of a savant that children with ASD are also very impulsive and absence manipulates "no matter the scenario" (Vernon & Rhodes, 2009, p. 8) Youngsters with ASD are being diagnosed at an increasing rate categorized with ASD, unique education, legal guidelines were pressured to include this diagnosis of their guidelines.

Importance of Teacher Attitudes in the Classroom; to increase the feasibility of including students with ASD within the regular education classroom, it is important to determine effective interventions that help mitigate the negative impact of the disorder. In addition, examining moderating variables is also crucial because they may influence the implementation of the interventions, thus impacting their effectiveness. Teacher attitudes toward disability and inclusive education have received a growing volume of attention in recent years, with a focus on increasing the educational outcomes and positive school experiences of students with disabilities (Vaz et al., 2015).

In Malaysia, the awareness of autism has increased in the last few years as evidenced by the number of cases reported and parents seeking medical attention. However, there is no compilation of local research on ASD. This would make it difficult to objectively assess the situation and to develop support systems and services for children with ASD and their families. The current state of research on ASD in Malaysia and identify gaps in scientific knowledge (TechnicalReportAutismSpectrumDisorderResearchInMalaysia, 2015). Said et al. (2013) found that teachers had a moderate level of knowledge in special education needs. In investigating knowledge and confidence of teachers, the study found formal teachers' training was not effective with regards to understanding and teaching children with ASD. Quality of training in the service was only moderate but it was better than formal training. This resulted in teachers having low confidence in teaching children with ASD (Hasnah et al. 2010)
The usual teaching approach used was to reach out and attract attention of the students to help them focus. The study on teachers' perceptions (Nornadia et al. 2013) showed that the teachers were not prepared to teach children with ASD in their class.

Definition of Teacher Attitude; According to Triandis (1971), attitudes is defined as a person's cognitive and emotional evaluations and behavioral intentions toward an object or information.
The object of an attitude can be individuals, organizations, values, and so forth. The cognitive component refers to the individual's beliefs as well as information and knowledge about a person, an object, or idea. The affective component represents the individual's emotional reactions to the object or person for instance, exposure to students with ASD, and the behavioral component deals with how the individual acts or intends to act toward the person or object. In theory, a person's attitude affects cognitive, emotional, and behavioral reactions toward others, and therefore a teacher's attitude toward a student with ASD can have a tremendous impact on their interactions in the classroom. Besides, teachers' attitudes have a significant impact on learning in an inclusive classroom.

On the other hand, the importance of teachers' attitude, researchers have endeavored to decide some of the underlying elements to give an explanation for what contributes to their mindset, with lots of this inquiry focusing on primary and secondary teachers in Western international locations (e.g., Hsieh & Hsieh, 2012). A number of the underlying elements include teacher training, the types of special needs encountered, teachers' knowledge of special needs, teachers' enjoy of youngsters with special needs, and the expert role held. Last decades, numerous papers were written for ASD, teacher education, teacher perceptions; but the lack of studies dedicated to educating general education teachers in nicely educating youngsters with ASD is plain. In this case, to meet the needs of an increasing population of youngsters with ASD, research which includes this one have to be conducted to gain academic literature and practice.

LITERATURE REVIEW
Research by Koegel et al. (2011) had proven that children with disabilities displayed better social skills and academic achievement when they learnt in the same environment with their typically developing peers. Inclusive education is very important as it provides access to quality education for children with disabilities. Segregation in education causes fear, discrimination and prejudice towards people with disability. All children need an education that will support them in building friendship and prepare them for future life. On top of this, inclusive education assists children with disabilities in reducing the anxiety in building friendship and attaining respect from others

around them. According to the advocates of ASD students' integration, full inclusion of these students raises teachers' expectations for these students. In conjunction with behavioral mimicking of their 'normal' peers, the result is seen to be more learning by ASD students.

 It raises ASD students' self-esteem, leads to an understanding and accepting attitude by peer students and, subsequently, to less isolation and stigma for ASD students. A number of studies demonstrate that the autistic behavior of preschool children is significantly reduced when ASD students mix with 'normal' peers Integration of ASD students is also beneficial for normally developing students who learn to accept variant behaviors and attitudes.

In a latest study casino et al. (2013) is usually recommended that full-size enhancements may be made in peer social connections for ASD students in general education classrooms with a quick intervention, and that these benefits persist through the years. However, a few in advance research argue that mainstream teachers view themselves as incapable of managing ASD students. But, guide that mainstream schools can significantly help ASD students to widen their social knowledge and postulate that teachers display a critical role in ASD integration applications. Furthermore, two essential factors are concluded as conditions for the a successful implementation of these programs; this is, 'the willingness of teachers to participate' and 'the best schooling of teachers' [26]. In a recent observe inside the area of educating ASD students, Syriopoulou-Delli et al.(2011), have investigated the perceptions of teachers on successfully teaching ASD students, taking Greece as a case study the present paper intends to enhance the earlier research and increase at the preceding empirical findings, contributing in addition beneficial perception into ASD students' integration.A current survey carried out through the Hong Kong equal opportunities commission (2012) discovered that fifty% of the principals and teachers disagreed to simply accept youngsters with intense disabilities; and 20% of the principals and 50% of the teachers and experts discovered they knew little about the improvement of inclusive education and associated supports and resources available. In case, maximum considerably, regular class teachers felt underprepared and untrained for inclusion (equal opportunities commission, 2012). Despite the fact that, unknown is whether comparable attitudes are held inside early childhood schooling settings.

Research Questions

The purpose to increase this line of studies, this present observe surveyed metropolitan such as in Kuala Lumpur in-service teachers about their attitudes towards a pupil with ASD in the Malaysia. The sample size turned into extraordinarily large as compared to present studies on teacher attitudes associated with students with ASD. The research questions had been:

1. What is the knowledge of general education teacher towards nutrition, psychological, pedagogical and information technology and communication among students with Autism in mainstream classrooms?
2.   What are the attitudes of general education teacher towards behavior, teaching and learning, teaching aids, classroom management, subjects for students with Autism in mainstream classrooms?

METHODOLOGY

The study involved the development of an instrument that was used by the researcher to investigate knowledge of, and attitudes towards, children with ASD in the context of inclusive education. The questions were an attempt to operationally define attitude as the self-report of attitude shown to ASD in the context of inclusion. The aspects of attitude to be measured were a combination of affective and cognitive.   The rating mechanism was a five-point Likert scale (strongly agree; agree; neither agree nor disagree; disagree; strongly disagree). A Likert scale was chosen because as Neuman (2000) pointed out.

Data Collection

A survey become performed to collect data about teachers' attitudes in the direction of a student with autistic diagnosis and closer to a regular student. participants had been requested to complete a self-administered questionnaire. The original intention was to identify between 100 primary school teachers in Kuala Lumpur Malaysia. They were drawn from a sampling frame of all primary schools; by writing to the Head Teacher of each of the 3 primary schools asking for maximum participation in the study by individual teachers; sending copies of questionnaires to each school and if possible carrying out follow-up interviews.

The risk of bias inside the initially proposed sample turned into identified and the real pattern potentially carried an even more risk of bias. It was feasible that teachers who were analyzing guides regarding youngsters with SEN

might have greater knowledge and feel extra effective about youngsters with ASD. The risk of bias should have an effect on the external validity of the outcomes because it is able to now not be possible to generalize the findings.

Questionnaires were administered via email or by personal delivery as the quickest way of conducting a survey. Responses were collated, giving a breakdown of answers by demographics for instance, gender, age, and experience of teaching children with Autism Spectrum Disorder and aggregated responses. Responses were analyzed using SPSS and the findings are given later. However, no interviews were conducted and so it was not possible to explore the reasons why respondents held particular attitudes.

Data Analysis

Statistical analysis of the data was performed using the standard statistical package for the social sciences (SPSS, version 23.0). All variables were categorized and were expressed as frequencies and percentages. The chi-square test was used to evaluate any potential association between teachers' views and attitudes and the selected independent variables (teachers' ASD education and training; teachers' experience on ASD students).

Table1. Teachers' demographic data gender, age, field, academic, teacher experience of years inclusive education

Teachers' demographic and working characteristics		Frequency	Percent %
Gender	Male	22	22
	Female	78	78
Age	25-30	31	31
	31-40	59	59
	41-50	10	10
Field	General Education Teacher	60	60
	Special Education Teacher	34	34
	Paraprofessional	6	6
Academic	STPM	4	4
	Teacher Training Institution	27	27
	Specialist Degree	13	13
	Bachelor Degree Education	56	56
Teacher Experience Inclusive Education	<1 years	20	20
	1-3 years	20	20
	3-5 years	22	22
	5-10 years	17	17
	10-15 years	16	16
	20 > years	5	5

Male 22.0 percent (22) higher rather than female is 78.0 percent (78).Teacher age '31-40' is percent 59 older than '25-30' age than percent of 31.Malaysian teachers field of more percent of (60) from general education teacher. Special education teacher conducted percent of (34).Teachers also academic background were percent of 56 Bachelor Degree Education. Otherwise teacher experience inclusive education classroom became 3-5 years percent of (22), one and 1-3 years were both of them percent of (20).Generally Malaysian teacher have been working whose had been experience about (62)one and 5 years into inclusive education classroom.

Reliability Test

Reliability Statistics	
Cronbach's Alpha	N of Items
.910	100

Reliability in the study refers to the extent to which the variables are stable and consistence with what they are intended to measure (Moran, 2006; Singleton and Straits, 2004). The reliability of the scale constructs was tested using Cronbach's Alpha to measure the internal consistency and reliability of the variables in the questions.

The reliability test shows that 0.91 of the Cronbach's Alpha coefficient (above 0.70 being acceptable and not more than 0.95) according to Perry Hinton's SPSS Explained 2004.

Intra-class Correlation Coefficient							
Intra-class Correlation [b]		95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	sig
Single Measures	.091[a]	.070	.122	11.108	99	9900	.000
Average Measures	.910[c]	.883	.933	11.108	99	9900	.000

Two-way mixed effects model where people effects are random and measures effects are fixed.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intra-class correlation coefficients using a consistency definition the between-measure variance is excluded from the denominator variance.

c. This estimate is computed assuming the interaction effect is absent, because it is not estimable otherwise.

As shown in Table 4.2 the Cronbach's Alpha (0.91), since, reliability analysis is concern with the internal consistency of a measurement instrument. This indicates that the scales and measurement used in this study have been adopted from previous established studies, accurate and reliable.

NORMALITY TEST

Normality test is one of the most fundamental assumptions in multivariate analysis and it refers to "the shape of the data distribution for an individual metric variable and its correspondence to the normal distribution" (Hair et al., 2010, p.79) According to Sekaran (2010) the bell shape distribution of dependent variable represents the normal distribution. In line with Hair et al., (2010) to examine data distribution, namely Kurtosis and skewness. The kurtosis refers to the "peakedness" or "flatness" of the distribution compared with the normal distribution and skewness is used to describe the balance of the distribution. Based on the desired significant value, the statistics value for skewness and kurtosis normally should not exceed -2.58 to +2.58 at the significant level of (p<0.01) or -1.96 to +1.96 at significant level (p<0.05). The data are considered non-normal distribution in the cases that they exceed the specified critical values. The table 4.3 below shows the result of normality test for the study.

Table 4.3: Test for Normality Using Age

Tests of Normality[b,c]		Kolmogorov-Smirnov[a]			Shapiro-Wilk			Kurtosis	Skewness
Knowledge Autism	Age	Statistic	df	Sig	Statistic	df	sig		
Nutrition(Diet\ Food)	25-30	.311	31	.000	-0.287	31	.000	-0.287	1.924
	31-40	.184	59	.001	0.594	59	.001	0.594	0.955
	41-50	.482	10	.000	1.054	10	.000	1.054	2.589
Psychological Autism	25-30	.185	31	.009	.859	31	.001	0.373	-2.140
	31-40	.217	59	.000	.877	59	.000	-2.207	-0.418
Teaching Learning Autism	31-40	.262	31	.000	.852	31	.001	-1.328	1.330
	41-50	.255	59	.000	.825	59	.000	-1.254	-2.019
ICT Autism	25-30	.221	31	.000	.881	31	.000	-0.681	-0.088
	31-40	.250	59	.000	.854	59	.001	-0.681	-8.789
	41-50	.482	10	.000	.509	10	.000	1.054	2.589
Biological Autism	25-30	.286	31	.000	.801	31	.000	-0.657	-2.223
	31-40	.215	59	.000	.902	59	.001	0.980	0.649
	41-50	.378	10	.000	.693	10	.000	-1.531	0.811

a. Lilliefors Significance Correction

b. Psychological Autism is constant when Age = 41-50. It has been omitted.
c. Teaching Learning Autism is constant when Age = 41-50. It has been omitted.

Table 4:4: Testing for Chi-square of independent variables

Variable N	N	Mean	Standard Deviation
Teacher Experience	100	3.04	1.510
Gender	100	1.78	.416
Age	100	1.79	.608

Using non-parametric test, an independent-Sample Kruskal Wallis Test was conducted to examine the differences between primary school teachers with and without experience of teaching student with Autism. Based on the outcome of the distribution, we test the following hypothesis: behavior/attitude and general (biological aspect) knowledge of primary school teachers in relation to their experience or no experience of teaching student with Autism. A Chi-square test of independence shows that there is no statistically significant difference in attitude and general knowledge of the teachers towards Autism students (Mean= 3.04, SD= 1.510; df= 5; p<0.05) in Table 4.5 and Table 4.5b.

Table Classroom Management Knowledge and Attitude for Autism Student Descriptive Statistics

Statement	N	Mean	SD	Mini	Maxi
General teachers consider students with autism have the right to receive all education within the regular education classroom	100	3.35	.520	2	4
General teacher's think of students with Autism should be given every opportunity to function in the regular education classroom where possible	100	3.54	.501	3	4
General teachers consider that isolation in a special classroom has a beneficial effect on the social and emotional development of the student with Autism	100	.299	.772	1	4
General teachers assume student with Autism will not be socially isolated in the regular education classroom	100	3.33	.570	2	4
General teachers are trained in accessing and providing useful visual supports (picture, boards, etc.) for students with Autism in regular education classroom	100	3.51	.595	2	5
Gender and Experience	100	4.8200	1.57236	2.00	8.00

Using non-parametric test, an independent-Sample Kruskal Wallis Test was conducted to examine the differences between female and male teachers without experience of teaching Student in relation to attitudes of student with Autism. Based on the outcome of the distribution, we test the following hypothesis: attitude towards classroom management in relation to their gender and experience with Autism. A Chi-square test of independence shows that there is no statistically significant difference in Attitude and classroom management of the teachers towards Autism students (Mean= 4.8200, SD= 1.57236; df= 4; p<0.05).

RESULTS

The results of the present study demonstrate that may help general classroom teachers who lack the skills and knowledge of the inclusive education, to fulfill the needs of these autistic and mainstream students. Cassady (2011) found that the teachers who teach inclusive program were more concerned with the autistic student in the general classroom due to their problems in social skills, behavioral outbursts, changing curriculum and very little training and supports. Therefore, the teachers need to provide full supervision to the autistic students in the class in order to fulfill their needs.

On balance of this study found out that regardless of in-service teachers' positive attitudes closer to each student with ASD and typical students, their attitudes in the direction of students with ASD are significantly more negative than in the direction of typical students. Numerous factors might also underlie those attitudes. One possible aspect is the higher tiers of behavioral and emotional problems in school exhibited by means of students with ASD as compared to their commonly growing peers (Ashburner et al., 2010). That crucial issue is the anxiety that could rise up in the classroom from autistic manifestations consisting of difficulties with social and emotional expertise, thereby impacting teacher-pupil interactions and teachers' perspectives of supports needed for effective classroom management (Emam & Farrell, 2009; Robertson et al., 2003). Therefore, trainer attitudes closer to youngsters with ASD may additionally reflect the very real challenges instructors face in educating and interacting with those students.

 The data would seem to suggest that teacher gender is the second one predictor of a teacher's attitudes in the direction of a pupil with ASD. The result is consisting with Park and Chitiyo's (2011) finding that female teachers are much more likely to exhibit positive attitudes closer to a pupil with ASD. As Park and Chitiyo (2011) posited, socialization differences in empathy can also activate females to display greater positive attitudes in the direction of students with ASD. The function of gender in teachers' attitudes closer to college students with ASD is a critical difficulty that wishes in addition research, particularly in mild of the fact that the general public of students with ASD are males.

According to Finch et al. (2013) Training needs to also include increasing educator knowledge of special education, specifically in the area of ASD. An identification of needs, areas of concern, and proper instructional practices for inclusion of students with ASD is missing from general educator's preservice and professional development education. Research is lacking in the following key areas of inclusion training found to be beneficial: collaboration between general and special education teachers, education to increase educator's knowledge base in the area of special education, and implementation of professional development opportunities. (Finch, 2013) General education teachers trained to collaborate with special education teachers provide a balanced education and a more positive inclusive environment. Collaboration allows general education teachers to recognize pupil expectations and needs (Conderman & Johnson-Rodriquez, 2009). Strategies and examples of collaboration among general and special educators can enhance inclusive classrooms (Lingo, Barton-Arwood, & Jolivette, 2011; Moore, 2009). Besides, collaboration affords general training teachers with the knowledge, background currently provided broadly speaking to their special education cohorts, as a result increasing their effectiveness and meeting their educational needs.

All of this points to the fact that, the most effective significant difference that turned into found became that teachers with experience of teaching SEN students had extra knowledge approximately ASD than did teachers without such experience. However, there was no extensive distinction among these groups on attitude ratings, nor were any substantial differences found, according to age or gender variations were observed on attitude or understanding rankings. This in itself is interesting, as a few correlations among knowledge and attitude might be predicted, also some correlation between enjoying and effective attitudes (Alenizi, Mogbel Aid K. 2015). The motives for a lack of correspondence within the regions might advantage similarly research, because the findings from this small and albeit biased sample would relate to recommend that enjoy and observe make little distinction for teaching in practice.

CONCLUSION

The arguments given above prove that general teachers, should be provided professional development in working with students with ASD in order to possibly enhance their attitudes toward this student population. Potential training components include characteristics of ASD and the theoretical knowledge, evidence-based instruction, and intervention practices for students with ASD.

Knowledge of ASD is lacking in public school teachers in Malaysia, and greater teacher training and instruction is needed. Nonetheless, teachers report a willingness and motivation to gain the skills needed to maximize the educational experiences of children with ASD. Teachers' education and ASD training and relevant past experience in working with ASD students appear to be the most efficient 'tools' that can inspire a teachers' willingness and empower them with self-esteem, that is fundamental in confronting the everyday problems of ASD students

Teacher educators, both at the initial and continuing professional development levels, have a role to play in challenging teachers' implicit understanding of inclusive education, as well as their role perceptions and professional actions in respect of these students. Teacher educators could assist teachers in enabling the student body as a whole to acknowledge, accept and accommodate perceived student differences. Furthermore, teacher educators could enhance the teachers' knowledge of appropriate pedagogies to meet the needs of students with ASD in mainstream schools.

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TEACHERS' ATTITUDES ON THE USE OF MOTHER TONGUE IN THE CURRICULUM: A CASE STUDY OF SCHOOLS IN MOTHEO DISTRICT, SOUTH AFRICA

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ABSTRACT

This study is based on the findings conducted to investigate attitude of teachers towards the use of indigenous languages in teaching in Motheo district, South Africa. Eight schools out of 52 public schools were randomly sampled. This study is thus a case study in which interviews were conducted to collect data from forty Grade 1-3 teachers; in order to find out the actual practices in their classrooms, the challenges they come across to, and the perceptions they held in relation to the use of mother tongue in their teaching. The data were qualitatively analysed and the emergent findings support the claim that the use of learners' mother tongue is beneficial to learners. The implications of these findings are discussed and the recommendations are proposed for pedagogy.
Keywords: Mother tongue education, language of learning and teaching, perceptions and attitudes

INTRODUCTION

The apartheid era in South Africa was characterised by a language policy that did not officially recognised indigenous languages (L1) spoken by the majority of the population. In 1994, the government recognised the significant role played by the mother tongue in learning, thus an educational language policy raised the status of indigenous languages. According to the official language policy of the 1996 Education Act and Department of Education (2002), children in Grade 1 – 3 are to be instructed in their first language, and learn English (L2) as one of the subjects on the curriculum. From Grade 4 onwards, English becomes the language of instruction.

According to research and literature (Borich and Tombari, 1997; Ndamba 2008; Mofokeng 2013; Bachore 2014; Ganuza and Hedman 2015) this language policy can be identified as a possible model for bilingual education. The continued use of English as a medium of instruction in teaching Mathematics means that no scientific ideas can be formulated using *Sesotho* in the present schooling system leading to perpetual scientific bankrupt (Phindane 2015: 107).

In South Africa, parents are permitted to choose the language in which their children are to be educated (Department of Education 2002); but the majority of parents demand that their children are educated in English (Heugh 2010). This is partly due to global prestige of English as a medium of international communication, language of business, and pre-requisite for employment (Buthelezi 2003). Bilingual indigenous-English speaking children often have early verbal input in indigenous language; and English is introduced once they enter school and develops subsequently through English literacy instruction (Ndamba 2008; Khosa 2012). The language situation of these children is termed both emergent bilingual and English second language learners (EL2) as they first encounter a new language when they go to school and have limited oral proficiency in that language (Bialystok et al. 2005; Bachore 2014), as opposed to other bilingual learners who have encountered both languages before scholastic instruction begins. Not much work has been done on parents and pupils' language preferences in a bilingual set up at the elementary level in South Africa.

RATIONALE

This study sought to establish the teachers' perception on the use of African languages in the curriculum, highlights the challenges that are faced in the teaching of such languages, and argues for the preservation, development, and use of instructional material in African languages. The impetus of the study came from the strong evidence from research findings which indicate that the mother tongue plays a crucial role in the teaching and learning of bilingual children during early years of schooling.

The role of indigenous languages in national development must not be undervalued particularly because they are the means by which different groups within society maintain their identities. The objective of learning these languages should be to promote, foster and propagate the cultural heritage. Such languages will help the learners retain strong ties with their culture; their heritage. Indeed the greatest and most important gift a parent can give a child is to pass their language and culture. Thus, indigenous language teaching should lead to a deeper sense of cultural pride and self-awareness, giving the learners social identity. The learner is, therefore, socialized into a culture of his or her language. If learners lose their mother tongues in their early years, they are also losing a part of their culture, resulting in the stripping of their identity. Secondly, linguists believe that if pupils do not

fully acquire their first language, they may have problems later in becoming fully literate and academically proficient in the second language. This is supported by evidence from research which indicates that pupils learn academic material and other languages most successfully when they begin school in the language they speak most comfortably (Hornberger, 1996 and Cummins, 1996). The interactive relationship between language and cognitive growth is very significant. This implies that everything acquired in the first language (academic skills, literacy, concept formation, and learning strategies) will be transferred from first language to the second language. That is, the first language will act as a foundation to the learning of other languages.

In addition, intellectual independence is an important condition of achieving economic, social, and political independence (Kamwangamalu, 2000). The usage of African languages in education and teaching is a prudent way to achieve intellectual independence. It is on that point of view that this paper argues that the usage of African languages in schools will help in promoting African students' academic growth and develop in them a strong sense of confidence.

Moreover, African languages, when used in schools, act as a link between home and school. Their own languages enable young learners to immediately construct and explain their world without fear of making mistakes, articulate their thoughts, and add new concepts to what they already know. Therefore, those who come to school with a solid background in their mother tongue develop literacy in the school language, since both languages will nurture each other when the educational and home environment permit children access to both languages. On the other hand, Abiri (2003) postulates that mother tongues also play a profound role in the psychosocial development of the individual and therefore early use of the languages will help expand the learners' verbal facility and cognitive realm. Mohanlal (2001) claim that a good education is that which draws from the learners' ethnocentric and eco-centric values. This postulation lends credence to the commonly held belief that it is only the mother tongue education that fully meets this requirement. But are the teachers entrusted with this responsibility aware of the benefits of using the learner's first language as the medium of instruction? What are their attitudes toward mother tongue education? These are some of the questions that this paper purposes to answer.

Research Questions
This study was designed to find out the views of teachers on the use of African languages as the medium of instruction in South African schools. It sought answers to the following questions:

a) What challenges do teachers face when teaching in the mother tongue?
b) What are the teachers' perceptions as regards use of the tongue as a medium of instruction?

LITERATURE REVIEW
Attitudes toward Mother Tongue Instruction
The positive outcomes of a mother tongue instruction policy depend on people's attitudes towards the first language and English second language. Also to understand how attitudes towards a language develop, it is necessary to consider the social and political history of a nation, since such historical forces play a significant role (Bamgbose 1991; Robinson, 1996; Khosa 2012). Thus, the apartheid and the post-apartheid language and educational policies obviously provide a solid basis of the explanation of attitudes towards African languages, and English second language (Silva 1997; Bamgbose 1991; Roy-Campbell 1996; Barnes 2004; Adegbija 1994; Desai, 2001; Rahman and Asmari 2014). The apartheid language policies either adopt the use of Afrikaans/English from the first grade or only used indigenous languages as a medium of instruction in the lower classes of the primary school.
In the apartheid era, South Africa was officially considered a bilingual state, with English and Afrikaans as the sole official languages of the state. With the demise of apartheid in 1994, the new government has adopted a multilingual language policy giving official recognition not only to English and Afrikaans but also to nine African languages: Xhosa, Zulu, Ndebele, Swati, Tswana, Sotho, Pedi, Venda, and Tsonga. One of the main objectives of the new language policy has been to promote the status of the nine African languages by, among other things, using them as media of learning.

Six years after the policy was enshrined in the country's new constitution, it seems that not much progress has been made yet in attempts to implement the policy, especially with respect to the issue of mother-tongue education. Rather, the status quo prevails: English and Afrikaans remain the media of learning in English-medium and Afrikaans-medium schools, respectively, much as they were in the apartheid era. The African languages are offered as media of learning from first through fourth grades in predominantly black schools, after which English not Afrikaans because of its association with apartheid takes over as the instructional medium. Attitudes can be created through functions that people perceive particular languages as performing.

In the African context, Phindane (2015), is of the opinion that official and local languages are regarded as opposed to each other, rather than as complementary as evidenced by the fact that one of the two languages may be regarded as a more suitable language for certain domains, and the characteristic functions are seen in dichotomous terms. Ndamba (2008) says the local languages are characterized by oral usage, individual/community usage, emotional attachment, village solidarity and personal loyalties. English language is characterized by institutional usage, written usage, functional use, economic advantage and national communication. English as an official language has therefore been associated with the success, power, prestige, progress and achievement, and such associations have generally resulted in English getting a high positive evaluation (Ndamba, 2008).

Learner Attitudes
In South Africa, the situation is not different. South African learners who were interviewed by Setati (2005) and Langa and Setati (2006) preferred the use of English in the learning of mathematics in the secondary school. These researchers attributed learner choice of the language of instruction to the socio political situation. These learners did not see value in their African languages as they do not have any social and economic benefits. In September 2009, the Minister of Higher Education, Blade Nzimande said that those taking up African languages at University level were sometimes perceived by their peers as 'second-grade students' (Sapa 2009). These are few examples of learners' attitudes towards English as a medium of instruction.

Barkhuizen (2002) examines high school students' perceptions of the status and role of Xhosa (an indigenous African language) and English in the educational context. He surveys 2825 students in 26 high schools throughout the Eastern and Western Cape Provinces. These Xhosa high school students were being instructed in their mother tongue and also learning English as a second language. It was discovered that students had a preference for English as a second language. Dyers (1999) in her study of Xhosa university students' attitudes towards South African languages observed a similar pattern. The two studies, however, did not look at how teachers perceived the use of the mother tongue as the medium of instruction.

Parental and Community attitudes
Iyamu and Ogiegbaen (2007) looked at parents and teachers' perspectives of mother-tongue medium of instruction policy in Nigerian primary schools. Questionnaires on the subject were administered to samples of 1000 primary school teachers and 1500 parents of primary school children. They found out that many inadequacies of Nigeria's schools stem from their religious and colonial past which seems to have put a lot of premium on the language of the colonizers to the detriment of African languages.

Ejieh (2004) looks at the attitudes of student teachers toward teaching in the mother tongue in Nigerian primary schools. Data for the study were gathered by means of a questionnaire administered to 106 students in a Nigerian college of education. It was found out that the students had a generally negative attitude towards teaching in the mother tongue. These studies on mother tongue teaching and others conducted in other contexts have succinct valid beliefs about their people's experiences and attitudes towards the use of indigenous languages in teaching.
        In South Africa, research carried out by Ngidi (2007) and Ndamba (2008) revealed that parents from schools of Mthunzi circuit (KwaZulu- Natal) had positive attitude towards the use of English as language of learning and teaching and as additional language in schools. Then parents of children from Navilsig Secondary school regarded Sesotho second language as being of no value to their children's lives since it did not render a person employable (Phindane, 2015). The same sentiments were expressed by children of parents concerned. These parents had no objection to their children learning English which they felt was more important for the future of their children. Part of this study focused on learner's language preferences since these children are the direct beneficiaries of language policy which recognizes the significance of learning in the mother tongue in the lower grades. Parents' views were also sought to establish if there is consistency between language policy and parents' perception of the role of the mother tongue in teaching and learning.

METHODOLOGY
This study adopted a qualitative survey design. An interview schedule was used as a data instrument for this study. The teachers were asked questions and their responses written down. Later, these recordings were analysed to determine teachers' perceptions on the use of African languages in the South African curriculum and the emerging patterns are then discussed. Further, the challenges that teachers undergo in the course of their teaching as far as teaching using two languages (English and Mother tongue) are discussed and recommendations on how the challenges can be mitigated are suggested.

Sampling procedure and sampling size

The research randomly sampled 8 schools out of 52 schools as well as the 44 teachers. In view of the fact that the research dealt with the perceptions of teachers on the use of African languages in the curriculum, the dichotomy of gender was factored in so that 22 teachers were males and the other 22 were females. The teachers were carefully chosen so that only those who could read and write in English and Sesotho were selected. A sample of 44 teachers was considered representative since there is a strong indication in the field that large samples tend to bring increasing data handling problems with diminishing analytical returns (Milroy, 1987). Since our interview schedule consisted of 8 questions and our sample comprised 44 teachers, we expected to analyse 352 items.

Data collection

An interview schedule was presented to the 44 teachers of Grades 1-3. The introductory section of the interview schedule helped in getting the bio-data of the respondents viz name, sex, and age. The interview schedule comprised both the open-ended and close-ended. This helped the researcher to understand the perceptions and logically structure them for analyses.

Data collection instrument

The instrument used in this study was an eight-item interview schedule. The questions sought the opinions of the teachers on some issues and problems related to teaching and learning in African languages. These questions included teachers' opinions on the possibility of teaching all school subjects in African language, the benefits of teaching and learning in the mother tongue to pupils, and some of the limitations of imparting education in the mother tongue.

Items 1 and 2 sought the teachers' opinions on whether all the subjects in class are taught using the mother tongue and whether pupils in school found it hard to make a switch to English at Elementary Grade Four. Item 3 sought their opinion on whether they were trained on how to teach the mother tongue at teacher training college. Item 4 sought their opinions on whether they teach Mathematics using the mother tongue and whether pupils seem to understand better than they would if they were taught in English. Item 5 sought to know whether parents mind the medium of instruction used in teaching being English or the mother tongue. Item 6 sought to know whether there are benefits of teaching pupils in lower primary and nursery school in the mother tongue while item 7 sought their views on whether they would recommend that teaching in schools be done in the mother tongue. The last item sought their view on whether they would want the South African Language Education Policy changed so as to allow teaching of all children in English right from kindergarten.

RESULTS

Both men and women respondents had similar observations in relation to the questions in the interview schedule. The responses to each item are presented below.

Item one

The research found out that all the 44 teachers mostly use the mother tongue in their teaching. Interestingly, the research also found out that teachers use the 2 languages (English and mother tongue) in the classroom teaching and learning. In most cases, code-switching practices play an important role in many South African classroom environments, although they can never be said to constitute a viable alternative to the development of formal academic proficiency in the African languages.

Code switching, the mixing of words, phrases, and sentences from two distinct grammatical systems across sentence boundaries within the same speech event (Bokamba 1989) is a regular phenomenon in multilingual settings. In this connection, Abdulaziz (1971) reports that mixing of languages occurs in many schools in almost all environments from an early age. He argues that this is probably necessitated by the dearth of materials to teach all subjects in the mother tongue and similarly the pupils do not understand English as used in the school texts. This scenario was the case in the schools visited. The learners did not understand some concepts in English. Thus the teacher switched to the mother tongue and the learners would say, "*kgidik*", surprised that what they had found incomprehensible was so easy to understand when communicated in their mother tongue.

Item two

On whether pupils found it easy or hard to make a switch to using English at Primary Grade 4, all the 44 teachers indicated that their learners faced difficulties and that most learners drop out of school at this level. They find the curriculum too hard to follow, hence they opt out.

Item three

It emerged from the data analysis that teachers are not trained on how to teach the mother tongue or how to teach using the mother tongue. The syllabus in the teachers training colleges is silent on this and does not include any guidance on mother tongue education.

Item four

The teachers reported that when they used the mother tongue to explain some mathematical concepts, learners understood better than when the same are explained in English. One teacher explained how difficult it was for her to explain the concept of 'division' using English. When she switched to the learners' mother tongue, they all understood more easily.

Item five

The teachers reported that parents wanted their children taught in English from Primary Grade 1 since they felt that this would give their children a head start, now that English is an important language in South Africa. This situation could be the case due to the fact that English enjoys more functional privileges than Sesotho and other indigenous languages in South Africa. English is thus seen as the key to economic and educational advancement. The language is accorded very high status and has overall dominance in many spheres that are associated with modernization. The language is thus associated with power and elitism and is a major asset in social mobility.

Item six

All the 44 teachers were in agreement that the use of mother tongue as the medium of instruction in school is beneficial to learners. This finding concurs with the consensus among researchers and practitioners that children learn best in the mother tongue since it helps to bridge home and school experiences. The World Bank Report (2000), for example, notes that learners are more likely to participate actively in the classroom when the language of instruction is the local language.

The teachers interviewed noted that the level of development of children's mother tongue is a strong forecaster of their second language development. Children who come to school with a solid background in their mother tongue develop literacy in the school language. African languages teaching also enables parents and teachers to work together to support the learning which takes place at school while at the same time encouraging first language development and support through storytelling, sharing books and reading in the mother tongue.

Teachers perceive mother tongue as a means of promoting cultural heritage. As noted out earlier in the rationale, using an African language as a medium of instruction leads to a deeper sense of cultural pride and self-awareness giving the learners social identity. This is because indigenous languages have a wealth of knowledge concerning the local ecosystem and act as a "repository of a polity's history, traditions, arts and ideas." (Kamwangamalu, 2000).

Teachers noted that mother tongue education is effective in helping the child to understand his environment. This view is in consonance with the opinion of Mohanlal (2001) that a good education is that which draws from the learners' ethnocentric and eco-centric values. It was also found out that African languages help children understand the environment and helps them recognize their own mother tongue as a source of identity, thought, and instruction (Phindane, 2015).

Teachers also stressed that mother tongue facilitates acquisition of second language and third language learning. This finding concurs with what research has consistently shown that learning to read and write in the mother tongue facilitates access to second language learning (Heugh, 2002; Brock-Utne, 2000; and Grin, 2005). Therefore, the teacher of a second language can make his/her job easier by creating conditions for students to reactivate these study skills and learning strategies and apply them to their study of a new language so long as the child has the vocabulary to reproduce it in that second language. Urevbu (2001), an expert in curriculum studies in Nigeria, believes that early education in the mother tongue enhances a child's cognitive equilibrium.

The mother tongue is also perceived as a guarantee of security for the pupil. This is because language gives the individual a sense of belonging and ownership. When a child cannot competently use a language, her/his self-

esteem is negatively affected, making the child insecure. In the view of the teachers, learners are passive and take long to respond if they are asked questions in English and are expected to use English in their responses. That is, they view English as a strange tongue. For example, one of the teachers interviewed informed the researcher that when the pupils are asked questions in the two languages, that is, English and the mother tongue (*Sesotho*), they would exhibit different behaviour. For instance, if they reported to school late and were asked:
1. Why are you late? (question asked in English)
2. Hobaneng ha o le morao ho nako? (question asked in Sesotho)

Pupils would keep quiet if asked question (1), while all the learners would understand question (2) and respond correctly. Therefore, when teaching is done in English, learners are confused and many of them do not understand what is being taught because at Grade 1-3, they have not received much input in English.

Item seven
In view of the above benefits of mother tongue education, all the teachers recommended that teaching, especially in the early years of formal learning, should be done in their mother tongue. Teachers observed that lessons in a foreign language are mostly teacher centred especially in primary schools, since learners have not acquired reasonable proficiency in the target language. Therefore, the use of the mother tongue or a familiar language facilitates the use of effective, child-centred teaching practices which encourages learners to be active and become involved in the subject matter. Alidou and Brock- Utne (2005) is an example for such an approach.
The teachers further reported that the child becomes more confident and expresses himself/herself best in the mother tongue than when using a second language. This finding agrees with Lameta- Tufuga (1994) who found out that if learners are given a chance to discuss a task in the first language before they had to carry it out in writing in the second language, they will do the task well. This is because the learners will be very actively involved in coming to grips with the ideas and hence making school less traumatic.
Secondly, the first language discussion will facilitate acquisition of second language vocabulary which would be used in a later task. Therefore, it is imperative that when a teacher feels that a meaning based second language task might be beyond the abilities of the learners, a small amount of first language discussion can help overcome some of the obstacles. Therefore, from a pedagogical point of view, school results are plausibly better when children are taught in their mother tongue.

Item eight
Teachers did not recommend the change of language in education policy to have the language of instruction from Primary Grade 1 being English. They argued that the benefits of teaching children in their mother tongue during the early years of formal learning outweigh the advantages of teaching them using English as the medium of instruction. However, the teachers were aware of several challenges that need to be countered for mother tongue education in South African schools to be a reality.

CHALLENGES OF ADOPTING MOTHER TONGUE EDUCATION
According to the teachers interviewed, one of the challenges encountered in attempt to implement the use of mother tongue education policy in South Africa is the lack of enough teachers trained to teach the various mother tongues spoken in the country. As Phindane (2015) points out, primary school teachers in South Africa are not trained in teaching in mother tongue. On the other hand, Wolff (2006) notes that language teachers, whether of English or African languages, must be exposed to the general methodology of teaching language for effective teaching in the said languages.

Secondly, teachers felt that there is profound lack of instructional materials in African languages. This observation concurs with Okombo (2001), who notes that reports of the unavailability of instructional materials in indigenous languages are very common, even in the child's first three years of primary education. In order to lessen the paucity of literature materials, Rubagumya (1986) feels that the state should assist various groups in producing reading materials to minimize the problem. According to Kembo-Sure, Mwangi, and Ogechi (2006) English books normally take the lion's share in the publishing industry. Mother tongue books are rarely published. Fagerberg- Diallo (2001), on the other hand, feels that the availability of attractive reading materials will contribute to increasing the demand for literacy courses.

The teachers further commented that there is also an apparent lack of enthusiasm for African language teaching in South African schools. This remark tallies with Wolff's (2006) observation that one of the major problems that blocks progress towards African languages is the continued lip service to the importance of African languages. The maintenance of education systems which systematically exclude the use of the majority's vernacular languages can no longer be justified by politicians (Elwert, 2001). Coulmas (2001) argues that giving up social and cultural pride is one of the "costs" of literacy. Learning to be literate in a second, international

language at the expense of an indigenous vernacular language is one of the sacrifices in building a more literate society. On the other hand, Heugh (2005) opines that learning indigenous languages is relevant and sustainable by itself and that it is inappropriate and costly to pay lip service for the sake of economy of scale (see also Grin, 2005).

In addition, there was an observation that teachers using African languages as a media of instruction lack interpretive and translation skills that may help nurture learners for higher learning. On the other hand, while learners may have attained a certain level of basic interpersonal communicative competence in African languages, they lack what Cummins (2000), for example, termed cognitive academic language proficiency, and thus they are unprepared for higher education or for training in a sophisticated work environment.

Another challenge to African language teaching, according to the teachers interviewed, is that the use of several mother tongues is misconstrued as accentuating interethnic conflict. English, being the dominant language of international business and economic development, continues to flourish with the continued globalization of business and international investment.
As such, the respondents noted that most teachers, parents and pupils look at African languages as inferior. This defeatist attitude towards use of indigenous languages for education may be connected to the inferior position accorded to African language during the colonial era. It has been argued that because of the status attached to the European languages, some Africans educated through them shun their mother tongues (Sure & Webb, 2000). In addition, some Africans believe that indigenous languages cannot be used for any serious conduct of scientific and technological affairs (Okombo, 2001). They, therefore, look at English as a language that helps bridge communication gaps between people. However, this only helps to threaten the continued existence of many mother tongues.

The respondents argued that a number of South Africans view English as a status language with many benefits (Phindane, 2015). However, teachers, parents, and their children must be made to see that the use of African language in education leads to palpable benefits in economic empowerment, social mobility and influence and pathways to further academic opportunities (Kamwangamalu, 2000; and Githiora, 2008). Therefore, its deployment often serves to establish formality and social distance between interlocutors. Stakeholders in the education sector must be convinced of the benefits of vernacular languages' teaching, not merely in a cognitive sense, but in a much larger socio-economic context.

A few teachers though, the respondents observed, consider African languages as obstacles for the learning of English. This position is also shared by some linguists like Marton (1981). Marton maintains that from a psychological perspective not only at the moment of cognition but also when amassing fresh knowledge for his/her 'linguistic reservoir', the pupil is faced with a belligerent conflict between his native language and the second language system. However, research evidence shows that the level of development of children's mother tongue may be a strong predictor of their second language development (Cummins, 2001), and that teaching and learning in mother tongue facilitates learners' cognitive and affective development (Kembo, 2000 and Thondhlana, 2000).
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 RECOMMENDATIONS

Standardized textbooks, support materials, teaching aids and literature must be made readily accessible in African languages and kept continuously up to date. This is particularly appropriate in the fields of humanities, mathematics, science, and technology where new terms will have to be developed and communicated to the learners. It is imperative, therefore, that standard written forms in African languages need to be modernized, regularized, codified and elaborated.
Trainees should undergo thorough training in African languages and the language content in the syllabuses should reflect the social, political and economic philosophies aspired for. In the government domain, policy 0.issues should be written in the language understandable by the people and in a style that embodies the culture of the people.

The government in partnership with the Department of Higher Education and Training and other stakeholders should not only come up with the African language school curriculum at the primary, secondary and at tertiary levels, but should also revise and modernize the entire teacher education curriculum (including the undergraduate Bachelor of Education programs) at our universities.

Translation of other literature materials covering mathematics, sciences, philosophy, and other disciplines would also be undertaken so that even such specialized disciplines are not left in the dark. The government and non-

governmental agencies need to support and finance literature in African languages by organizing workshops and seminars and providing grants to publishers and authors.

CONCLUSION

This paper attempted to present the perceptions of teachers on the use of African languages (learners' mother tongues) as media of instruction especially in the early years of formal learning. The general finding is that the teachers interviewed noted that African languages had a significant role to play in education.   The   paper has highlighted some of the benefits of using mother tongue media in teaching as far as concept formation and comprehension are concerned, as seen from the teachers' perspectives. It has also looked at some of the challenges that need to be countered and made some useful recommendations that will facilitate a change of attitude among teachers, parents, and learners in relation to the use of mother tongue as a medium of instruction. Because of the many benefits to the learner that are associated with mother tongue education, as shown by research evidence, the respondents felt that attempts should be made by policy makers, educational administrators, and planners to empower teachers to develop positive attitudes towards African languages.

Teacher education programs in training institutions should be restructured to reflect major indigenous languages in South Africa. Further, teacher trainees should be trained on mother tongue education so that teaching the same in the primary schools will be easy and effective. All the teachers were in agreement that there is a great need to promote African languages by putting in place and fully implementing language in education policies if all the benefits are to be realized.

The implementation of such policies will be meaningful if the African languages are developed extensively and aggressively through programs in the print and electronic media. That way, their cultural richness will be sustained and developed. Although this study provides useful information about the perceptions of teachers on the use of the mother tongue in the curriculum, the generalizations that are made are not conclusive. The findings of this research, therefore, may need to be validated by further research.

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TEACHERS' REFLECTION ON MUSIC LEARNING OF STUDENTS WITH SEVERE INTELLECTUAL DISABILITIES THROUGH THE LENS OF

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This paper aims at studying how music teachers of a special school for students with severe intellectual disabilities (SID) in Hong Kong reflected on their teaching of one topic of learning in a music lesson. With reference to the variation theory, two music teachers analysed their teaching considering their students' understanding and difficulties encountered in the learning process. Through discussions, the teachers reflected on their understanding of their students' learning needs, as well as suggested strategies for refinement of their teaching activities to meet the special needs of their students. Although this process of reflection does not mean to be a part of an action research, nor does it follow the complete steps as described in the framework of the Learning Study, the process shows certain elements of the approach. Such elements include the use of variation theory as guiding principle, reflection and discussion of pedagogical content to cater for the learning needs of their students. Through collective reflection on planning, teaching and evaluation, teachers deliberated and considered more about students' understanding in relation to what they intend to teach.

TEACHERS' USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY IN EDUCATION: CAMEROON SECONDARY SCHOOLS PERSPECTIVES

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ABSTRACT
Information and Communications Technology (ICT) offers innovative tools for restructuring teaching and learning processes in preparing students for the 21st Century skills. However, there is no sufficient and reliable data concerning how the use of ICT fit in different school cultures in Cameroon, and how teachers with varying pedagogical and domain expertise and learning experiences are able to function with various network learning environments. This paper discusses teachers Use of ICT in Education on the basis of intensive case studies conducted in Cameroon secondary schools. A total of 320 teachers from 16 public, denominational and lay private schools from two regions in Cameroon participated in this study. The survey was used for data collection. Descriptive statistics and independent sample t-tests and ANOVA were used to analyze the data. The results of this study indicate teachers' perceived ICT usage, perceived access to ICT, perceived ICT competence and perceived ICT training support were low. Furthermore, the analysis showed that teachers in an urban area perceived the use of ICT and perceived access to ICT was higher than teachers in the rural area. Finally, this study discovered that there was no significant difference in public, private and denominational school teachers' use of ICT, access to ICT, competencies and training support. The results provide insights into factors that teachers perceived as obstacles to the use of ICT in their teaching, particularly in developing nations.

Keywords: Information and communications technology (ICT), ICT competence, training support

INTRODUCTION
Information and communication technology (ICT) plays a crucial role in the knowledge and information society by increasing economic productivity through digital economies, enhancing the delivery of public and private services and achieving broad socioeconomic goals in education, health care, employment and social development (UNESCO-UIS, 2015). ICT in education can help individuals to compete and adapt to the knowledge and information society by achieving the 21st-century skills which can enhance skilled workforce and social mobility. ICT in education has a multiplier effect throughout the school system, by; enhancing learning and providing students with new sets of skills (Balanksat et al., 2006); reaching students with poor or no access(Young, 2002; UNESCO-UIS, 2015).); facilitating and improving the training of teachers (KERIS, 2011); increasing the possibilities of communication and reinforcement of the development of skills of coordination and collaboration between peers (Dede, 2009); and minimizing costs associated with the delivery of traditional instruction(Gulati, 2008; KERIS, 2012). Research studies have also found that positive perceptions of teachers on ICT integration into schools and ICT usage in their teaching are essential to successful implementation of ICT in education (Almekhlafi and Almeqdadi, 2010; Aydin, 2013; Sipilä, 2014; Choy and Ng, 2015). Teachers' attitudes towards the use of ICT impact on their ICT integration in the classroom, decisions they make and actions they take in classrooms (Shaibou, 2015).

Teachers' use of ICT in Cameroon has been less than optimal, and in spite of its potential educational benefits of ICT in Education, teachers may not have benefits, for various reasons (for example lack of training, resistance to change, among others). Perhaps this is because of the lack of focus on ICT in Cameroon. For example, in 1995, when the National Forum on Education took place in the country's capital, Yaoundé, from the 22nd to the 27th of May nothing was said about the use of ICT in schools. However, the Law of Orientation of Basic and Secondary Education (Law No. 98/004 of April 14, 1998) which is mostly based on the recommendations of the National Education acknowledges in general terms the potential contributions of ICT in education. It states in Section 25

(Part III) that "the education provided in schools shall take into account scientific and technological advancement and shall be tailored in terms of content and method, to national and international economic, scientific, technological, social and cultural trends." ICTs were officially introduced into the Cameroon secondary education system in February 2001 by the president in his message to the youth, in which he called on them to embrace the knowledge economy (Mbangwana, 2008). As a consequence, computers were introduced into many General Secondary schools, and secondary technical/vocational schools and many schools benefitted from presidential grants of multi media centers connected to the internet.

This initiative has started to address the many problems that plague secondary education in Cameroon, among them acute shortages of basic pedagogic material and human resource inputs, overcrowded classrooms, problems of relevance, and quality, and inadequate access, among others. The use of ICT has the potential to address some of these problems. For example, ICT can improve access to education, equity and the quality of teachers' professional development (Robinson, 2008; Mervyn, 2002). With all these initiatives in place, there is no clear, recognizable national strategic plan for the integration of modern technology within the school curricula and pedagogical activities. The use of ICT in Cameroon secondary schools mostly depends more on the school leadership and dynamism and enthusiasm of teachers.

Many Secondary Schools have adopted ICT policies and are in the process of implementation. Although significant educational research has been carried out in other countries on the use of ICT in schools, the results were mostly context-specific due to population, sampling, and/or design limitations. In other words, the findings cannot be applied to Cameroon because of contextual differences. Apart from the contextual factors, findings may not apply because of potential differences among participants. That is, Cameroonian teachers have differing experiences with modern technology due to the recent presence of modern technology in their schools and their distinct cultural background (Shaibou, 2015). However, there is no study on ICT integration by teachers in Cameroon secondary schools. Hence, it is important to investigate teachers' perceptions of ICT access, ICT training, ICT competencies, leadership support, and ICT integration. Research findings from teachers' perceptions and ICT usage may have important implications for administrators, departments, students, and employers and may enhance educational delivery to students' learning experience in secondary school, and students' application of knowledge and skills in the real world of work. Therefore, we reason that it is necessary to investigate teachers' perceptions and ICT usage in education.

Purpose
The purpose of this paper is to investigate Teachers Use of ICTs in Cameroon Secondary Schools.

Research questions 1. What are teachers' levels of ICT use in
secondary schools?
2. What are teachers' perceived ICT access, competence, training and ICT support?
3. Are there differences in perceptions of teachers' ICT use, access, competence, and support with regards to school location (Urban and Rural)?
4. Are there differences in perceptions of teachers' ICT use, access, competence, and ICT support with regards to school type (Public, Denominational, and Lay Private)?

THE STUDY
ICT is considered as a tool to transform teaching and learning the process, improve students' learning, to supplement the curriculum and the develop pedagogy (KERIS, 2005, Malaysian Ministry of Education, 2006). The integration of ICT in teaching and learning depend very much on the teachers' initiatives. The main objective of using ICT in the school is to make the teaching and learning process more effective, efficient and appealing. However, to achieve this, the teachers themselves have to be well prepared and competent in ICT. They have to be ready in terms of ICT competencies to face their students who are mostly 'Digital Natives' and are generally comfortable using ICT devices.

Nowadays many different types of technology are used to support and enhance the teaching and learning process. This includes everything from surfing the internet to collecting information for lessons preparation and using applications to prepare presentations, creating digital learning materials for students. Also, using ICT to provide feedback, assess students' learning, communicating online with parents, download and upload material from the school's portals or learning management system to looking for online professional development opportunities.

In this study, 16 public, private and denominational secondary schools were randomly selected. The schools comprised three public Secondary Schools, three private Secondary schools and two denominational in each region. The categorization of the schools was urban schools and rural schools. The participants were randomly selected. A total of 302 questionnaire were received, representing 94.38 percent return rate from 320 questionnaire distributed to teachers. Of these, 12 questionnaire were deemed unusable, due to data incompleteness, and were subsequently dropped from the data set leaving 290 questionnaire for data screening. Of these, 8 questionnaire were detected as outliers and deleted from the data set leaving 282 cases for the data analysis. The questionnaire consisted of 53 items and was categorized into three sections. Section A consists of seven demographic items, section B consists of ten items of teachers' ICT usage, and section C contains nine items of perceived access to ICT, twelve items of competency, ten items on training and five items of on types of support training that were related to teachers' use of ICT. A reliability test was carried out to determine the internal consistency of items in the questionnaire using Cronbach's α reliability test. Cronbach's α coefficient for the pilot questionnaire was 0.80, and the final questionnaire used for the study was 0.84. According to Kline (2016), α-value of 0.90 is considered excellent, 0.80 very good and 0.70 acceptable.

FINDINGS
Of 282 respondents, 56.6% were males, and 43.4% were females. The age of the teachers ranged from 20 to over 50 years. 29.3% were between 20 and 29 years old; 39.1% were between 30 and 39 years old; 16.0% were between 40 and 49 years old; 15.6% were over 50 years old; 50.4% of the teachers taught in public schools; 25.2% taught in denominational schools, and 24.5% taught inlay private schools. In total 57.4% of the teachers came from urban and 42.6% from rural schools. In terms of academic qualification, 30.1% had DIPES I, 35.5% had bachelor's' degree, 19.5% had DIPES II, and 4.6% had other qualifications. In addition, 35.5% had more than no ICT training experience, 42.6% had had basic ICT training experience, 14.9%t had intermediate level ICT training and 7.1% had other ICT training experience.

What are teachers' levels of ICT use in secondary schools?
In analyzing Table, I, the mean values greater than 3.0 is considered high ICT integration in teaching, while mean values less than 3.0 is considered low integration.

Table 1: Percentage, mean and standard deviation of perceived teachers ICT use

Item	Mean	Std. Deviation
Surf the internet to collect information to prepare lessons	2.79	.4434
Browse the internet to collect learning material or resources to be used by students during lessons	2.58	.5084
Use applications to prepare presentations for lessons	2.15	.5236
Create your own digital learning materials for students	1.67	.7371
Prepare exercises and tasks for students	2.26	.4701
Post homework for students on the school website	1.66	.7387
Use ICT to provide feedback and/or assess students' learning	1.66	.7387
Communicate online with parents	2.15	.4004
Download/upload/browse material from the school's website or virtual learning environment / learning platform	2.65	.5354
Look for online professional development opportunities	2.80	.4443
Overall ICT Use	2.24	.3298

Note: Cronbach's α=0.78

The table above shows that teachers' use of ICT in teaching and learning process is low (m=2.24, SD=.33). Among the 10 items that were designed to measure teachers' use of ICT, none of the elements has a mean of 3 which is the cutoff mean. This shows that ICT integration in Cameroon secondary schools is low partly due to poor or no proper ICT infrastructure.

Teachers' perceived ICT access

In analyzing Table, 2, the mean values greater than 2 is considered good access to ICT in teaching, while mean values less than 2 is considered low Access to ICT.

Table 2: Percentage, mean and standard deviation of perceived Teachers' perceived ICT access

Item	% No Access	Access on demand	Permanent Access	Mean	Std. Deviation
Desktop computer without internet access	20.9	57.4	21.6	2.01	.6535
Desktop computer with internet access	20.9	56.4	22.7	2.02	.6614
Non-internet-connected laptop, tablet PC, netbook or mini	21.3	60.6	18.1	2.00	.6277
Internet-connected laptop, tablet PC, netbook or mini	42.6	57.4	0	1.58	.4953
Photocopier	57.4	42.6	0	1.58	.4953
Have a Smartphone	0	0	100.0	3.00	.0000
Projector	45.0	55.0	0	1.55	.4984
Digital camera or camcorder	37.9	62.1	0	1.62	.4861
Computer laboratory	21.3	58.2	20.6	2.00	.6480
Overall Access				1.92	.4045
Cronbach's Alpha= .91					

Table 2 shows that the overall teachers' perceived ICT access is low (M=1.92, SD=.41). However, teachers have good access to; desktop computer without internet access (M=2.01, SD=.65), desktop computer with internet access (M=2.02, SD=.66), Non-internet-connected laptop, tablet PC, netbook or mini (M=2.00, SD=.63), and Computer laboratory (M=2.00, SD=.65). Even though all the teachers have smartphone (M=3, SD=.00) but only very few of them use it in their teaching and learning process as teachers' use of ICT in teaching and learning process is low (m=2.24, SD=.33)

ICT competency

In analyzing Table, 3, the mean values greater than 3.0 is considered high ICT competency, while mean values less than 3.0 is considered low ICT competency.

Table 3: Percentage, mean and standard deviation of perceived ICT Competencies

ICT Competence Item	% Very much Competent	Moderate Competent	Little Competent	No Competent	Mean	Std. Deviation
Produce a text using a word processing program	2.5	70.6	2.5	5.3	2.70	.6054
Use emails to communicate with others	2.1	53.2	37.2	7.4	2.50	.6656
Capture and edit digital photos, movies or other graphics	2.8	40.8	49.3	7.1	2.40	.6624
Edit text online containing internet links and images	0.7	42.2	52.8	5.3	2.37	.5963
Create a database	2.5	45.4	40.8	11.3	2.39	.7186
Organize computer files in folders and subfolders	2.5	62.4	29.8	5.3	2.62	.6268

Use a spread sheet	2.1	62.1	31.6	4.3	2.62	.6037
Create a presentation with simple animation functions	2.5	53,9	37.2	6.4	2.53	.6544
Create a presentation with video or audio clips	2.1	57.8	31.9	8.2	2.54	.6751
Participate in a discussion forum on the internet	0.7	61.0	32.6	5.7	2.57	.6119
Create and maintain blogs or web sites	1.8	28.7	53.2	16.3	2.16	.7054
Participate in social networks	2.5	56.0	34.4	7.1	2.54	.6645
Overall Competence					2.49	.4950
Cronbach's Alpha=.93						

Table 3 shows that teachers' ICT Competence is low (M=2.49, SD=.50). Among the 12 items that were designed to measure teachers' ICT Competence, none of the elements has a mean of 3 which is the cutoff mean. This shows that teachers need to be trained on the use and integration of ICT in their classrooms. Teachers' ICT Competence is low partly due to little or no support (M=1.95, SD=.53

To what extent do you agree with the following professional development opportunities provided by the school in the past one school year?
In analyzing Table, 4, the mean values greater than 3.0 is considered high ICT support, while mean values less than 3.0 is considered low ICT support. 10 items were designed to measure ICT support type provided by the school in the last one year. Table 4 shows that teacher received very low support (M=1.95, SD=.53) in integrating ICT in their teaching and learning process. Only Personal learning about ICT in own time (M= 2.80, SD= .44) and receiving other professional development opportunities related to ICT (M= 2.64SD=1.26) have average means showing that teachers in Cameroon secondary schools try to learn and use ICT on their own.

Table 4: Percentage, mean and standard deviation of perceived ICT training

ICT Training Support item	%				Mean	Std.
	SA	A	D	SD		Deviation
Introductory courses on internet use and general applications (basic Word processing, spread sheets, presentations, databases, etc.)	0	14.2	46.8	39.0	1.75	.6870
Advanced courses on applications (advanced word-processing, complex relational databases, Virtual Learning Environment etc.)	1.4	12.4	39.7	46.5	1.69	.7416
Advanced courses on internet use (creating websites/home page, video conferencing, etc.)	1.4	14.5	41.1	42.9	1.75	.7537
Equipment-specific training (interactive whiteboard, laptop, etc.)	0.7	10.6	47.2	41.5	1.71	.6817
Courses on the pedagogical use of ICT in teaching and learning	1.1	14.5	54.3	30.1	1.87	.6877
Subject-specific training on learning applications (tutorials, simulations, etc.)	0.0	13.8	51.8	34.4	1.79	.6645
Participate in online communities (e.g. mailing lists, twitter, blogs) for professional discussions with other teachers	0.7	12.8	45.0	41.5	1.73	.7058
ICT training provided by school staff	1.1	13.8	42.9	42.2	1.74	.7320
Personal learning about ICT in your own time	1.4	77.3	20.9	0.4	2.80	.4443
Other professional development opportunities related to ICT	0.4	57.4	41.8	0.4	2.64	1.2610

Overall ICT Training		1.95	.5338
Cronbach's Alpha=.89			

ICT support type In Table 5, shows the percentage of perceived ICT support types received by the teachers.

Table 5: Percentage, perceived ICT support type received

ICT Support item	% Never Used	Mostly technical Support	Mostly Pedagogical Support	Both technical and pedagogical Support
A more experienced / knowledgeable teacher	34.4	36.2	25.9	3.5
School ICT/technology coordinator	20.9	37.2	24.5	17.4
Other school staff	25.9	35.5	33.3	5.3
Experts from outside the school	35.5	36.9	29.5	8.2
An online helpdesk, community or website	35.8	36.5	29.4	9.2
Cronbach's Alpha=.77				

The table above shows that teachers receive some types of ICT supports. However, the received support level is very low as only 17.4% of the teachers received both technical and pedagogical support from school ICT coordinator, 9.2% received from an online helpdesk, community or website.

Are there differences in perceptions of teachers' ICT use, access, competence, and training support with regards to school location (Urban and Rural)?
An independent-samples t-test was conducted to compare teachers' ICT use, access, competence, and training support in Urban and Rural schools.

Table 6: t and p values for teachers' ICT use, access, competence, and training support with regards to school location

Variables	Location	N	Mean	Std. Deviation	t-test	Sig. (2-tailed)
Overall ICT use	Rural	120	2.18	.34259	-2.27	.024
	Urban	162	2.27	.31564		.026
Overall Access	Rural	120	1.56	.33041	-19.88	.000
	Urban	162	2.19	.19427		.000
Overall Competence	Rural	120	2.54	.48011	1.33	.185
	Urban	162	2.46	.50448		.181
Overall Support	Rural	120	1.91	.53837	-1.00	.317
	Urban	162	1.97	.53033		.318

Note: p 0.05

There was significant difference in ICT use for teachers in Urban area (M=2.27, SD=0.32) and teachers in Rural area (M=2.18, SD=0.34); t (280) = -2.27, p=0.024. Based on Cohen's (1988) criteria of effect size, the magnitude of the differences in the means was very low ($\eta2$=0.018). Also, there was significant difference in ICT access

scores for teachers in Urban area (M=2.19, SD=0.19) and teachers in Rural area (M=1.56, SD=0.33); t (280) = 19.88, p=0.00. Based on the effect size, the magnitude of the differences in the means was large ($\eta2$=0.585).

Furthermore, t-test conducted to compare teachers' ICT competence and support training scores for Urban and Rural schools. There was no significant difference in teachers' ICT use, competence, and training support for teachers in Urban and Rural schools as presented in Table 6.

Are there differences in perceptions of teachers' ICT use, access, competence, and ICT training support with regards to school type (Public, Denominational, and Lay Private)?
A one-way between subjects ANOVA was conducted to compare teachers' ICT use, access, competence, and ICT training support on Public, Denominational, and Lay Private schools

Table 7: F and p values for Research Question four

		Sum of Squares	df	Mean Square	F	Sig.
Overall ICT use	Between Groups	.086	2	.043	.394	.675
	Within Groups	30.473	279	.109		
	Total	30.559	281			
Overall Access	Between Groups	.369	2	.184	1.128	.325
	Within Groups	45.604	279	.163		
	Total	45.973	281			
Overall Competence	Between Groups	.733	2	.366	1.501	.225
	Within Groups	68.105	279	.244		
	Total	68.837	281			
Overall Support	Between Groups	.748	2	.374	1.316	.270
	Within Groups	79.311	279	.284		
	Total	80.059	281			

Note: *p 0.05
There is no significant difference in teachers' ICT use (2, 279) p=.68, access (2, 279) p=.33, competence (2, 279) p=.23, and ICT training support (2, 279) p=.27 with regards to school type (Public, Denominational, and Lay Private).

CONCLUSIONS
The use of information and communication technologies in teaching and learning in Cameroon secondary schools has been clearly low due to: low confidence and low competencies of the teachers, formal opposition by teachers to use pedagogical tools that they were not initially trained to utilized in a professional way. Also, schools are unevenly equipped with ICT: in some schools, computers are concentrated in computer laboratories or school libraries, in others computers are only found in the staff rooms and administrative offices. Even though, there are no differences in teachers' ICT competence and support training scores for urban and rural schools; teachers in rural area have less opportunity in using ICT in their teaching compare to their colleague in the urban areas. This is partly due no electrical connectivity in the countryside. Low teachers' support: both pedagogical and technical other forms have dramatically led to low teachers' use of ICTs in the teaching and learning process.

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TEACHING EFL GRAMMAR TO HIGH SCHOOL STUDENTS IN ECUADOR: A COMPARISON BETWEEN DEDUCTIVE AND INDUCTIVE APPROACHES

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ABSTRACT
The present study had the purpose of testing two methods to teaching grammar in the EFL class: the deductive and inductive approaches in terms of effectiveness and rapport in class. This study was conducted in a public high school in Ecuador. Thirty five students enrolled in one class of the second year of senior high school participated. One in-service teacher taught the EFL classes during the process of intervention and two EFL teachers observed all of these classes and recorded the information by filling in observation sheets. The students were administered grammar pre-tests and post-tests in order to assess their grammar knowledge. After a statistical analysis of the data obtained from the tests and observation sheets, the results showed that the inductive approach is more effective to teaching grammar in EFL classroom in terms of instruction and rapport.
Keywords: Inductive approach, Deductive approach, EFL teaching, rapport, teaching grammar.

INTRODUCTION
Teaching grammar in an English as a Foreign Language (EFL) class plays an important role, mainly in terms of enabling students to achieve linguistic competence (Huang, 2005). In order for students to attain linguistic competence in the second language, an issue has been finding a suitable method to teach grammar (R. Ellis, 2006; Thornbury, 1999). One of the most controversial and unanswered questions regarding effective language learning is the issue of whether grammar is taught deductively or inductively. This implies that the debate has always been how grammar should be taught explicitly, through a formal presentation of grammatical rules, or implicitly, through natural exposure to meaningful language use (Nassaji & Fortos, 2011).

In this regard, Larsen-Freeman (2015) investigated whether students learn language rules best by giving them information deductively or by reading textbooks, or if students are better off being given examples from which they find out the rules inductively themselves. One learning approach would favor induction, with the added benefit that students learn how to figure out the rules on their own. She also states that repeated exemplars might at some point lead students to induce a rule, but it is equally possible that language-using patterns remain as instances in learners' memories, emerging as they do from the language that both language learners and fluent speakers of the language experience. The suggestion is to give students reasons as an alternative to rules, which may seem arbitrary, but they allow learners to see why things are the way they are; thus, reducing the opportunity of grammar explanations (Larsen-Freeman, 2000).

Another important issue that contributes to learning in the English classroom is rapport. Good rapport between students and teachers would be beneficial to rise students' motivation and interest in the classroom (Bouras & Keskes, 2014). Since grammar is a controversial and difficult aspect of EFL teaching, it is important to maintain an appropriate rapport in the EFL classroom at the moment in which grammar is explained and practiced. Rapport is essential in establishing a relationship between teachers and students and maintaining it in order to

work and learn well together. This relationship allows them to enjoy one another and the class, and students feel more motivated to do their best (Paterson, 2005).

The proposal of this study was to try both approaches (inductive and deductive) to teaching grammar in order to determine which one of them is more effective in the EFL classroom, since according to information obtained from the authorities of the institution under study, students do not obtain the desired results when it comes to an appropriate level of EFL proficiency.

Therefore, the present study focuses on exploring the difference in effectiveness between the inductive and deductive approaches to teach grammar in the EFL classroom. Additionally, the effectiveness of the rapport that is established during the English lessons was also assessed. The research questions to be answered were the following:

1) Which of the two approaches is more effective for teaching and learning EFL grammar?
2) How effective is rapport when teaching EFL grammar deductively and inductively?

LITERATURE REVIEW
Teaching grammar inductively and deductively
In the context of language teaching, grammar is a key component of language. Huang (2005) states that the main goal of grammar teaching is to enable learners to achieve linguistic competence in order to be able to use grammar as a tool or resource for understanding and producing efficient, effective and proper oral and written discourse.

Teaching grammar in EFL has been considered a controversial area of language, teaching and learning (Petraki & Hill, 2010). This debate has been centered on issues such as the way grammar has been taught, its communicative purposes, whether to teach grammar at all, what sort of grammar to teach, the effectiveness of explicit or implicit grammar, or if teaching it in context or not, whether it is advisable to teach it from rules or from examples, if teaching it descriptively or prescriptively, etc. (E. Ellis, 2006; Thornbury, 1999).

However, Thornbury (1999) highlights three main approaches to teaching grammar: teaching grammar from rules, teaching grammar from examples and teaching grammar through texts. Teaching grammar from rules involves the deductive or rule-driven approach, which starts with the introduction of a rule followed by examples in which the rule is applied. Teaching grammar from examples is related to the inductive or rule-discovery approach that starts with some examples from which a rule is inferred. Teaching grammar through texts is based on the principle that language is context-sensitive, that is, the intended meaning of a word or phrase is very difficult to determine without a context. In this approach, learners need to be exposed to the context by using texts in order to make sense of the grammar learned. One of the problems of the use of texts is that beginner or elementary learners might find difficult to understand grammar in a natural context. In addition, taking words, sentences and texts out of contexts threatens their intelligibility.

Due to the weaknesses of teaching grammar through texts to beginners or elementary learners, this study emphasizes the use of deductive and inductive approaches to teach grammar to EFL students in high school, particularly, young adult beginners.

Deductive teaching is a traditional method in which information about the target language and rules are given at the beginning of a class and continue with examples. The principles of this approach are generally used in classes where the main target is to teach grammar structures. For instance, these principles are convenient for classes in which grammar translation method is applied (Nunan, 1991). According to Thornbury (1999), a deductive lesson should start with a presentation of the rules by the teacher. Secondly, the teacher gives examples by highlighting the grammar structures. Then, students make practice with the rules and produce their own examples at the end of the lesson. In fact, the expected outcome of a deductive approach sees the need to teach grammar in an explicit way to help learners to be aware of the grammar rules (Shrum & Glisan, 2016).

On the other hand, Nunan (1999) identifies the inductive method as a process where learners discover the grammar rules themselves by examining examples. In an inductive approach, it is also plausible to use a context for grammar rules. That is to say, learners explore the grammar rules in a text or an audio rather than in isolated sentences. Furthermore, Thornbury (1999) states that in an inductive approach, learners are provided with samples which include the target grammar that they will learn. Then learners work on the examples and try to discover the rules themselves; students obtain the grammar rules and they practice the language by creating their own examples.

Teaching grammar to EFL learners after the critical period has some important pedagogical implications, since, as Brown (2007) explains, adult learners tend to deal with the rules when they use the target language because their mentality is able to think of abstract items. He points out that deductive teaching is more appropriate for adult learners since it meets their expectations as they give more importance to rules when they use the language; thus, presentation of grammar rules firstly is more useful for them. On the other hand, young learners are successful in exploring grammar structures from the examples rather than learning them deductively since students are more attracted to learn by doing because grammar rules are complex and abstract for them.

Rapport in the EFL classroom
There are three motivational conditions that are important at the moment of teaching: appropriate teacher behaviors and a good relationship with the students; a pleasant and supportive classroom atmosphere, and a cohesive learner group with appropriate group norms (Dörnyei, 2001). Since motivation is important in the teaching-learning process, it is essential to establish good communication between teacher and students to achieve a successful and positive teaching and learning process (Barmaki, 2014). This enjoyable and respectful relationship of communication is called rapport, which involves a balanced interaction and trust between teacher and students (Harmer, 2007).
According to Dörnyei (2001), EFL teachers can implement strategies in the classroom for building rapport such as greeting students, remembering their names, noticing interesting features of their appearance, learning something unique about each student, asking them about their lives outside school, showing interest in their hobbies, recognizing birthdays, moving around in class, including personal topics and examples, and sending notes/homework to absent students.

Proper rapport between the teacher and students involves harmonious understanding of each other as individuals, based on mutual respect and esteem. On the other hand, behavior by teachers, which indicates that they have little respect or esteem for students, will inevitably undermine the development of good rapport. In other words, rapport is one of the teacher's qualities for a "sound relationship between a teacher and pupils" (Kyriacou, 2009, p. 109).

Previous studies
Mohammed and Jaber (2008) investigated the effects of using inductive and deductive approaches and the interaction between the type of approach for teaching the active and passive voice in English as a foreign language. This is an empirical study that included a pretest, two lessons for each group in the three classes and a posttest. Three classes of students participated with a total of 93 university students. The classes were divided randomly into two groups: one group was taught the passive and the active voice by deductive approach and the other group by inductive approach. Those who were taught deductively were exposed to specific grammatical rules where they paid conscious attention to language so as to understand such rules. Those who were taught inductively were given examples without being exposed to such rules. Instead, they were left to induce the rules by themselves. The results of the study reveal a significant difference between the two approaches in favor of the deductive group, but there is no significant difference between classes for the same type of approach.

Dang and Nguyen (2012) explored the effects of indirect explicit grammar instruction on EFL learners' mastery of English tenses. The participants were 94 eleventh-graders that were selected using purposeful sampling and were randomly assigned into either the experimental group (EG), who learned grammar through the indirect approach, or the control group (CG), who worked with the direct approach. A pre-test and post-test were administered to collect the data. Tests related to rule analysis, grammar, and speaking were also applied. A delayed written test was given to both groups to assess students' retention of the structures learned; in addition, a questionnaire was provided to the EG to investigate their perception on the treatment. The findings indicated positive results for indirect explicit grammar instruction. The EG significantly outperformed the CG in the analysis of grammar rules and the oral proficiency, except for the use of grammar structures in a pre-defined context. Therefore, there was a positive correlation between the grammar rules and their subsequent use. The EG had also favorable attitudes towards the instruction.

Zamani and Mohammadi (2014) conducted an investigation to discover the differences between inductive and deductive strategies in teaching grammar. The sample was selected through a general English proficiency test. The 21 students whose English proficiency score fell between one and one half standard deviations above and below the mean score were invited to participate in this study; the participants were randomly divided into two groups: 10 learners for deductive and 11 for inductive. The results of the post-test evidence that there is no difference between using an inductive or a deductive strategy in teaching grammar.

Deng and Lin (2016) conducted a qualitative and quantitative study aimed at investigating the teachers' and students' beliefs on the grammar teaching, the differences and similarities between high school English teachers' and students' perceptions toward grammar teaching, and at discovering if the English teachers' actual grammar teaching behaviors match their beliefs. The sample included 35 English teachers and 400 students from a middle school. The data was gathered using three questionnaires and one interview. The findings show that teachers believe that language teaching should focus more on meaning rather than on form. When comparing deductive and inductive way of teaching English, there is a higher percentage of teachers who prefer deductive method; meanwhile, students' grammar beliefs favor the communicative and traditional grammar focus.

The studies above reveal that there is not a consensus on which approach is more effective to teach grammar in an EFL context. The debate is still open in this respect but, if the purpose is to teach grammar using communicative methods, instructors would tend to teach grammar inductively.

METHOD
Setting and participants
This study was conducted in a public school in Ecuador where students regularly receive 5 EFL classes per week (45 minutes each class). Thirty five students enrolled in one class of the second year of senior high school participated in this study. Their ages ranged from 15 to 17 years old, and their English proficiency level varied between A1 and A2 according to the Common European Framework of Reference (CEFR). One EFL teacher imparted the lessons during this intervention, and two EFL teachers participated as observers.

Instruments
The instruments used included an observation sheet, and a pre-test and post-test. The observation sheet was used in order to record information on different aspects related to rapport such as feelings, enthusiasm, interest, feedback, interaction, and confidence in the EFL class. The pre-test and post-test, which consisted of 25 questions each, were administered to assess the students' knowledge related to EFL grammar in terms of structures such as simple present and simple past tenses, future with *will* and *be going to*, Wh-questions, present perfect and comparatives and superlatives.

Procedure
The whole number of participants was randomly divided into 2 groups in order to eliminate the bias by giving all participants an equal probability of being selected as part of any group (Creswell, 2015). Before starting the intervention, the students took an EFL grammar pre-test in order to know their initial grammar knowledge. The two groups experienced different grammar teaching approaches. One group (18 students) received EFL classes in which the inductive grammar approach was used. The second group (17 students) were taught by means of the deductive grammar approach. The lessons were imparted for a period of 10 weeks and each group received a total number of 15 hours of instruction (1.5 hours per week).

In the deductive approach group, grammatical points were explained in class and students were allowed to ask questions; moreover, direct feedback was provided for learners by underlining the errors referring to the grammatical rules. The activities for teaching grammar in this group included completing handouts, writing sentences on the board in order to explain grammar patterns, reading and writing passages, and having students do exercises using the grammar structures taught.

The inductive approach group was exposed to implicit instruction of grammar. The students worked in activities, which involved them in an unconscious learning of grammar with the focus on message over abstract form. Those activities comprised watching short videos about live sports, interviews, listening to and analyzing songs, performing role plays, describing pictures, completing cloze exercises, and writing creative texts. The students under the inductive teaching condition received feedback in context through recasting rather than providing direct feedback.

In this respect, according to Richards and Schmidt (2010) language teaching methods that use the deductive approach emphasize the study of the grammatical rules of a language (e.g. the grammar translation method). In contrast, language teaching methods that apply inductive learning focus on the use rather than on presentation of the language (e.g. the direct method, communicative approach, and counselling learning).

After the intervention, students in both groups were administered a grammar post-test with the purpose of monitoring their progress in learning EFL grammar by means of the two aforementioned approaches. The pre-tests and post-tests were graded and the scores obtained were compared in both the experimental and control group by means of statistical procedures; in this case, t-test by using a confidence level of 95%.

During the intervention, the two EFL teachers observed the development of the lessons to determine the effectiveness of rapport in class by filling in observation sheets. Thus, in order to analyze the level of efficiency related to rapport in both groups, the results were analyzed by counting the frequencies and determining the percentages and modes.

RESULTS AND ANALYSIS

After applying the t-test, the following tables and values were obtained in order to find out which approach (inductive or deductive) to teaching grammar was more effective.

In the group of students who received classes with the deductive method (see Table 1), it can be seen that there is a significant increase in the scores between the grammar pre-test and the post-test ($t = 8.2395$; $p<0.0001$). This increase between the scores of the pre-test and post-test is also significant in the group (see Table 2) who received classes with the inductive method ($t = 10.0901$; $p < 0.0001$). This means that both groups increased their grammar knowledge.

Table1: Deductive approach group

Statistic	Pre-test	Post-test
Mean	3.518	5.753
SD	0.660	0.961

$t = 8.2395$
$p < 0.0001$

Table 2: Inductive approach group

Statistic	Pre-test	Post-test
Mean	3.667	6.506
SD	0.689	1.057

$t = 10.0901$
$p < 0.0001$

With respect to the pre-test, the difference in scores between the deductive and inductive group was not significant ($t = 0.6526$; $p = 0.5185$) before the intervention; thus, both groups had a similar level of grammar knowledge. After the intervention a significant difference in the post-test was observed ($t =2.1998$; $p=0.0349$), which means that the inductive approach was more effective than the deductive approach when teaching grammar to these students (see Table 3).

Table 3: Results of the post-test in the deductive and inductive

Statistic	Deductive	Inductive
Mean	5.753	6.506
SD	0.961	1.057

$t = 2.1998$
$p = 0.0349$

Concerning rapport, in general, the results obtained from the observation sheets indicated that rapport in the deductive approach (see Table 4) were effective (MODE = 2). In the first item, it can be seen that, in most classes (10 out of 15 classes) students were interested in the class. The results also show that the teacher was respectful and impartial in most of the classes (13 out of 15 classes). Concerning feedback, it was provided in more than half of the classes (9 classes).

In all of the classes, students were encouraged to participate, and in most of them, they interacted with the teacher and showed enthusiasm as well (10 classes). Students also feel confident when asking for explanation (12 classes).**Table 4**: Rapport in the deductive approach

Aspects of rapport	Slightly effective	%	Effective	%	Highly effective	%
1. Students are interested in the class	5	33.33%	7	46.67%	3	20%
2. Teacher is respectful, fair and impartial	2	13.33%	9	60%	4	26.66%
3. Teacher provides feedback	6	40%	7	46.67%	2	13.33%
4. Students are encouraged to participate in class	0	0%	11	73.33%	4	26.66%
5. Students interact with teacher	5	33.33%	6	40%	4	26.66%
6. Students show enthusiasm	5	33.33%	8	53.33%	2	13.33%
7. Students feel confident when asking for explanations	3	20%	9	60%	3	20%

As for the classes in which the inductive method was used (see Table 5), rapport was also effective (MODE = 2). In the majority of classes the results evidence that students showed interest (12 out of 15 classes), the teacher was respectful (14 classes) and feedback was provided (13 classes). Additionally, in most of the classes, students were encouraged to participate (14 classes), interacted with the teacher (12 classes), showed enthusiasm (12 classes), and felt confident when asking for explanations (13 classes).

Table 5: Rapport in the inductive approach

Aspects of rapport	Slightly effective	%	Effective	%	Highly effective	%
1. Students are interested in the class	3	20%	8	53.33%	4	26.66%
2. Teacher is respectful, fair and impartial	1	6.67%	11	73.33%	3	20%
3. Teacher provides feedback	2	13.33%	7	46.67%	6	40%
4. Students are encouraged to participate in class	1	6.67%	11	73.33%	3	20%
5. Students interact with teacher	3	20%	8	53.33%	4	26.66%
6. Students show enthusiasm	3	20%	9	60%	3	20%
7. Students feel confident when asking for explanations	2	13.33%	12	80%	1	6.67%

To sum up, it can be observed that, although both approaches to teaching grammar have been effective in terms of rapport, the percentages of effectiveness in rapport in the inductive group are slightly higher. This means that rapport was more effective in the inductive group than in the deductive one, which might be caused by a more dynamic teaching process involved in the communicative approach activities that were used as a part of the inductive method for teaching grammar.

CONCLUSIONS

The present study explored the difference in effectiveness between the inductive and deductive approaches as well as the effectiveness of rapport when teaching grammar in an EFL context. After the analysis and discussion of results, the following conclusions have been drawn:

Although before the intervention, both groups had a similar level of grammar knowledge that improved with the intervention, the statistical analysis shows that the inductive approach had a slight advantage in terms of improving students' grammar knowledge.

There was an effective rapport in the EFL classes in both groups. However, the rapport observed in the inductive approach group was slightly more effective, considering aspects such as the teacher being respectful, feedback being provided, students participating in class and interacting with teachers, enthusiasm, and confidence when asking for explanations in class.

Despite the fact that the present study favors the inductive approach as a more effective method to teaching EFL grammar, it is important to continue doing research on this theme in different EFL contexts, especially in Latin American countries, where this aspect has not been deeply explored.

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TEACHING ENGLISH IN A BRAZILIAN PUBLIC SCHOOL: THE EXPERIENCE OF COLLABORATION AND THE USE OF TECHNOLOGY IN LANGUAGE CLASSES

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Prosperous reports about English teaching in Brazilian public schools are still a minority. Despite acknowledging the importance of language learning and the technological advances in everyday life, the reality of public education in Brazil is troublesome. The challenges have been widely debated in the National Curricular Guidelines (1998), a document where educational authorities assert that the existing conditions are not favorable to effective language learning in Brazil: scarcity of meetings, overcrowded classes, poor teacher training and lack of appropriated didactic material are some of the rationales that may impair a relevant language learning. However, new initiatives can reassign new meaning to pedagogical practices. Based on collaborative language learning methodologies and the use of accessible technologies, this paper presents an interdisciplinary teaching project developed in a public school in southern Brazil. The main purpose of this experience is to produce a short movie within the language class. By doing so, students work in a collaborative way where each one contributes to the process expressing ideas, assigning tasks and using the target language to improve basic communicative skills. Besides, the use of technology as the main working tool enhances the learning process, making it consistent with their interests, needs and abilities.

TEACHING SOCIAL SCIENCES WITH A GENDER PERSPECTIVE: TURNING OBSTACLES INTO OPPORTUNITIES USING PBL AND FPDA

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ABSTRACT

Today, to address the teaching of Social Sciences from a gender perspective is, more than ever, the focus of Problem-Based Learning (PBL).

In addition to theory, training competences for future teachers must be employed for a social critical analysis. It is not sufficient to offer them theoretical examples about how cultures assign gender roles as sometime these are present in our everyday lives, and are therefore difficult to change, as is our individual thought.

Using Feminist Post-Structuralist Discourse Analysis (FPDA) and the ABP on written productions of teacher training from diverse contexts (such as Colombia, Mexico and Spain), we have studied collaborative working practices, how these create their own stereotypes and therefore, how those in turn become prejudicial.

Information was collected and discussed regarding practises, and possible causes and solutions for them analysed, within their cultural context. As a result, students become more conscious of their own actions.

What obstacles have appeared? What opportunities have arisen? What good practices have emerged? How has collaborative knowledge been transferred to primary and secondary classrooms? These are the questions we want to present and discuss at this paper.

INTRODUCTION

Today, addressing the teaching of social sciences from a gender perspective is, more than ever, the focus of a Problem-Based Learning (PBL) approach. Gender-based violence, as a socially relevant problem, appears daily in the media and in the social reality that surrounds us (economic violence; Socio-cultural violence; physical violence in the public and domestic spheres; psychological violence in the public and domestic spheres; rape, sexual harassment and sexual exploitation; trafficking of women and girls, etc.). "Gender is most often dealt with as a topic within subjects or cross-curricular themes, such as social sciences, citizenship education, ethics, history, languages or home economics" (Eurydice, 2010)

How we construct gender identities, how we approach, or not, a critical analysis of situations to accompany students in the construction of their own identity and in the meanings we give to social constructs is undoubtedly an educational challenge.

The Teaching of Social Sciences in Initial Teacher Training implies university vocational training that must be based on the construction of bridges between culture, scientific knowledge and social needs (Lessard and Tardif, 2006, cited in Santisteban, 2008), promoting the "ability to ask questions and answer" (Sternberg and Spear-Swerling, 1999: 57).

In fact, the solution to this most consensual social problem in all contexts has been, since the 1990s, education.

However, despite the various educational policies emanating from both national and international institutions, the situation has not reversed (UNESCO, 2016)

What are the causes?

From my point of view, we must first address how this theme is addressed in classrooms. A report on this has been published by Eurydice (2010), whose results are still valid.

Thus, for example, if teachers´ explanations are based on their own patriarchal and heterosexual construction of gender constructs, and in the activities in textbooks, we should not forget that they are made by publishers to be accepted by the majority of the population and not to create controversy. Is it possible that changes in social gender roles are explained preferentially as the traditional ones? Does the teacher have the tools to be able to contextualise situations in the context of space and time? Does critical analysis encourage or explain sociocultural elements as absolute and closed truths that cannot be questioned or have other explanations?

With what ideas, perceptions and methodologies do graduates complete their degree in education in this respect? Does the teacher know how to handle open tasks and answers?

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THE STUDY

Throughout the research process, we have analysed what the obstacles are that appear in the ideology of future teaching staff. It seems that insecurity in the face the change, the fear of the reactions in the educative context, and the lack of strategies, appear to be predominant. The power of previous ideas, traditional cultural features and experiences with the socio-cultural context have a high predictive factor that makes stereotypes and prejudices seem very stable and resistant to change (comfort zone).

But it is also true that, on many occasions, those who are going to be teachers are not aware of how they have constructed, reasoned and / or perpetuated gender realities.

The study samples that have led to these conclusions have been, on the one hand, the productions of trainee teachers, through the tasks developed in the context of Social Sciences subjects in a university of Mexico, Colombia and several in Andalusia (Spain) (Díez Bedmar, 2015), and in the final degree projects and Master's degree dissertations in education in Andalusia, accessible through the Andalusian Universities Open Access Repository (Díez Bedmar, 2017)

The open tasks of the study were performed with PBL. For this, examples were taken to the classroom to reflect the present situation in news, songs, books, announcements, or statements by public figures. Controversy arose because different perspectives and views appear, as well as interest groups (both those who emit discourses and those groups that receive them). Each of the tasks sought to foster critical thinking, research skills and a wide range of basic skills really necessary to be able to construct common meanings without imposing one or another reality. In this sense, the methodology that we had used in previous studies (Cruz Rodríguez; Díez Bedmar, 2010) based on collaborative evaluation as part of the PBL process, obtained excellent results.

To carry out this PBL with a partner-critical analysis, a Problem-Based Learning (PBL) from a gender perspective was designed, with the following steps:

1. - To design the task
2. - To design the tasks and overarching question
3. - To implement
4. - To collect students' productions
5. - Post-test

In addition, both the open-ended productions and final degree projects and Master's degree dissertations (doing by girls (85%) and boys (15%)) were applied to the Critical Discourse Analysis (CDA) and FPDA (Feminist post-structuralist discourse analysis) Baxter methodology (2004; 2007), with the following steps:

1. - Make a corpus
2. - Analysis

RESULTS

By combining the studies that we had been carrying out, we obtained the following results.

The first of them: If, when using the PBL, we get students who participate in a reflexive way, as the post-test shows in 96.2% of cases, doing so from a gender perspective offers them the opportunity to experience for themselves how they have produced their own learning processes, and provides them with quality criteria to improve their proposals for future classroom activities, using more participatory approaches. In this way, we pass from passive students (who receive a theoretical lesson that they have to memorise without understanding), to active students who internalise and assume their responsibility.

In fact, in the post-test, they state that they have come to understand other realities, where their gender constructs come from and how, depending on these, they see in one way or another the reality and the social changes they are going to explain to their future students. Change becomes an opportunity to move forward

100% of the samples indicate, after performing tasks with this methodology, that they have perceived changes in the perception of the development of social and civic competence, both in relation to their professional and personal future. From a quantitative point of view, the concepts most indicated in the post-test to the open question "Do you think it will be useful to use the gender perspective in the development of your profession?" are: "assume the responsibility"; "understand"; "reflect"; "use"; "act"; "change".

When the FPDA applies itself to their own productions, it is evident how they themselves created their own stereotypes and therefore, how they become their own prejudices.

Although they begin to use an inclusive language in which the will to integrate the gender identities in education, they showed how there is always the patriarchal, heteronormative, bipolar sex-gender perspective that links a gender to culturally and traditionally assigned roles, and that they interpret equality as women's claims to masculine roles, without having internalised any of the premises of equality feminism. How not work with a gender perspective as well as with differences between men and women is established, sometimes to show and to highlight them, and others in order to point out the differences. Normally, they also do so when talking about stereotypes, violence, victimisation, aggression and conflict. That is, the integration of this perspective is not normalised in the analysis of all socio-cultural, political and economic factors and features, in all educational areas.
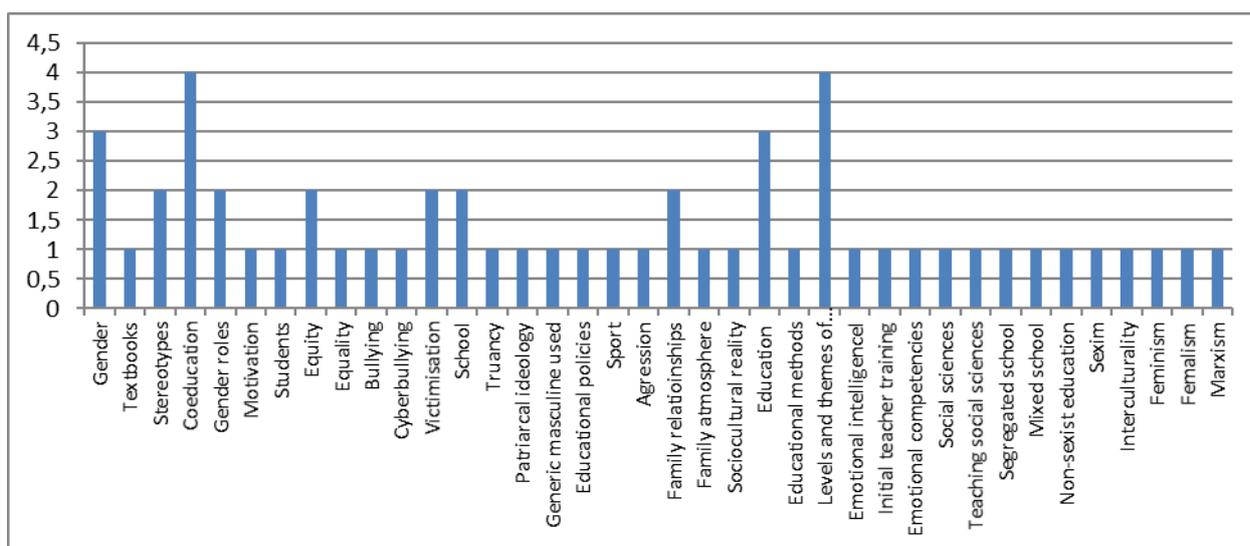
Table 1. Key words on Final Grade Work (1-5%)

CONCLUSIONS

The use of both methodologies (both the PBL with a gender perspective and the FPDA) turns socio-cultural and identity barriers into learning opportunities.

They help us to develop in the students civic competences without gender stereotypes, not only theoretically, but also in regard to their application and decision making about their future teaching practice and in their daily life, although we must be aware that cultural gender differences are maintained in the identity ideology, together with the need for recognition by groups.

From my point of view, one of the major contributions of the importance of using these methodologies with students is that they can test for themselves their own thinking, and what it implies in their decision making as future professionals.

Sociocultural obstacles become an opportunity for lifelong learning regarding the challenge of gender stereotypes and roles in the different past, present and future contexts, since those who leave the initial teacher training will be the real actors of the social changes that are to come, where the category of thought "gender" is present with the same relevance as others that have been used to explain (until now) the world.

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TECHNOLOGY AND THE ACHIEVEMENT GAP AN EDUCATOR'S LEADERSHIP PLAN FOR ACTION WITH TRAINING

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ABSTRACT

This paper explores how the achievement gap is affected by technology use in schools. In many studies, technology is hailed as the great equalizer when it comes to closing the gap. However there have been more recent studies that refute this claim even saying that improper use of technology in schools will increase the achievement gap. This paper examines potential plans for addressing the lack of training in using technology in the classroom. It shows how students, pre-service teachers, teachers, and administrators can be served by learning technology integration so that the technology can help in closing the achievement gap.

INTRODUCTION

Background Information

This paper will focus more on a concept of technology and the achievement gap and less on an actual school or institution that it affects. Technology has often been discussed as the great equalizer when it comes to education and specifically in educating our urban or minority students. Philip Lanoue, superintendent of Clarke County School District in Athens, Georgia, stated in an interview with Dan Gorden of THE Journal, "Full access to resources and information will help level the playing field for all students" (Gordon, 2016). This is a common theme among many scholars and educators. The belief is that if we can just get the technology into the hands of the students then the gap will shrink.

There are many studies that espouse that technology is the best and most obvious choice to close the gap for students. The use of technology in low-income and poor socioeconomic areas can help to alleviate some of the gap that minority and urban students face. The technology could be anything from laptops, tablets, and Smart technology. Often the results of these studies show significant improvements for these populations (Arnett, 2015; Barton & Coley, 2009; Hodas, 2016; Oluwatumbi, 2015; Pursell, 2009). Another study done by Judge, Puckett, & Bell (2006) discuss the need for equitable technology access for children, especially those attending high-poverty schools. However, the major difference in that study is that they discussed the need for proficient use of computers. That is really the most important aspect and where we can find the problem surrounding technology and the achievement gap.

Statement of the Problem

The problem with using technology as the great equalizer is that providing technology for technology's sake does not address the fundamental issue of accessing the technology when the students have it. As mentioned above, the need for proficiency in the use of technology to truly see a difference in achievement is paramount (Judge, et al., 2006). Neuman and Celano (2012) completed a study on whether they could see if computers really could 'level the playing field' of two different groups of neighborhood children. One group was considered to be from a concentration of affluence and the other from an area of concentrated poverty. They observed libraries in the Philadelphia area of Kensington, also known as 'the Badlands', and libraries in the Chestnut Hill section of the city. After long periods of observation on children in both libraries using technology, they observed that, "the very tool designed to level the playing field is, in fact, unleveling it" (Neuman & Celano, 2012, p. 22). This 'unleveling' has

more to do with the issue of education surrounding the use of technology than access to the technology itself, because the children accessing the technology were doing so in very different ways.

Paul (2014) discussed Neuman and Celano's 2012 study and how it related to a phenomenon known as the Matthew Effect. The idea is that those who get more technology intervention early on will benefit more in the long run. This is taken as a reference from the gospel of Matthew, "For whosoever hath, to him shall be given, and he shall have more abundance: but whosoever hath not, from him shall be taken away even that he hath" (Matthew 13:12, King James Version, n.d.). There is a beginning of a new technology age of the Matthew Effect, "in which the already advantaged gain more from technology than do the less fortunate" (p. 2). Shapely, Maloney, Caranikas-Walker, and Sheehan (2008) also determined in their study of the Texas Technology Immersion Pilot that students who had higher test scores to begin with had more benefit to having technology than those who had lower test scores.

Another problem with this idea of technology and the achievement gap is that students are often admonished for using technology they are comfortable with. Students have a familiarity with their cell phones but we ban them and other devices, labeling them as 'nuisance devices.' Students today are born with technology in their hands. They are the cell phone generation. Pursell (2009) states, "The current generation of students is less inclined to use computers, but they use their cell phones 24 hours a day." Why, then, is it policy that in most schools the most powerful computer a student utilizes is banned? We criminalize the use of cellphones in school and punishment for using a phone in the classroom can be very severe. It seems to be a disservice to students, especially in low-income schools, not to allow them to use their cellphones for learning, especially when other technology is not readily available.

Personal Connections and Importance

As a former Instructional Technology Coach for a low socio-economic school district, I have witnessed students struggling with when to use and when not use technology. When technology becomes available it is not used strategically. The school sees it as a tool for drill and practice of standardized tests. They use the technology for administering tests and not projects that would inspire creativity or innovation. I also saw a lack of understanding on how computers worked. Students did not have access to computers at home and did not understand how to use them in an academic setting. This is in stark contrast to my personal experiences with my children. My daughter in first grade has her own tablet and computer and the skills that she learned from using them at home have developed into positive associations with computers in her first grade classroom.

We are on the steps of a second digital divide that could cause catastrophic damage to students who are on the wrong side. Students in low socioeconomic school districts suffer from a lack of proper and reliable equipment and often lack even a connection to the Internet. I recently asked my wife, who teaches in one of these school districts, if her class could benefit from getting a few iPads to use in the classroom. She was obviously happy about this and went to her school asking for permission to put them on the network. This request was denied, as the wireless appears to be something only used by school employees. It seems counterproductive for schools to have wireless networks yet not utilize them in a way that benefits students.

Access to technology in schools is important because we have heard countless times that technology will level the playing field for students in America. If all schools could get access to technology then we could begin to close the gap between the haves and the have-nots. The most daunting challenge, however, is that we need to change the way that technology is taught in schools, and provide training to librarians, teachers, parents, and students on how to effectively use computers. Digital literacy is not something we can take for granted that people have. Neuman and Celano's (2012) study found the following:

Without help, children can revert to random clicking - similar to the way they flipped through books. We watch as a preschooler, alone, runs her cursor over a few icons….she starts the game, but can't follow the narrator's directions…eventually becoming frustrated. She starts clicking away randomly...In less than two minutes, she clicks, switches, clicks, switches about 20 times. As her frustration grows, she starts pounding on the keys as if they are a piano - until the computer screen freezes. (p. 19)

This exchange provides an example of the reason we need better training for all involved with bringing technology into the lives of children. Just because a school has technology does not mean the students are getting the best that

technology can offer. Schools will continue to waste money and resources if there is not proper training and assistance provided to all involved.

EDUCATIONAL LEADERS PLAN OF ACTION

Not working in a school limits what I could do, but I have a plan, based on two areas of expertise, that could help to combat the problem of improper training and assistance. One, as a former teacher in low socioeconomic schools, I can offer in-services or outlines of training for in-services, and two, I can (outline) what higher education institutions can do to increase technology training for pre-service teachers. One strategy is to work with education departments to provide training and in-services for their pre-service teachers who will be working with populations of students who fall into the low-income districts.

The in-service is a direct way to combat the lack of training for staff and teachers when technology is given to low socioeconomic schools. Often these schools do not have the technology that more affluent districts have. However, when it is provided for them, the technology is often left in the classroom and the end user is supposed to figure out how to use it. Darling-Hammond (2010) discusses the idea that we often rush individuals to obtain emergency certification and find alternatives to certification instead of taking the time to establish a framework that would effectively train our teachers, as other higher performing nations do. If we spent the time and provided for this type of education, our teachers and future teachers would be better prepared to deal with the technology in and out of the classroom.

The other issue that needs to be addressed, which would need to come from a central office as opposed to being school based, is to relax rules towards student technology use in schools. If rules change to allow more use of student technology in the classroom, specifically cell phones, then students can feel more comfortable using the technology they are familiar with. This does not need to stop at phones either, as ll forms of student-owned technology, such as video game systems, could be leveraged for classroom or educational use. The possibilities for STEM alone should make this a reality. Along with students using their own devices, we can create programs that enable students to become more active and aware digital citizens. The Internet and technology can be dangerous and students are vulnerable and susceptible to malicious attacks. Part of the in-service would focus on creating digital citizens and teaching students how to make the most out of engagement in a technological world.

Plan Issues and Potential Solutions

This section will outline issues that face schools when it comes to the use of technology, as well as potential solutions that can be used to address these issues. Each area will have a potential solution that can be implemented as part of the opportunity plan

Issue 1 - Mobile Devices. As mentioned above, one negative that we see in public schools is kids being punished for using the technology that they most often use. We put stringent guidelines on cellular phones and other forms of technology that could potentially be useful in the classroom. In many studies there are findings that the use of cell phones or BYOD (Bring Your Own Device) has impacted the learning and engagement of students in a positive manner, and has not detracted from the lessons of those who have devoted time to teaching the class how to properly use the technology. Again, this is only possible if you are prepared to work with students and teach them appropriate times and uses for the devices in the classroom (Imazeki, 2014; Li, Snow & White, 2015). The key part to this potential solution is the education of the users, instructors as well as students, on using these types of technologies in the classroom. Teachers may fail to conclude that a cell phone is a distraction and may not see it as a possible a pedagogical tool.

A potential solution that should be considered by schools, and one that I would recommend to any school that I would work with, is to ease up on all-out bans of technology that students bring to school. Allowing students to use the technology that they are familiar with in a safe environment can have a positive impact. "The rise of mobile devices such as cellphones and smartphones enabled digitally deprived groups to overcome many hurdles to integrate technology into their lives" (Li, et al., p. 154). This comes with some caveats, however. We need to educate teachers on how to deal with this type of technology in their classes as well as train students on becoming appropriate digital citizens so they can actively participate in class and ultimately society.

Issue 2 - Training and Development. Training is critical to any successful use of you technology. The support given to any new technology initiative will make or break the adaptation and incorporation of technology into teaching. Shapley, et al. (2008) discuss the impact on the final and immersive effect of technology in the classroom and how it can only be truly successful when the administration and families surrounding the schools are on board with the plan. Schools in low socioeconomic areas may do not have comparable technology to that of their counterparts in middle or higher income districts. Even when they do, the technology may sit unused because teachers have not been trained on how to use it.

As an example, the school district that I worked for was awarded an EETT grant (Enhancing Education Through Technology, part of the CFF - Classrooms for the Future). The grant provided technology to low socioeconomic districts so that each teacher could have an equal share of technology. The grant was used in my district to purchase laptops, Promethean Boards, student response systems (clickers) and other assorted tools that teachers and students could use. One provision of the grant was that it allowed for some of the funds to be used for hiring an Instructional Technology Coach. The coach would be responsible for training and assisting the teachers in finding new and innovative ways to implement the technology into their teaching. Part of this was done through building-wide in-services in which the coach was responsible for the content. This was the first time at this school in which the in-service of the day revolved around technology training. The feedback from the teachers was positive and several admitted they would have never used the technology if they had not been trained.

The potential solution for the gap in technology implementation is to create training for all who will utilize technology. This training would be for students, pre-service teachers, and teachers. Each of these people would receive specific types of training to help them get a better understanding of how to utilize technology in their school. For students, the training would need to focus on becoming a digital citizen. This would tie into allowing students greater freedom in using personal electronic devices. The training would need to take place at the beginning of the school year and be available to new students as they came in throughout the year. Students can also be recruited to help deliver the training as they reach older grades, assisting younger students in getting acclimated to using technology that is available to them. If we can get students to use technology appropriately at a younger age in the classroom, it has been shown to have a positive impact on future technology use and learning (Laidlaw & Wong, 2016). Teachers also will show more positive associations with students using technology and subsequently be more interested in using the technology themselves (Konca, Ozel, & Hikmet, 2016).

For pre-service teachers, providing a training session on best practices for using technology in the classroom, or even creating an instructional technology course, would be important for those teaching in a low socioeconomic classroom setting. Pre-service teachers may not receive training on how to use technology and may be thrust into situations where they are expected to use technology in their teaching. Yurtseven Avci, Eren, and Seckin Kapucu (2016) discussed the need to have training on technology tools for pre-service teachers prior to them going into the classroom. They found that many struggled from the start with using the technology, but by the time they were done training, they understood the advantages of using technology in the classroom. Middle and higher socioeconomic schools tend to spend more time with training teachers on how to use technology in their districts and therefore have less need to have teachers come in with prerequisite knowledge. New teachers in lower socioeconomic schools who have never used technology or seen it used will find it daunting to do what they need to do as first-year teachers, on top of learning how to incorporate technology. Relying on them to learn how to do both, teach and use technology, only serves to widen the achievement gap.

For teachers, providing in-service training on technology should be considered mandatory. However many schools are more focused on making sure their staffs are trained on delivering tests and managing behavior in the classrooms. Having a commitment from schools to provide training for teachers on technology for at least a half a day of in-service, two to three times a year, would serve to improve technological skills, ability, and confidence in teachers. If more weight was given to the training provided to teachers on technology, there will surely be improvements for all stakeholders; teachers and students alike (Thorsteinsson, 2012).

Resources Required

Technology for low socioeconomic schools is a significant need, but is not the focus here. The resources that I will require to fulfill the potential solutions are:

- Time
- Commitment
- Money
- People

The two most important resources required are time and commitment. Time is needed for trainings and in-services so that teachers and students can get acclimated to technology and gain the understanding that technology can be used for educational gains. The other resource, commitment, is required of students to be good digital citizens. A time commitment from pre-service teachers and teachers alike to learn how to use the technology they have and make sure it is not going to waste or being misused would be time well-spent.

The other resources on the list, money and people, are also closely related. Money will be needed to purchase programs or other related ideas. People performing and present at in-services may also need to be paid. Often times there is minimum funding available so there is a need to make sure professional development money is set-aside for those half days if needed. As was the case in my school, grants will be key to funding technology initiatives, especially for people to help provide training and supplies for that training. If I were in a leadership position at the school, I would work to find partnerships and grants that would help to alleviate some of the associated costs.

In terms of the program within higher education, all that would be needed is time. Time will be required of the education department to provide a place and commit to their pre-service teachers taking this training. Ultimately, I would like to see this become part of an actual technology course in the education department, as it would benefit those who are still learning to become teachers. This course would then have a money addition for development and eventual salary for the instructor. In the future, planning a course around the use of technology in education is a big step in completing this plan. The course will have a large section dedicated to understanding the achievement gap and how technology can be either a barrier or stepladder. To start, this type of conversation and training can easily be incorporated into the teacher preparation courses that undergraduate students work on while they are student teaching, giving them an opportunity to discuss what they are seeing in schools and how technology can be used to help the students.

Timeline

K-12 In-service. This plan will need to be ongoing. For school districts, they will need to continually run the in-services year after year for the benefits to truly begin to show. The student training will also be required yearly. The programs will need to be revamped on a yearly basis to account for changes in technologies and requests for programming. The following tables outline a possible schedule of student and teacher training for technology use.

Trainee	Training Program	Timeline
Students	Digital Citizenship Presentation for students at the beginning of the school year. Topics include: Proper use of cellphone in school, Being a 21st Century Learner, Cyberbullying, and Digital Footprints	As new students come in, upper class students can be used to provide direction when needed.

Trainee	Training Program and Timeline		
Teachers	Prior to the beginning of the school year, half of one in-service day will be dedicated to technology conversations. What do we want to accomplish throughout the year with using technology? How can we use technology to engage and inspire students?	A second half-day in-service will need to be dedicated to revisiting the goals laid out in the preschool year in-service. This should take place sometime in November to see where the technology needs are. Adjustments can be made accordingly.	A third half day in-service will take place in March or early April to begin to look at how the year went and what needs to be looked at for the next school year. Summer workshops on technology could be planned at this point and a future technology topic can be introduced for the following school year.

Pre-service Teachers. In terms of pre-service teachers, the plan listed will take less time up front. It will only require supervisors for student teaching to make time in their class for the training to happen. The program could be developed over the following semester and be presented to new student teachers the following fall. The course proposal would take a bit longer as it would need to be planned and presented for approval by both the School of Education and the academics committee. This could be done over the next year to a year and a half. This would be desirable as currently there is no sole instructional technology course available for pre-service teachers to take.

IMPLICATIONS
This plan was developed with the understanding that I currently am not involved with any school or district. However, the first part of the potential plan could be carried out by any instructional leader in those areas if they had a background in technology. The second part of the potential plan is more focused on training preservice teachers in higher educational environments. The implications of both parts are tremendous for low socioeconomic schools and districts. The potential plan for the in-services and students' use of technology can drastically change how students learn in the classroom. By allowing teachers and students to have the opportunity to use technology they know and teaching them how to use it properly, the achievement gap can begin to be closed. Hopefully this type of program can be replicated for other districts suffering from the same type of situation. In terms of the potential plan for higher education, many universities fail to adequately train their pre-service teachers on how to use technology in the classroom and how to use it properly when they are faced with working in districts that are lower in socioeconomic status. Providing the training as Yurtseven Avci et al. (2016) stated will increase, "student engagement, active participation, reinforcement, deeper understanding, and development of imagination skills" (p. 19). This program/course could easily be transferred to other institutions that are dealing with the same kind of issues for their pre-service teachers.

CONCLUSION
When I first began looking at topics, I felt certain that I wanted to look at technology and how it has affected the achievement gap. Upon my research, I discovered that there were many studies out there that discussed how technology is widening the gap due to lack of training, not just the lack of physical technology resources. With this newfound knowledge, I set off discovering how to best tackle this problem. With proper training for all participants; students, pre-service teachers, teachers, and even administrators, we can begin to reverse the Matthew Effect taking hold in our schools and help to close the achievement gap.

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TERRAIN AREA ESTIMATION BY USING POLYGONS BASED ON VISUAL LISP

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ABSTRACT
This work presents a computer program that calculates the terrain area raised by polygons using programming in AutoCAD based on Visual LISP. The angles and distances between each station and the corresponding detail points (if any) must be obtained in the field with theodolite or total station, in order to make the adjustment of the closed traverse, which consists of correcting the angle readings, transforming these angle readings from the stations to azimuths, obtaining and correcting the east-north projections, and evaluating the type of topographical survey performed. Thus, we obtain the final coordinates which allows us to compute the land area with its corresponding graph. The results of the calculation and traverse adjustment, as well as the coordinates obtained, are compared with an Excel spreadsheet. This application offers a better alternative to electronic sheets used in topography, because users do not have to modify the data structure and formulas, but only worry about data collection. It will also encourage undergraduate students of Civil Engineering to develop their own functions or commands for AutoCAD and add them to the existing native functions, in order to optimize the time not only in drawing but in different related disciplines.

INTRODUCTION
Historically, the relief portrayal develops hand in hand with progress in solving the problems of topographic relief measurements. (Collier, Forrest, & Pearson, 2003). Surface topography is one of the leading factors affecting wear processes (Jeng & Gao, 2000). As geodetic surveying is one of the first subjects related to civil engineering courses, it is essential to gradually familiarize students with the subject and clarify its relationship to their specialty (Ustinova, Kala, Mill, & Ellmann, 2012). The increased area of land surface compared with its projected area, is an effect of topographic relief and it is also a source of environmental variations (Ying, Shen, Piao, Liu, & Malanson, 2014).

According to (Alcántara, 2014) Topography is a science that determines relative or absolute positions of the points on the Earth. It studies the methods and procedures to make measurements on the ground and to represent graphically or analytically to a specific scale. We apply Topography in various areas such as: electrical, agricultural, civil, mining engineering, etc. One of the applications in civil engineering is to determine the terrain area; which can be obtained by these methods: visual intersection, radiation or polygonal. In this research work, we choose the polygonal method because we can measure relatively large areas with the presence of obstacles between stations. Topographic survey (Wirshing & Wirshing, 1987), determines the positions of the different natural features (configuration) of the terrain, as well as details or points of interest made by the man, all these on the earth's surface.

For the infrastructure construction, it is necessary to know the land extension and topography, where engineers build them. When an extension is relatively large, we use measuring devices that allow us to obtain the field area with greater accuracy. These surveying devices measure angles (degrees, minutes, and seconds) and distances in the field. With these data, we do cabinet work to realize the calculation and adjustment of the polygonal. Data processing, with the use of computational tools, allows to obtain knowledge of data to overcome complexity problems, external and self-relations between the same data (Castro, Sifuentes, González, & Rascón, 2014).

Figure 1 shows the irregular terrain representation. The letters in upper case correspond to the stations of each vertices of the polygon. The points located in the green line are delimiting the terrain to be measured, which are called details by radiation. As can be seen in the Figure 1, the stations can have different amounts of detail points, which makes it difficult to perform a procedure in any spreadsheet, since the user must permanently make changes in the structure, such as add or delete rows or columns, change the range of cells, formulas, etc. We overcome this inconvenience with the help of a programming language. When there are details by radiation, the program must automatically evaluate how many details exist for each station and make the corresponding calculations.
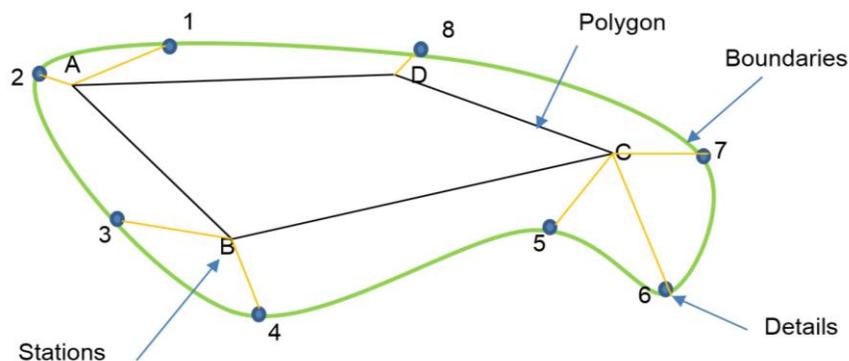
Figure 1: Irregular terrain representation by identifying four elements: Stations, polygon, details and boundaries.

Since few decades ago, the use of computational resources has become an important issue for the sciences (Rojas, Morales, Rangel, & Torres, 2009); so there arose the need to develop a program applied to Topography in one of the software most used by Engineers and Architects worldwide as AutoCAD, using programming in Visual Lisp. Since no other major programming languages is able to manipulate so easily the types of objects with we work in CAD (Togores & Otero, 2003). Planners use computer aided design and drafting programs primarily to produce drawings or plans that illustrate development proposals (Brown & Schoen, 1987).

With Visual Lisp we can create user-defined functions and add them to the native language. We can create a function called "gate" and at the moment you type "gate" in the command line draw this one automatically with just two or three clicks, which optimizes the time in the drawing. Also, by entering the internal database of AutoCAD can have complete control of all native functions, being able to edit an already drawn plane and modify existing objects without needing to touch them.

The ability to handle dimensional and spatial information through computers, utilizing computer aided drafting (CAD) programs, has also become significant (Dallas, 2003). Information and communication technologies (ICT) have become essential elements that drive positive changes in the world economy and society (Marcano-Rojas, 2015). Within the fundamental characteristics of the ICT in front of the so-called traditional techniques of experimentation and measurement, we can cite: a) greater accuracy and precision in general; b) higher speed and / or frequency of data acquisition; c) possibility of processing data online, or immediately; and d) almost automatic obtaining graphical and numerical results (Enrique & Alzugaray, 2013).

The objective of this research work is to develop a program that allows to calculate and plot the terrain area raised by polygons with their corresponding details by radiation, using the programming language Visual Lisp for AutoCAD. The paper is organized as follows: Section 2 describes the methodology, section 3 discusses the experimental results. Finally, section 4 concludes the paper and provides possible directions for future work.

METHODOLOGY
When it is desired to obtain the area of a relatively large terrain with precision, topographic apparatus must be used and the method used for its measurement is the polygonal, which consists in carrying out the following steps:

Step 1: We locate each station, which as much as possible should follow the boundary of the terrain.
Step 2: We park the device in each station, measuring the angle (degrees, minutes and seconds) between the previous and next station, in addition to the distance between them. These angles can be inside or outside, taking into account the path direction:

$$(n-1) \times 180 \qquad \text{Counterclockwise path} \qquad (1)$$
$$(n+2) \times 180 \qquad \text{Clockwise path} \qquad (2)$$

where n represents the number of stations.

Step 3: We must obtain additional points (details by radiation) with their corresponding angles and distances, which must be in the terrain boundary; if the stations cannot be located in the boundary due to terrain irregularities.

Once we carried out field survey and we obtained the station data: angles and distances with their corresponding details, we proceed to the cabinet work and the automation of these processes using the Visual Lisp language, which is incorporated in AutoCAD software. It is necessary to mention that the automation of a certain task, the programmer besides knowing the syntax of the language added to his skill and insight; we need to know in depth how the mechanical procedure is performed.
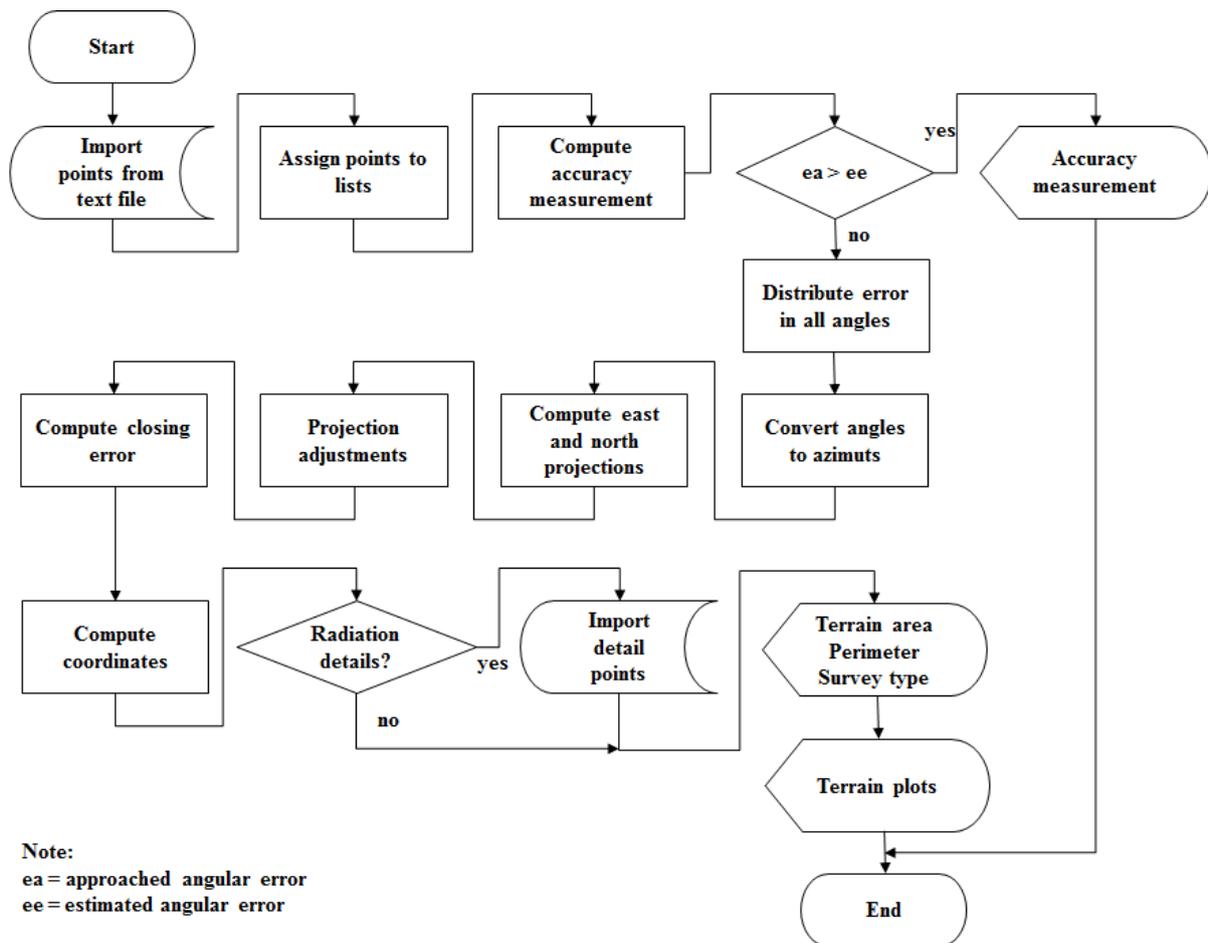
Figure 2: Computer program flowchart

When the ground extension to be surveyed is relatively large, we use enough stations and detail points. By entering this data in the AutoCAD command line, it is time consuming, arduous and tedious task. It is solved by previously entering the data in a text file, so that from AutoCad can import these points directly in the style of how AutoCad Civil 3D does.

When we perform applications for AutoCAD, we must open the software and from there, we call the developed function, in this case, we enter the application should by typing in the command line the word "polygonal", which it shows the graphical interface of the program developed with the Dialogue Control Language (DCL). The buttons highlighted in gray are the command buttons that execute commands when the user selects them. Visual Lisp does not have functions or controls that allow to create or draw objects directly. It does not have a graphical user interface like other languages like Visual Basic, Visual C, Matlab, etc., have it. To solve this problem, Visual Lisp use the DCL language to create this interface, with the novelty that the controls cannot be

drawn in design mode, but are created by code. Figure 3 shows the forms and procedures performed on each button.
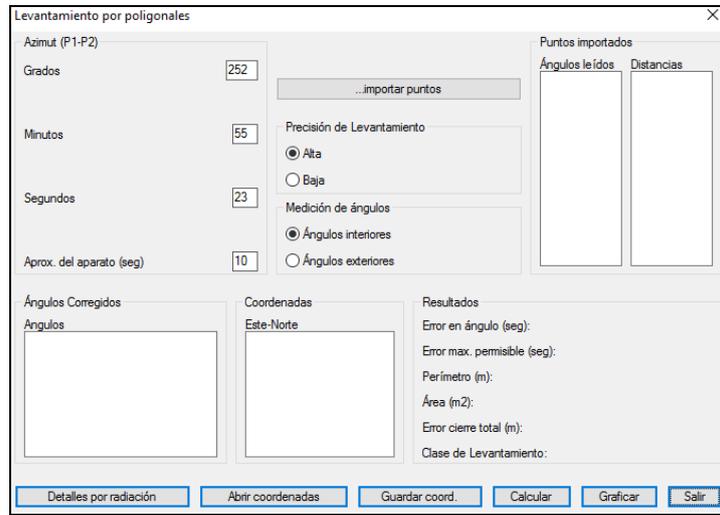
Figure 3: Graphical interface developed in the DCL language

Import Points button: Before using this button, user must previously have entered the data corresponding to the topographic survey carried out in the field in a text file; where each line of the text file corresponds to the data of each station (degrees, minutes, seconds, distance and number of points of detail for each station). Each line consists of five columns, which must be separated by the tab key as we see in Figure 4. In the text file, we enter the angles (degrees, minutes and seconds) from the second station, and in the last two columns, the data from the previous station and so on until the last one, which in this case would be the first one, because the income was started from the second.

Figure 4: The data of the text files correspond to a topographic survey, taken from a plot located in the sector "El Retiro", near the Santa Rosa city, Province of El Oro, Ecuador; from which, we obtain 30 stations with their corresponding details by radiation.

The syntax for calling the text file from Visual Lisp when the user selects the Import Points button is:

(setq pointsdetails (getfiled "Detail points file" "root directory" "txt" 0))

In the text boxes of the graphical interface corresponding to degrees, minutes and seconds; we enter the azimuth of the line between station 1 and 2.

The imported data is stored in three lists: the first list contains the angles (grouped in degrees, minutes and seconds); the second list stores the distances and the third list corresponds to the number of detail points for each station. In this process, the functions for creation and access to lists such as: *cons*, *car* and *nth*. Then in an interface list control, we observe the imported angles. The code where the first list is created is:

(setq listangobs (cons (+ (nth 0 (car line)) (/ (nth 1 (car line)) 60.0) (/ (nth 2 (car line)) 3600.0)) listangobs))

Next, we calculate and adjust the polygonal by starting with the angular error and using the formula:

$$e = a \times n \qquad \text{low precision survey} \qquad (3)$$
$$e = a \times \sqrt{n} \qquad \text{high precision survey} \qquad (4)$$

where *e* is the angular error, *a* is the device precision and *n* is the number of stations.

The sum of the angles must be according to equations (1) or (2), and considering the path direction. Due to inaccuracies in both the measurement and the apparatus, this sum is not going to be equal. This discrepancy must be less than or equal to equations (3) or (4). If error is very small, it is distributed in all the station angles, otherwise; the observed angles in the field must be rectified.

The observed angles are converted to azimuths and we compute the east and north projections. If the summation of these projections is different from zero, the error must be distributed in each projection. We calculate the projection by using the sine function and the north, by applying the cosine function, as follows:

(setq listpe (cons ((nth i listdistancia) (sin (/ (* (nth i listazimut) pi) 180))) listpe))*
(setq listpn (cons ((nth i listdistancia) (cos (/ (* (nth i listazimut) pi) 180))) listpn))*

We compute the total error, ε, by using the equation (5)

$$\varepsilon = \sqrt{\delta_e^2 + \delta_n^2} \qquad (5)$$

where δ_e is the summation of east projections and δ_n is the summation of north projections. Depending on the accuracy, Table 1 must be considered.

Maximum error	Survey type
1:800	Topographic survey of irregular and low-value land, surveying, settlements, etc., usually done by tachymetry.
1:1000 a 1:1500	Survey of low-value land; tachometer for double sight readings.
1:1500 a 1:2500	Survey of agricultural land of average value. Survying with stay.
1:2500 a 1:4000	Urban surveys and rural lands of a certain value.
1: 4000 onwards	Survey in cities and lots of valuable land.
1:10000 and beyond	Geodetic surveys.

Table 1: Classification of survey based on maximum error (Torres & Villate, 2001)

With the corrected east and north coordinates, we obtain the final coordinates sequentially by summing the values of the previous ones. From these, we plot the polygon and its area. Since each coordinate is stored in a list in Visual Lisp, all of them must be stored in a list of higher hierarchy to be able of accessing with predefined functions. The final list of coordinates will have as a sublist, the coordinates of each station. To make a list with the final coordinates, we use the instruction:

(setq listacoord (mapcar '(lambda (x y) (list x y)) coordeste coordnorte))

Calculate button: This routine calculates the final coordinates to plot the polygon. In this loop, the routine begins by assigning a certain value to the first station, which must be added to the following partial coordinates. If the following coordinates take negative values, the loop is restarted, increasing by 20, the assumed value at start; this loop end when all coordinates are positive.
For the area calculation, we use the matrix formula in which the *x* and *y* coordinates becomes the east and north

coordinates, where:

$$Area = \frac{1}{2}\begin{bmatrix} e_1 & n_1 \\ e_2 & n_2 \\ e_3 & n_3 \\ \vdots & \vdots \\ e_n & n_n \\ e_1 & n_1 \end{bmatrix} = (e_1 n_2 + e_2 n_3 + \ldots + e_{n-1} n_n + e_n n_1) - (e_2 n_1 + e_3 n_2 + \ldots + e_n n_{n-1} + e_1 n_n) \qquad (6)$$

where e_i represents the *i th* east coordinates and n_i is the *i th* north coordinates and $1 \leq i \leq n$. When we execute these routines, the entire polygonal fit will be displayed in the "Results" box. The corrected angles and final coordinates representing the polygon vertices will appear in the list interface boxes. The system evaluates the type of survey performed. It means, in case of many measurement errors and data are not according to certain ranges (see Table 1), the system suggests to the user to repeat the survey again.

Graph Button: We use the following instruction to plot the coordinates and to join each one of the points:

(command "_line" x1 y1 "")

where *x1* is the list that stores the values of the east coordinates and *y1* is list that stores the values of the north coordinates. The "_line" command lines each coordinate, which must be contained in a loop that will be repeated according to the number of coordinates in the list. Thus, we display a polygon representing the shape of the measured terrain.

Save Coordinates Button: We save the coordinates in a text file in order to be able to transport them and use them in other computers with AutoCAD. The save option is presented in a dialog box similar to when we use the Import Points button. The main instructions are:

(setq filename (getfiled "Detail point file" "root directory" "txt" 1))
(setq desarchivo (open nomarchive "w"))

Open Coordinates Button: When there are coordinates that have been previously saved in a text file, this button opens a dialog box for the user to select the file containing the final coordinates calculated in a previous survey to be able to plot them. The instruction used is similar to the one performed on the Import Points button.

Radiation Detail Button: Before selecting this button, all other detail points (degrees, minutes, seconds and distance) that exist in each station should be saved in a similar way as in the first one. Unlike the entry made in the first text file, it must enter the data from the first station. The order of entry for this data must be done as shown in Figure 1, if measurements are taken counterclockwise.

Detalles.txt: Bloc de notas			
Archivo	Edición	Formato	Ver Ayuda
250	39	11	5.51
144	51	53	4
270	0	0	6.5
270	0	0	6
270	0	0	7
270	0	0	7
270	0	0	5.4
270	0	0	5
180	0	0	4
270	0	0	4
270	0	0	5
270	0	0	3
270	0	0	5
270	0	0	4
270	0	0	5
270	0	0	1

Figure 5: Radiation details of each station

We perform the whole calculation at the same procedure. The program reads the number of details corresponding to each station, converting the angles to azimuths, and getting the east and north coordinates with the distances using the formula (5) and (6), which are to replace the coordinates of the corresponding station.

This procedure requires nested loops, where the first is repeated according to the number of stations and the second internal loop is repeated according to the amount of details in each station.

In the web, there are electronic sheets that perform the calculation and adjustment of a closed traverse for a determined number of stations. When these stations increase or decrease, the operator must modify and edit the corresponding formulas, without mentioning the radiation details that must be taken into account at each station. This problem is solved with the development of our software, since all the processes are performed within a cycle (loop) that automatically runs as many stations or details data exist.

RESULTS

Once the coding, compilation, execution and debugging phases are completed, the application is able to plot, with its respective details by radiation the terrain shape and the total area. In addition to this, the results obtained evaluate the quality of the survey carried out; that is, performs the adjustment of the polygonal, providing the closing error in angles to determine the accuracy of the measurement, the correction of the east - north projections, the length of the polygonal and the closing error to establish the type of survey (low value, agricultural land, rural - urban, valuable lands, geodesics, etc). While it is true, there are modern topographical apparatus such as the total station that locates the *x, y, z* coordinates; and with the help of integrated software it calculates angles, distances, areas, elevations; but it does not make the adjustments mentioned previously.

Figure 6: Results obtained considering data from the polygon only.

Figure 6 shows the closing error at angles of 128 sec. is less than the permissible maximum of 300 sec; but the closing error in meters is high, 48.4 m. For this reason, the type of survey is classified as a land of very low value. Figure 7 presents the polygon shape displayed in AutoCAD.
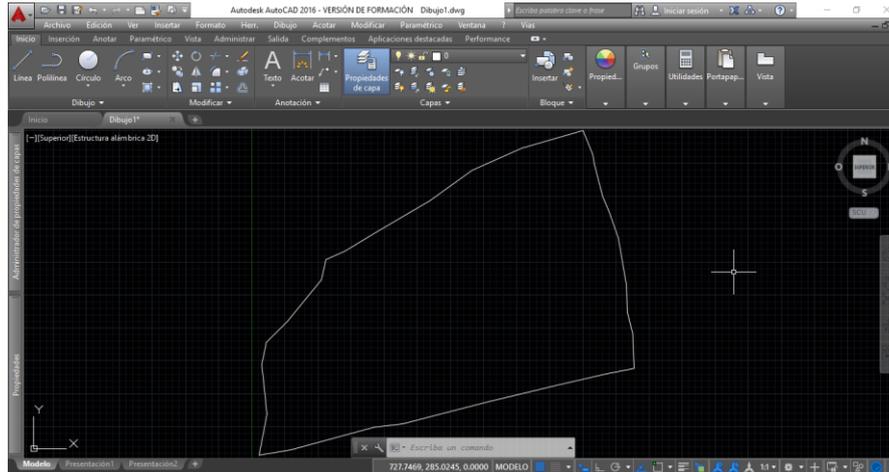
Figure 7: Polygon plot in AutoCAD

If we consider details by radiation as we see in Figure 8, the terrain area increases to 174713.9 m^2 from 168758.31 m^2 , which produces a relative difference of 5955.55 m^2.

Figure 8: Results obtained considering details by radiation.

CONCLUSIONS

The use of this computer program seeks that students and professionals involved construction project, they can reduce their work and time for data processing in order to obtain the calculation and adjustment of the polygonal in a timely manner. The user concern focuses on entering the data into the text file.

We can add more functionality to the program, such as extending it so that you can perform altimetry surveys; so we can develop more complex programs such as editing a shape already drawn in AutoCAD, reading each attribute and properties of graphic and non-graphic entities for the purpose of quantifying materials and obtaining work budgets.

Many construction professionals think that AutoCAD is designed for digital drawing only, when it actually has the second-oldest programming language such as Visual Lisp, which allows us to develop robust applications for engineering and architecture.

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THAT MADE ME THINK: UNPACKING REFLECTION AND REFLECTION-CENTERED PROFESSIONAL DEVELOPMENT

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ABSTRACT
While professional development is defined in different ways (professional training, faculty development, professional learning etc.) it is consistently seen as opportunities for learning, and important in education. Research agrees on this, because studies show positive outcomes and impacts such as student achievement, improved teacher instruction, and pedagogical knowledge. Research has focused mainly on what the professional development program consists of in terms of who will participate, the theory, goals, and the outcomes and impact of the program, to determine overall effectiveness. However, there is a subtle trend that shows educational researchers are no closer to determining what makes professional development effective (Hill, Beisiegel and Jacob, 2013)(Quint, 2011)(Garet, 2008)(Guskey, 2003). This narrative review suggests a shift in the focus of professional development research from the characteristics of the program, to the characteristics of the participants as adult learners. Further, an investigation of adult learning indicates that reflection an indispensable component in adult learning (Korthagen, 2016). Therefore, if one is examining the characteristics of adults to determine their learning as a result of PD, the focus should be on reflection.
Key Words: education, professional development, adult learning, teacher learning, reflection.

PROFESSIONAL DEVELOPMENT
Professional development is planned, implemented, and followed up in different ways, however it can be agreed that professional development provides opportunities for adults to learn. There are various decisions to make when planning for professional development including who will participate, what the learning will be focused around, and when the opportunities will be. These decisions often take place before implementation of a PD opportunity. Following implementation there are factors to be analyzed to determine the program effectiveness. These factors can be categorized impacts or outcomes of the PD opportunity.

BEFORE IMPLEMENATION: WHO, WHAT, WHEN, HOW
PD is often focused on teachers (Zwart, Korthagen, & Atterna-Noordwier, 2014) (Vermunt & Endedijk, 2011), but can include special education teachers (Doren, Flannery, Lombardi, & McGrath, 2012), special language teachers, such as English as a Second Language (ELL), subject area specialists (Drits-Esser, Gress-Newsome, & Stark, 2016), and school administrators (Quint, 2011).
The goal of a PD plan or opportunity specifies what knowledge or skills will be learned (Quint, 2011). Goals can be constructed by administrators or collectively by the participants. When determining what learning will be accomplished in a PD opportunity, teachers have voiced that they would like a more active role in the planning of professional development. This active role could contribute to establishing a community of professional learning, and potentially greater respect among colleagues (Matherson & Windle, 2017). While goals specify knowledge and skills to be learned, it has been noted that PD with fixed goals, ineffective leadership, and top down approaches can create the feeling of external pressure on the teachers (Zwart, Korthagen, & Atterna-Noordwier, 2014) (Korthagen, 2016). A study completed by Avidov-Ungar (2016) identified several official goals of PD related to the construction of teacher identities including professional commitment, collegial functioning, educational, social and moral view, and implementation of official policy (Toom, 2016). It is advised that the goals include objectives which can be measured. This will provide information as to the outcomes of the PD opportunity (Quint, 2011). Professional development goals can be subject specific, for example, analyzing student work, vocabulary, differentiated instruction (Quint, 2011), or based on a more general theory.
The theory of a PD plan or opportunity refers to what idea guides the overall design (Toom, 2016). This can be an instructional theory, based on how students learn. For example, in 2016 The National Research Council made adjustment to the science curriculum in the United States to include an inquiry- based model. This was a change

in the theory of best practices for teaching science, and necessitated professional development to prepare teachers. To establish the goal of the new PD plan, teachers had to learn both the skills to teach inquiry-based science lessons, and the content knowledge of the theory itself, to understand its value. Research has found that in order to shift teaching practices, teacher PD must focus on teacher's beliefs about the value and feasibility of the new theory (inquiry-based learning) (Drits-Esser, Gress-Newsome, & Stark, 2016). In another example, a study by Consuegra et al. (2016) focused on the theory of classroom interaction, with the hope of increasing teacher awareness of implicit gender bias (Toom, 2016). In this case the goal was focused on the instructional theory of student interaction, with an additional intention for teachers to reflect on their own beliefs and values surrounding the goal.

In addition to an instructional theory for students, the design of professional development can also be based on an instructional theory for adults. For example, self-directed professional development that actively involves adults in their own learning (Malik, 2015), as in the case of Professional Learning Communities (PLCs). In this case the theory is that adults learn better in collaborative communities. In PLCs, educators meet and work collaboratively, and learn from each other to make changes in their teaching. Educators working in PLCs share common goals of improving teaching practices and academic performance of their students, and have the opportunity to direct their own learning as well as work together to achieve learning for all (Bloom & Sommo, 2005). An important aspect of a PLC is for teachers to analyze their own practice. A study of PLCs in Mathematics and Science by Kullberg et al. (2016) emphasized the importance of analysis of one's own practice as an effective way for teachers to develop professionally. PLC's have yielded positive feedback, giving evidence of the theory of collaborative adult learning. Analysis of the Opening Doors Learning Community project at Kingsboro College in Brooklyn, New York, showed that students performed better in schools with learning communities. Specifically, those in schools with the Opening Doors program achieved higher course passing rates in English, and one year after enrollment, Opening Doors students were more likely to have achieved their remedial English requirements (Bloom & Sommo, 2005). In addition to this positive feedback, it is important to also note that respect can be cultivated within a professional learning community, and teachers can even change their conception of the object of learning by participating in a theory-based learning community (Toom, 2016).

Professional development is beneficial if it offers more than a "quick fix" or "one-shot" workshops (Quint, 2011), but embraces the idea that professional growth, an effect of PD, is a progression that takes time (Matherson & Windle). This would include several opportunities defined as either workshops or seminars, with follow up (Quint, 2011). Professional Development that occurs over a span of a year or more, or many hours can have positive effects such as changes in beliefs or practices (Drits-Esser, Gress-Newsome, & Stark, 2016). However, many institutions do not have funding or resources to sustain long-term PD, highlighting the need for institutional support (Guskey, 2000). A solution to offering more intensive PD is to have a summer institute of several all-day opportunities.

In the United States, a national study of state and local No Child Left Behind (NCLB) implementation reported that 80% of teachers were receiving 24 hours or less of professional development specifically on reading instruction (Garet, 2008). Reading experts are concerned that this is not enough for the PD to be effective. As recommended, if PD is organized into several opportunities, it can be considered a PD plan.

When Evans asked the question in 2014, "How does one develop professionally?" The discussion changed from what is done, to how it can be achieved (Matherson & Windle, 2017). Within the workshops and seminars, there should be activities planned with different delivery methods. Extensive literature on science-based professional development indicates that PD activities should include three critical elements: long term engagement, collaboration with other teachers, and emphasis on student learning (Drits-Esser, Gress-Newsome, & Stark, 2016). The creation of a professional development plan must have scaffold activities for participants know exactly what is expected of them (Gordinier, 2006).

PD Activities are considered learning activities when they lead to a change in behavior or cognition (Hoekstra, Beijaard, Brekelmans, & Korthagen, 2009). As activities do not always require physical activity, they can be divided into two levels, action and mental. An activity on the action level might be collaboration, whereas an activity on the mental level could be analyzing and memorizing. Since the discussion surrounds professionals learning, the activities are focused on how adults learn best. Analysis of activities for adult learning generated four categories:

Categories of Informal Learning Activities

Learning by experimenting
Learning by considering own teaching practice
Learning by getting ideas from others
Learning by doing

(Hoekstra, Beijaard, Brekelmans, & Korthagen, 2009)

All of the above activities can take place either individually or collaboratively. The first category refers to trying out new instructional methods, such as new assignments or behaviors. The second involves individual or collaborative reflection. The third refers to utilizing resources, either interaction with others or the internet or articles. The fourth is less clearly defined, as it includes incidental learning, unplanned activities, or learning that the teacher is unaware of (Hoekstra, Beijaard, Brekelmans, & Korthagen, 2009). In order to bring awareness of learning in the "Learning by doing" categories, teachers must engage in critical reflection to identify possible learning while teaching. An additional publication (Meirink, Meijer, Verloop, & Bergen, 2009) cites that Hoekstra's categories can be further divided. For example, experimentation can be subdivided into experimentation with an adapted strategy from a colleague, or experimentation with a copied strategy. The categories of learning activities provide a framework for what types of activities should be included.

Since learning can occur formally or informally, learning activities for teachers can also be covert or overt (Vermunt & Endedijk, 2011). Overt or observable learning activities are rarely witnessed in an informal setting, such as reading or exchanging ideas. In formal professional learning activities, Kwakman (2003) developed four additional categories of activities: reading, experimenting, reflecting, and cooperating.

Professional development opportunities have different delivery methods, including lectures, discussions, creating portfolios, and instruction modeling. Teachers indicate that the most useful delivery methods active participation and hands-on activities, rather than abstract discussions (Matherson & Windle, 2017) (Garet, 2008). This can be summarized as social interaction. Some practitioners and program developers maintain that knowledge teachers obtain in PD workshops or seminars should be periodically reinforced through coaching (Quint, 2011). Guidelines in the 2007 standards for professional development in the field of pharmaceutical care education highlight the importance of academic counseling and advising (Zueger, Katz, & Popovich, 2014). The focus on faculty involvement arose from an observed failure at the University to adequately address professional development. However, there is also evidence that coaching can be costly and time consuming, and there is little rigorous evidence about effectiveness (Quint, 2011).

In addition, current trends in professional development include virtual settings as a delivery method that employ electronically based courses, discussions and portfolio requirements (Killham, Tyler, S. P., Venable, & Raider-Roth, 2014). Virtual professional development helps professionals adapt to a technology-dominated workplace, and require teachers to take an active role (Hawkes & Romiszowski, 2001). Virtual professional development may also allow for further standardization or community-building among disparate members of an academic community. The virtual environment provides methods for follow-up and feedback, as it builds for immediate communication with colleagues and supervisors into its framework (Parkes & Kajder, 2010).

AFTER IMPLEMENTATAION: OUTCOMES, IMPACT, EFFECTIVENESS

Professional development is designed and implemented with the expectation that teachers will learn, and the goal will be met. In order to determine if the goal is met, or to what degree, one must look at the outcomes, impact, or effectiveness or the PD plan or opportunity.

An outcome of PD is an immediate result, such as teacher learning. Outcomes are predefined, and can be measured. An impact refers to a broader or longer term result. An impact of PD could be student achievement. Both outcomes and impact contribute to overall effectiveness, the broadest of the three terms. Evidence of effectiveness could be professional growth, community development or increased respect among colleagues. PD evaluations generally include systematic collection and analysis of data to measure PD outcomes and impact, to help determine the overall effectiveness.

Several methods have been developed to evaluate the outcomes and impact of the professional development plans, in the hopes of determining overall effectiveness. The more outcomes and impacts are assessed and compared, the better the effectiveness can be determined. Large scale studies on models of professional

development such as Garet (2001) rely on core structural components of the plan as variables for data collection. These components are then assessed and documented to evaluate improvement, an increase, an enhancement, or the impact (Garet, 2001) as cited in (Penuel, Fishman, Yamaguchi, & Gallagher, 2007). Different methods for evaluating professional development programs include models developed by Stake, Scriven, Kirkpatrick, Stufflebeam, and Guskey (Newman, 2010). Stake's method focuses mainly on teacher and student evaluation, particularly on standardized testing (Stake, 2000). Scriven further explains the new discipline of professional development evaluation. He develops the Pathway Comparison Model, comprised of nine steps: characterizing the program, evaluating cause and effect relationships, identifying goals, and analyzing the programs critical competitors (Scriven, 1998). Kirkpatrick moves away from a strictly empirical model, outlining four steps for professional development evaluation including reactions (how participants feel), learning (what participants learned), the trainee's performance, and results (Kirkpatrick, 1998). Stuffelbeam takes a constructive approach, placing emphasis on institutional gain (Stuffelbeam, 2000). Finally, Guskey's model uses five primary components including satisfaction, learning, changes in practice, administrative support, and student performance, essentially expanding on Kirkpatrick's model (Kreider & Bouffard, 2005/2006). David Newman's doctoral thesis provides empirical data that validates Guskey's model through six years of student and teacher reading data (Newman, 2010).

While professional development models focusing on the above categories can give a relatively sound understanding of the overall effectiveness, it is advised by Toom (2016) that the teacher's own understanding of their progress is examined. Teacher's own beliefs and approaches have proven to be important factors in their learning (Toom, 2016).

LEARNING ACHIEVEMENT AS AN OUTCOME

Learning outcomes according to Hoekstra (2009) are changes in cognition or behavior resulting from engagement in activities. Cognition refers to teacher's conceptions of teaching and learning, and behavior is considered action that stimulates student's active and self-regulated learning. In addition to being pre-defined, learning outcomes should be measurable. In the case of Hoeskstra (2009) teacher behavior was measured through a student questionnaire, and teacher's conceptions were measured using a self-administered, scaled questionnaire.

James (2009) proposes that once one learns *how to learn*, learning autonomy can be achieved as an outcome. Bakkenes (2010) determined that there are four types of learning outcomes: (1) changes in knowledge and beliefs, (2) intentions for practice (3) changes in actual teaching practices in a more permanent way (4) changes in emotions. Eraut (2004) discerned a broader typology of domains for learning outcomes: (1) task performance, (2) awareness and understanding, (3) personal development, (4) teamwork, (5) role performance, (6) academic knowledge and skills, (7) decision making and problem solving, and (8) judgment.

Research funded by the U.S. Department of Education implemented a PD intervention to determine the impact on student achievement. The first step in determining the impact on student achievement was to give the teachers who participated in the PD intervention a knowledge test (Garet, 2008). Teacher knowledge was measured as an outcome of PD before the impact in terms of student scores, providing data to help answer the overall question of the effectiveness of the PD intervention. Some studies, like Kullberg et al (2016) focus exclusively on the outcomes without determining impact, for example the outcome of how teachers handle their own learning without the impact of these changes on student learning (Toom, 2016).

WHAT IS MISSING?

There are several important deficits in the discussion thus far of professional development. First, Toom (2016) suggests that the teacher's own understanding of their progress is examined, not only the program. Secondly, it is noted by Korthagen (2016) that in order to really measure PD impacts, the person or teacher should have a central part in integrating theory and practice. Quint (2011) calls for a new measure of the impact of PD, stating that causal relationships are difficult to determine with existing methods. Perhaps there is something missing in the process of planning, implementing and evaluating professional development. As stated by Matherson & Windle (2017), "In a 2009 study, Darling-Hammond, Wei, Andree, Richardson, and Orphanos found that 90% of U.S. teachers participated in these types of sessions, which had little to no impact on teacher pedagogical practice or student learning" (Matherson & Windle, 2017).

It can be said that professional "always matters and always makes a change" (Toom, 2016), however, current empirical research on professional development hints that the education community is no closer to determining what makes teachers develop professionally. While evaluations can determine that there are positive outcomes and impacts leading to effectiveness, these results are not statistically reliable when used to make future predictions about effectiveness. In 2003, Guskey completed a comprehensive review of thirteen different lists of characteristics of professional development, and then created his own list of most common characteristics (Campbell, 2008). In this process he found that there is no consensus of successful characteristics of professional development. For the purpose of understanding current professional development research, Hill, Beisiegel, & Jacob (2013) completed random trials of PD programs, reaching the conclusion that we have not enhanced our knowledge of effective program characteristics. In 2011, Janet Quint studied PD interventions in reading, to discover that results were less positive than hoped for, noting that some instructional practices were affected and not others. Michael Garet conducted a similar experimental study, also to determine the impact of PD interventions in 2008, finding that there was no immediate impact on student achievement, and there were no statistically significant impacts on measured teacher or student outcomes in the following year.

In order to improve effectiveness of PD, it is suggested that one takes a broader conception of teacher learning, with emphasis on learning and characteristics of learners (Quint, 2011). Building on Fellenz and Conti's (1989) suggestion that the learner could be the basic organizational unit, it is proposed that instead of looking at the program as the unit of measure, the participants could be the unit of measure, changing variables to be studied from the characteristics of the program to the characteristics of the person and how they learn.

Teachers often reject innovations presented to them by educational experts or other teachers (Elliot, 1991), and as a result show resistance, tension, and emotional exhaustion (Korthagen, 2016). Teacher development programs should therefore focus more on teacher's characteristics, to find ways to support learning that are fulfilling and effective. These characteristics, defined as core qualities in Korthegan's Onion Model (2004), refer to character strengths that people possess. Since these qualities are driving forces in people's thinking, feeling and acting, they are also linked to learning (Zwart, Korthagen, & Atterna-Noordwier, 2014). The layers of the Onion Model if developed independently of each other, or without relatedness, will cause unrest and potential stress (Korthagen, 2004). In order to relate the layers together the individual must engage in reflection, which will increase overall awareness, develop trust, autonomy, and identifying obstacles (Zwart, Korthagen, & Atterna-Noordwier, 2014).

Korthegan's Onion Model ties in with Knowles' theory of Andragogy, that learning as an adult (unlike learning as a child) requires certain attributes. No matter the title, goals, facilitation, characteristics, or objectives of the learning opportunity, it could be that a specific nature contributes to learning. Simply, effectiveness be predicted based on characteristics of the PD program alone.

Focusing on the individual participant in PD rather than just the program is similarly justified through discussions of how adults learn effectively. Malcom Knowles, the founder of the concept of Andragogy wrote a retrospective in 1979 of the professional development trends he witnessed since his involvement in the field. Classified by decade, he described the changes in activities and characteristics of programs with varied impacts. He concluded that if the learner continues to develop, professional development will be effective, cautioning researchers not to commit to "fads" of training models, but to the underlying theory of Andragogy. With a focus on individual learning the program, regardless of 'fads', will be respectable (Knowles, 1979). A further exploration of Knowles' theory by Fellenz and Conti (1989) mentions that the uniqueness of the individual, including their traits, should be considered in a discussion of adult learning.

If the characteristics of the individual and how they learn are not examined, the field risks continuing to go in circles, with lengthier and more elaborate investigations examining every aspect of the program instead of the person. In a narrative review of current outcomes of professional development, Toom (2016) cites the value of studies that took the individual into account in addition to the program as more valuable in the research community. Toom (2016) concludes with a call to action for professional development scholars to think more broadly and creatively, to make significant progress to determine how exactly adults learn. Now that it has been established that professional development research should include a focus on the individual and how they learn, it is necessary to transition to a discussion of adult learning.

ADULT LEARNERS

A new wave of literature (Korthagen, 2016) suggests that the discussion of how teachers learn should frame our thinking about professional development. Educational researcher J. Roby Kidd (1983) predicted an important paradigm shift in his exciting realization that the focus of his field had changed from adult education to adult learning, a new field of study (Fellenz & Conti, 1989). The field of cognitive psychology also influences work in adult learning (Fellenz & Conti, 1989). Conceptions of intelligence are moving away from simply IQ towards other characteristics of the individual, requiring understand of learning styles (traits) and learning strategies (techniques to accomplish a learning task).

Learning is defined by the Oxford English Dictionary as "the acquisition of knowledge or skills through experience, study, or being taught". Twentieth-Century academics have acknowledged the difference between learning as a child and learning as an adult, and have added to the definition of learning to cater to the specific needs of adults. Mezirow begins the discussion of adult learning with a review of Habermas's theory of learning. Habermas characterizes the learning domain as emancipatory, involving self-awareness (defined as knowledge of self-reflection), essentially freeing the individual from institutional and environmental factors. This allows insight to be gained and one can recognize the 'correct' reasons for one's problems (Mezirow, 1981). Some recognize this emancipation as synonymous with perspective transformation, referring the assumption that (like Merleau-Ponty's embodied experience) new perspective is assimilated with and transformed by one's past experience. Perspective transformation fills a gap in adult learning theory by acknowledging critical reflection. Mezerow differentiates between three domains of learning: instrumental, dialogic and self-reflective. He posits that the distinguishing characteristics of adult learning is developing an awareness of why we attach the meanings we do to reality (Mezirow, 1981). As an adult one is able to posit about different paradigms. As the three domains of learning cannot be easily separated in a given situation, Mezirow supports the use of a phenomenological study to understand the adult learning process. For the purpose of this study, adult learning will be defined as the learner (an embodied whole) acquiring new knowledge and skills (Mezirow, 1981).

ADULT LEARNING THEORY

Merleau-Ponty rejects both empiricism and intellectualism, both for their atomistic approach to sensory experiences. Ponty focuses on the meaningful whole as a perceptual experience, rather than in terms of cause and effect (Merleau-Ponty & Smith, 1962, 2003).

Maurice Merleau-Ponty in The Phenomenology of Perception (1962) uses the example of perception to define the embodied experience. In his discussion of Other Selves he reminds us that we tend to think of our present selves as central and in terms of which we can explain our past lives. For example, what I learn today brings me closer to understanding the significance in terms of my life as a whole. But this is only part of the discussion of past experiences. When aspects of the lived experience are first encountered, they contain their own novelty, meaning they might have best been understood when first experiencing them. Since memory might fail to reconstruct this novelty as it was experienced, the individual is never quite "at one" (Merleau-Ponty & Smith, 1962, 2003). Merleau-Ponty's criticism of educational theory of Piaget is that he views adults as too rational and without contradiction. Piaget uses adult awareness to uncover objective truth, which can then be used to defend a child's outlook. Merleau-Ponty suggests that the childhood experience carries into adulthood. Essentially, early existence (past) also stands at the core of one's personal life. The body as a singular entity is inhabited by both simultaneously.

Rooting the embodied experience in a teaching context, educators often think after a lesson goes poorly "I will change it for next time by…". This skips the critical reflection phase in which a deep awareness of the essence of the problem is established. Deep awareness is established through a reflection by including the dimensions of thinking, feeling, wanting, and acting (Korthagen, 2016). By analyzing discrepancies in the answers to these questions, the practitioner might then change the action for next time.

Recent research in adult learning has shown an increased use of a phenomenological approach, or acknowledgement of the lived or embodied experience. For example, a study by Jamie Huff Sisson (2016) emphasizes the significance of teacher's lived experiences in influencing professional identity, while a study by Akdag et al. (2016) used a phenomenological approach to analyze early-teacher's classroom management concerns. Similarly, there is a growing discussion in adult education regarding the body as a site for learning (Tobin & Tisdell, 2015). Embodied learning can be defined as a holistic view of constructing knowledge that engages the body as a site for learning (Freiler, 2008 as cited by Tobin & Tisdell, 2015). According to this

definition, the body is not just a site for learning, but is the center of analysis. In the context of adult learning, connecting the "Felt sense" to reflection, as the it demands words and actions. This is most clearly demonstrated in Sodhi and Cohen's work (2012) studying how social workers trusted their somatic or embodied sensations to guide their practice.

Merleau Ponty focuses on the body's role as a pre-reflective vehicle that gives rise to perception. Essentially, the body is the knower of the world or the pre-reflexive actor, and reflection is the oral, written, or artistic expression of what the body has perceived (Tobin & Tisdell, 2015). As such, all expressions are products of the body, but also holistic.

In John Dewey's Experience and Education, (1953) after a discussion of traditional versus progressive education, he concludes that neither are effective without a theory of experience. Experience is built on two ideas: continuity and interaction. Continuity (or the experiential continuum) points out that past experiences are part of future experiences, which can have both positive and negative results. Interaction indicates the influence of the situation on an experience. Simply, a learning experience is partly the current circumstance (the activity, the way the lesson is presented), but also partly based on the past experience of the learner. The two theories of continuity and interaction are not separate from one another. A learning opportunity means that "what he has learned in the way of knowledge and skills in one situation becomes an instrument of understanding and dealing effectively with the situations which follow" (p. 44). Throughout the text, Dewey maintains emphasis on the idea that for learning to occur the past experiences of the learner must be taken into account. This will allow the learner to reach their full potential.

When considering the idea of teaching teachers, it is important to distinguish between formal and informal environment. Pre-service teachers are often being taught in a formal environment, defined as a clear facilitation of learning (Hoekstra, Beijaard, Brekelmans, & Korthagen, 2009). In-service teachers are often taught in an informal environment, defined as learning in the workplace where systematic support of learning is absent.

Malcom Knowles compiled theories related to teaching adults and named it the Theory of Andragogy. They theory is based around the idea of self-direction, differentiating the term from Pedagogy. Self-directed learning is defined as: "learning situation in which learners take the initiative in diagnosing their own learning needs, in formulating learning objectives, in locating resources to fulfill objectives, in carrying out a learning plan, and in evaluating the extent to which they met objectives" (p.38) (Hatcher, 1997). The main traits of the Theory of Andragogy rely on the idea that humans have a psychological need to be self-directed, they bring into any learning situations, resources from their previous experiences, they are task and problem centered, and in the right circumstances, are intrinsically motivated to learn (Knowles M., 1980).

REFLECTION IN THE CENTER

In the discussion of adult learning, Habermas mentioned the importance of reflection in his definition of self-awareness, an essential component of adult learning, and that critical reflection fills a gap in adult learning theory. Merleau-Ponty highlights the value of critical reflection as the awareness of the essence of a problem in the embodied experience or reflection is the oral, written, or artistic expression of what the body has perceived, which Korthagen (2016) further defines through his line of questions to establish awareness. Dewey recognized reflection as the bridge between what the individual is learning and past experience in his holistic approach. For Knowles, in order to be a self-directed learner, one must be reflective. As summarized by Korthagen (2016) reflection an indispensable component in adult learning. Therefore, if one is examining the characteristics of adults to determine their learning as an outcome of PD, the focus should be on reflection.

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THE 'BOOKTUBER' PRACTICE AS A TEACHING-LEARNING MEDIUM IN JOURNALISTIC WRITING CLASSES

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ABSTRACT

Inside the general topic called 'Construction of meaningful learning' the present research paper analyzes a proposal of a case study based on classroom good practice with fourth semester' students of the Social Communication career at the Technical University of Machala (Utmach), in the first half of year 2017. Is important to mention that Utmach is a Higher Education Institution located in the south of Ecuador, bordering with Peru country. Besides, this *Booktuber* practice was used for 35 students of the selected sample with the general objective to do audiovisual videos in first person where they told a preferred story, related to: narrative ability, argument of story and interlocutory aptitude. The applied methodology was qualitative, focused on virtual ethnography, bibliographical revision and analytical reading. As a result, alternative, dynamic and fluid histories were obtained on highly diverse themes, which served to reflect the variability of interests of young people today. Finally, thanks to *Booktuber* practice, the student was empowered to work independently to be a prosumer of audiovisual contents in the Society of Knowledge, without disassociating from the literacy strategies and necessary learning skills in university education.

THEORETICAL FRAMEWORK
An approximation of *Booktube* definition

On YouTube, a group of users decided to make reviews, giving appreciations and reflections of the books they read. Unlike the analog format, the audiovisual medium enriches the reading experience and shows gestures, intonation, postures and all those characteristics that in a printed medium cannot be evidences. This community calls itself *Booktube* and they consider that their practices in the network can get to promote the reading in a considerable way (Dominguez, 2016).

Booktube is an online community that joined people of any age, nationality and language. The movement was initiated in the United States and there are currently representatives of various geographical territories. This practice is spreading in a transdisciplinary way at present, although it is starting from mid-2013 when its presence in Spanish is noticeable (Pacheco Alonso, 2014). The *Booktube* community is defined by Sorensen and Mara (2013) as a networked knowledge community (NKC) made up by original content-producing users on YouTube. They use their own channels to celebrate or discuss books, generally fictions lectures, dedicated to the adolescent public. In fact, this is a community with many literary channels where the *Booktubers* share videos relate to reading and books.

This phenomenon has existed for several years in the North America and it has been receiving a significant spread since last year in the Spanish-speaking countries, with an exponential growth. Authors such as Sorensen and Mara (2014) consider this phenomenon as a great opportunity to foment lecture in young people. In the *Booktube* videos, the book review is the center of conversation, with critiques and opinions largely commented on informal and entertaining language among the young audience. Users create their own content and share it in this social communication channel. As Sorensen and Mara (2013) express "in the *Booktubers*' discourse is possible to perceive rules, functions, stylistic patterns and hierarchies". All these features are negotiated within a discernible and definable set of practices.

As Comba, Toledo and Duyos (2012) say, "*Booktubers* declare themselves fans of writers like J.K. Rowling, John Green and George R.R Martin". According to these authors, publishers point to *Booktubers* as referents and trainers of new readers and have begun to include them in their business strategies, linking old and new media. Also, the *Booktuber*' videos are true transmedia practices where young people do review videos that expand fictional worlds (Comba, Toledo and Duyos, 2012: 8).

Video reviews do not last more than 10 minutes and its particular feature is a dynamic narrative, which includes a natural humor. In fact, these videos are more like a sketch than a formal review. Moreover, *Booktubers* give quality to audience in each one of their productions, demonstrating skills in the video management and audio editing. Many of these young people declare that their main objective are intended to achieve an open discuss with other users about their same affinities, reading and exchange different opinions. Besides, the *Booktuber* phenomenon is a clear example of what social network and web 2.0 have achieved in the contemporary society "connecting people with a common interest and allowing the creation of new knowledge, providing information, data, facts and new content that may be useful to other people" (Comba, Toledo and Duyos, 2012).

The *Booktube* community creates and shares content on the network, connecting people around the world with common interests and the motivation to exchange their personal experiences with others, because these actions have become habitual practices in the society of information (Castells, 1999). In the *Booktube* community, young people share the same communication space and interact in real time, being creators and consumers, emitters and receivers. This means new forms of knowledge production in a collective way. In consequence, information is intimately linked to the digital natives' generation.

By mean of generating knowledge, a person exercises his freedom and to do it is vital the exchange of information that occurs through communicative processes. In this sense, a human being assumes the mediator role. More than ever, today the individual has the freedom to create knowledge and share it in real time on the net, promoting new data exchanges and new creations from that, in an endless circular process. In other words, information and communication go hand in hand, which implies that the knowledge's generation runs in a parallel way to the same objective. Thus, the communicative act works as mediator of the information act itself. In the case of online communities such as *Booktube*, where its users have established different kinds of links, there is communication in tis pure state. In addition, we have data and information inside all the communicative process that impels the generation of new knowledge. Here, people share common interests and express or discuss their particular perceptions about a certain topic of discussion (Dominguez, 2016).

This is the real power of a social network like *YouTube*: confers to a determined user useful skill to be creators, consumer and prosumer at the same time. In all these roles, users can share their own content in real time with thousands of other people. This entire *Booktube* phenomenon causes great changes in the development of social relations in the present. According to SM (2013), *Booktube* is the community of young readers between the ages of 15 and 25, who upload videos of literary themes with the main objective of recommending readings. The *Booktubers* are young people who, motivated by the love of reading, manage literary themes on YouTube. Accordingly, *Booktube* is a social activity, as Lluch (2014: 19) says:

> If we understand reading as a solitary pleasure, it contradicts with the need of adolescents to share their hobbies with others. This is the key to success: its social, public, interactive and global character that allows you to socialize reading, share it with any other teenager anywhere in the world and at any time. This form of reading does not distance them from the group of their peers; on the contrary, it creates new affective bonds and builds new friendships. The social networks makes visible the adolescent reader due to it helps them interact with authors and publishers. As a result, the young readers transform them into opinion leaders.

The *Booktube* community is based on more communitarian ties than on the centrality of the texts that authors like Ong (1987) attribute to the age of the screens. The practices promoted by *Booktubers* are cumulative rather than analytical. In fact, their challenges and contests still preserved the *agonist* element that Ong (1987: 51) attributes to the primary orality:

> By keeping knowledge embedded in the human vital world, orality places it within a context of struggle. Proverbs and riddles are not used to store knowledge, but to engage others in verbal and intellectual combat: a sort of proverb or puzzle challenge listeners to overcome it with a more opportune or contradictory one.

In the traditional narrative, a kind of bragging about the personal prowess or angry phrases of rival regularly appear in the confrontations between characters (Ong, 1987: 50). This is the meaning of *Booktube*'s playful practices, where reading becomes a game, a contest, a competition, etc. If YouTube builds *Booktubers*, what kind of YouTube builds *Booktubers*? It is clear that this platform works as a constructor of visual cultures and convergence whose practice goes beyond uploading videos and sharing them. It means participants of this online community begin to have influences on other cultural scene areas. In addition, the network platform has a strong social component that is based on certain practices, which build community ownership.

Booktube has become an immensely popular book-related social media platform in recent years; the rise of the Young Adult genre and of social media have been dramatic, and it has created a perfect storm of influences that included the expansion of social media and an audience of young readers hungry for story-driven books (Anderson, 2015). These channels are focused on the young adult genre. Many of these channels have thousands of followers. A *Booktuber* is a grassroots intermediary, an unofficial party who shapes the flow of messages through their community and may become strong advocates for brands or franchises. *Booktube* is a community where readers and viewers come together to discuss, recommend and celebrate books (Bergmann, 2017).

When a title is discussed on *Booktube*, readers place their trust in the opinions of the *Booktuber*. Inside YouTube, the opportunities for collaboration are vast. Due to this ripe overlap of social media and many publishers have working relationships with *Booktubers* and have long been using the social media platform to publicize their frontlists and reignite interest in backlist titles (Burgess & Green, 2009). Some tactics of working include sending *Advanced Reader Copies* (*ARCs*), collaborating on videos and the unboxing videos real phenomenon, read a vast number of titles, and participate in frequent discussions of these books. In consequence, this community is as a cultural phenomenon where audience that surrounds and loves books (Dredge, 2016).

A *Booktube* video consists of a person reviewing one or several books, speaking casually to the audience into the camera. This style of video is called *vlogging* such as a diary-style way of communication provides insight into YouTube as a domain of self-expression, community, and public confession. This attribute makes the *Booktube* community unique (Dunn, 2015). *Booktubers* represent just a small sampling of a growing community. Actually, many countries are adapting to this style of book blogging, especially nations in which English is not the official language, because *Booktube* provides a way communicate with one another during the school year. This style of blogging is interesting and more authors are taking part in this practice. This is a great way to open yourself to a new reading marketplace while also making connections with booklovers from around the globe (Kaufman, 2014).

Booktubers tried to match books from their personal libraries with every continent, drawing attention to the fact that authors tended to be under represented in the average *Booktuber*'s book collections. This lead to an on-going discussion in the community, with members making active attempts to diversify their selections, to educate others on this issue, and to highlight less visible and rarely represented books (Lange, 2014). *Booktube* builds communities around friendships and collaborations, creating conversations around books. As of late, reading has become livelier and readers have been more eager to interact with each other and create intimate social relationships in the wake of a general rise in social media interaction. The social aspect of *Booktube*, where connection is formed over a mutual interest in books, is a logical extension of behaviour for young people: they share aspects of their lives naturally on social media, thus sharing reading habits and a passion for books there as well is in accordance to their lifestyle (Strangelove, 2010).

Likewise, being perceived as *authentic* is the key factor for *Booktubers* for their attraction to adolescents and young adults. The video format of a person talking to an audience while in their home, often their bedroom, portrays an inherently intimate situation. The videos are typically set up as a casual one-on-one conversation with a friend; even collaborations with two or more creators convey this. These videos naturally come in different levels of set-up, mostly depending on filming location, scripting of a video, a vlogger's styling, camera and lighting equipment, and editing choices (Sweney, 2014).

These in-between chat videos are essential in forming a community, as they let viewers participate in the lives of the *Booktubers* and give glimpses into their times off-screen. They make the *Booktuber* seem *more human*, so to speak, more like an actual friend to meet – quintessentially more relatable and perceived as authentic (Vernallis, 2013). Audience bonds with the on-camera persona of a *Booktubers* in a sense of closeness that cements an assumption of relationship shared by performer and viewer reader. It is the simplicity and portrayed intimacy of *Booktube* videos that is so appealing and relatable to the viewers. Besides, the majority of *Booktubers* are women. Likewise, they appear to be usually in their twenties or late teenage years, close in age to their audience of mainly teenagers, adolescents and young adults (Maughan, 2016).

Although, the frequency depends on a *BookTuber'*s occupation. For example, ability to devote time to video making, it is common to post one new video every week. Generally, *Booktubers* do not join the ranks of big YouTubers. Instead, there are many small and mid-range Booktube channels with subscriber numbers between 1,000 and 50,000 (Burling, 2017). *Booktubers* create videos as a hobby while studying or working full-time, with varying levels of professionalism. Furthermore, some creators set up so-called *Patreon* accounts where fans can give one-time or monthly donations. This is a non-commercial and a far more stable and substantial form of support, independent of fluctuating and low advertisement rates (Scheuerer, 2017).

Booktubers often work together with other video creators in so-called *collab* (collaboration) videos to present and exchange books and opinions. Often this adds to the dynamic of a video, creating even more of a sense of friends meeting for a bookish chat with the viewers. *Collabs* cross-reference other members of the *Booktube* or broader YouTube community to introduce viewers to other channels (Hughes, 2017). Two collaborating creators will usually shoot two videos and direct the viewers to the respective other channel. They can grow their audience, sometimes significantly if one collaborator is particularly popular or established. Collaboration is in general very common among content creators. Popular and established creators collaborate with small channels and amplify them, even when the bigger channel has little to gain from the crossover (Albrecht, 2017).

Various *Booktubers* themselves have uploaded videos with tips and instructions on how to start and manage one's own Booktube channel. Thus viewers are encouraged to try making videos themselves, honing their own skills and becoming a more visible member of the community. Thus, the viewers of *Booktube* content are encouraged and enabled to create content themselves, learning a variety of technical and social skills (Nakamura, 2013). *Booktube* appeals to young people as potentially life-long avid readers and customers. The videos are posted regularly and frequently on a platform, the content is versatile and communicative with its comment section, possibility of video responses and cross-use of other social media such as Twitter. This is a congregation of young people interested in reading (Maughan, 2016).

*Booktube'*s particular nature as a medium influences society and reading culture in a complex way. As a platform, it not only amplifies certain content but also certain perspectives that were traditionally not taken into much consideration in established book reviewing mediums. The participating creators have various forms of capital at their disposal (Dunn, 2015). *Booktube* phenomenon were identified as publisher, author, and reviewer. The influence of *Booktubers* is most significant and relevant. The *Booktuber* community as a versatile, dynamic online reading phenomenon. *Booktubers'* strengths lie in accumulation of human, social, and symbolic capital: particularly through their skills in video-making and social media, the content creators make themselves valuable as human capital (Scheuerer, 2017).

Through their audience engagement, *Booktubers* accumulate social capital. Through their reliability, community contributions, and individual expertise they gain symbolic capital. They are close in age to the average adolescent viewer and familiar with the environment of YouTube, which many young people frequent on a daily basis. *Booktubers* navigate this social space with competence. They have a good understanding of what content their audience and fellow readers expect and want (Dredge, 2016). *Booktubers'* general lack of economic capital and wish to accrue it is an incentive for collaborations with publishers. In this sense, *Booktubers* can work as advertisers, reviewers, and booksellers: they build a reputation in their taste, trustworthiness, relatability and authenticity with their audience. *Booktubers* work with books as a lifestyle, not merely as a hobby or a consumer good (Sweney, 2014).

Community projects and collective reading are widely popular and strengthen the relationship between and among viewers and *Booktubers*. For example, members create a space for book to gather, discuss and exchange as a natural extension of the digital native's network. This offers publishers an opportunity to build a relationship with readers that they did not have before. Resembling publishing, *Booktube* works as a content amplifier. It generates social and economic capital for authors and publishers through additional endorsement and sales of books (Anderson, 2015).

As trusted recommenders, *Booktubers* can keep backlist titles in demand and draw attention to both newly published and lesser-known material. In their content amplification, they accommodate an international, fast-paced, English-reading young audience. Individually and as a community, they can voice demands of the audience for specific material and make publishers aware of what certain readers want to read (Albrecht, 2017). While some agents in the publishing field, such as established professional book reviewing journalists, view *Booktubers* with disregard, publishers are beginning to recognize their potential as intermediaries, curators, and influencers. Current collaborations show that *Booktube* content creators provide notable value to the publishing world (Hughes, 2017).

Booktube has notable effects on society and illustrates certain general trends regarding attitudes towards reading, book purchasing and book reviewing. For one thing, *Booktube* operates on a social media platform as part of web 2.0 with a relatively low participation threshold. As a result, people can contribute content in video making, this help for amateur video makers and especially amateur book reviewers (Albrecht, 2017). Book reviewing is thus no longer limited to professionals in established positions in the field, nor to their particular selection of books to amplify. Consequently, audiences, whose perspectives, tastes, and criticism have not been paid particular attention in established literary media, seize their own platforms and means of content amplification (Anderson, 2015).

Moreover, the *Booktube* environment encourages frequent exchange through its interconnectedness and frequent purchasing through its culture of habitual book buying. The relatively easy access as well as expectations and customs of constant acquiring changes the perception of books from cultural objects to commodities. Such changes and developments concern the consumers and producers of books as well as the field of media studies (Dunn, 2015). *Booktube* is one example of this impact and influence. It exemplifies that online platforms should not be under estimated in their relevance particularly to the generation of digital natives and its attitude towards books as well as reading and consuming habits (Maughan, 2016).

Booktube, a smaller YouTube *Networked Knowledge Community* within the larger YouTube *Networked Knowledge Community*, also has identifiable elements that include predictable video types and structured elements. *Booktube* community can move forward as a community through electronic, RL and hybrid spaces not necessarily because of texts, but through a range of expressive genres. As Jenkins (2006: 27) notes:

> *Networked Knowledge Community* operates fluidly and informed about emotions of its members and new forms of community are still emerging. These new communities are defined through voluntary, temporary, and tactical affiliations, reaffirmed through common intellectual enterprises and emotional investments. These communities are held together through the mutual production and reciprocal exchange of knowledge.

Booktube, a non-institutional learning culture, provides one powerful example of how a *Networked Knowledge Community* operates through this production and exchange of symbolic meaning and affective engagement rather than the educational currency of professional advancement and positivistic and logocentric accumulation of knowledge (Hughes, 2017).

Booktube as learning lab
Booktubers employ discernible textual patterns, have a shared sense of history, and employ rules and hierarchies. Booktube demonstrates the way that genre helps create community definition and differentiation in a *Networked Knowledge Community*. Some of the style elements in *Booktube* narrowcasts are similar to those of beauty broadcasts (such as hauls and giveaways), but it is still a distinct community within YouTube (Dunn, 2015). *Booktubers* combine book reviews with something resembling a book report. In addition, they filmed from the videographer's home or even bedroom. Outside of the recurring thematic segments and elements, these videos are relatively unscripted, contain summaries of the materials read, may have spoiler alerts, and recommend whether subscribers to a particular channel may want to read the book (Sweney, 2014).

Booktubers self-identify these narrowcasts by name, segment, and style elements. Moreover, they categorize their videos under *people and blogs*, which demonstrates how the articulable their own identity. The self-selection of this category indicates exploration of individual identity with an emphasis on the communal and social nature of the interaction created through these videos. In fact, these channels do not focus on a particular product or institution (Albrecht, 2017).

Booktubers are designed to connect readers with similar interests from around the globe. In fact, there is a purposeful disidentification with commercial categories in the publishing industry, which might instead be classified by (Dunn, 2015): demographic area, literary genres and stage of production. One common element of Booktube narrowcasts includes fanning the pages of the book during a video review. The *Booktuber* community and the industry who benefits from it exist in a kind of symbiotic relationship of mutual benefit. In this sense, we hope to understand how educational institutions can build advantageous and symbiotic relationships (Maughan, 2016).

Booktube is made up of young people who love to read and who want to share that experience with others who share the same interest. Participation in Booktube is normally connected to an interest in reading. These channels

do not usually exceed 1000 to 1500 subscribers. The motivating factors for creating *Booktube* videos must be connected to something else (Scheuerer, 2017). The sense of community among these channels is built upon larger fan culture. The common focus of reading unites the participants, both the video makers and the subscribers. Usually the books read and reviewed are in the Young Adult genre. Although the community is mostly made up of readers and enthusiasts, it also includes some authors of Young Adult fiction. The shared interest in reading and discussing accessible fiction lies at the heart of this *Networked Knowledge Community* (Hughes, 2017).

The bundling of authors and readers in a community of intrinsically-motivated fans contradicts much of the ideology surrounding compulsory education, which reinforces that most learning is difficult and should be extrinsically mandated and organized by a central state apparatus. Without this central organization, the sense of community still needs a mechanism to organize how the community runs and reproduces its values. In order to harness the intrinsic motivations into a more coherent effort (Burgess & Green, 2009). *Booktube* channels are often collaborative. Belonging to one of these collaborative groups can make continuation of a channel much easier, as the conventions and large subscription base can make replacing lost content creators both easier and a part of what it means to be a community member. Starting a channel from scratch can take time to capture and increase views and to encourage people to subscribe (Dunn, 2015).

Becoming part of collaboration can quickly move someone upward in the hierarchy of the social online structure. Moreover, contributors receive more exposure more quickly and they are recognized as an authoritative voice more quickly than they otherwise might have been. Being part of a collaborative channel does not normally limit what an individual contributor can accomplish (Albrecht, 2017). For example, people who are part of these partnership channels often have their own vlog (video blog) channels as well. Contributors to a collaborative channel often promote their vlog channels via annotations on the screen, links in the information box, or discussing it in videos. In this way, subscribers can sometimes carry over fans of the collaborative *Booktube* channel into the new independent channel, building a base for the contributor's vlog. It can allow the contributor to more easily peel away from the group and rely only on a channel created and run independently by the former collaboration member (Sweney, 2014).

Booktube can trace its birthdate to late 2009. Being able to trace *Booktube*'s inception to its beginning helps to identify as *vital history. Booktubers* are not simply book bloggers or vloggers: they are a unique community with a shared purpose and beginning. They focus not only on individual interests, but also on the interests of their viewers and the community as a whole through a common story and set of elders and heroes (Dredge, 2016). Booktube channels need the interaction with, and acceptance by, an audience in order to remain vital. These videos contain a component of shared experience that is essential in motivating a channel's continuation. Without the audience participation, channels get buried in searches and the revenue stream from ads and sponsorships dries up (Scheuerer, 2017).

Therefore, the *Booktuber* must indicate respect for the audience by being responsive to viewers' preferences and needs. Normally, the Booktube content creator is the leader in an exchange, likely because of the perceived popularity. The number of views, comments, and subscribers cues viewers in to the hierarchical standing of the channel. A channel with many subscribers and many views can be identified as one that has high visibility and that likely helps to shape the direction of the community (Nakamura, 2013). Often, viewers will engage in the conversation by responding to statements or questions from the video. This interaction helps build the foundation of community within an individual channel, providing for the channel creator the opportunity to make visible the channel's vibrancy and popularity. In addition, videos, which receive a lot of commentary or which are rated by the viewers will be promoted more through YouTube itself (Hughes, 2017).

Therefore, asking the audience questions or telling them to leave a response or opinion on what was discussed also gives the channel power to promote itself. In this way, *Booktube* channels display *vested interest* in the increased success of their channel and its acceptance within the community. In the comments section of videos, viewers may also offer suggestions for future reviews. While these suggestions benefit the channel through increasing the comment count, they also provide ideas for future videos (Maughan, 2016).

In addition, the more times a particular book or author is suggested, the more sure the channel can be that the audience will respond positively to a video on that book or on a book by that author. Viewers whose suggestions are accepted and then acted upon can feel that their opinion matters and that it is helping to shape the channel's content (Scheuerer, 2017). The power that stems from being a contributor in this way—particularly the sense of

power felt by a contributor who may be named in the video—is a type of recognition that enfolds the viewer into the community. It is a signal of acceptance that indicates a viewer has become a fully engaged and participatory member of the *Booktube* community (Burgess & Green, 2009).

Accomplishments tied to channels revolve around numbers of subscribers and views, but for a viewer, recognition within a video and a channel taking action on one of the viewer's recommendations is what signals the accomplishment. Like the guest worker or the tourist in an ethnoscape, the viewer whose suggestion has become adopted becomes an integral part of the mediascape and the *Booktube Networked Knowledge Community* (NKC) (Anderson, 2015). Recognition is important within *NKC*. Its shared motivations entails a kind of shared accountability that models the larger goals of academic assessment and certification (Strangelove, 2010):

> External accountability in networked communities means being open and transparent to the public about what network members are doing and how well it is working. Strong external accountability systems can also contribute to the achievement of a widely shared sense of purpose, create a sense of urgency, provide pressure' for change, and offer a forum for conversation about the work of schools.

Booktube builds immediately accessible forms of accountability through explicit comments, views, and even sponsorship. The connection between these external accountability affordances and subtle and hierarchical gestures of Booktubers gives students a global view of how online communities operate. *Networked Knowledge Community* can reconnect students to the larger processes that educational institutions have hidden from novices, and can therefore re-invest students with ownership of learning processes (Hughes, 2017).

Types of videos

Regarding to Dominguez (2016) there are different type of Booktube video such as:

- *Reviews:* In videos of this type, the *Booktuber* comments a book, from plot and characters until his personal experience about reading. The aim is offer to audience an opinion, not a criticism. In this sense, *Booktubers* are simple readers, not philologists. Additionally, after the comment of each book, *Booktubers* give a significant valuation in a scale from one to five. Further, *Booktubers* often upload a more widely written version of video reviews.
- *Wrap up:* It consists of the brief comment of each reading made over a specific period of time, usually a month. Contrary to happens in reviews, the length of these comments is much shorter. In *wrap up, Booktubers* focus more on personal opinion than on the objective aspects of the book.
- *Top: Booktuber* does a selection of books according to a specific criterion and each video publication briefly explains reasons why they have been included certain literary works in the group of best readings.
- *Unboxing:* In this type of videos, *Booktuber* opens, in front of camera, packages of books that arrive at home. These videos plays with the surprise and emotional factor.
- *Book haul:* Also known as *IMM* Vlog (In My Mailbox) try to show the latest literary acquisitions. In Book haul, these users can make comments related to the multiple expectations placed in appointed books. The most popular *Booktubers* receive enough books to be able to record their own videos one per month. Usually, these books are offered by publishing houses.
- *Book shelf tour:* Try to show, book-by-book, contents of the shelves, mentioning data like title and author of each publication. *Booktuber* make very long videos, sometimes, divided in two series. Often, users omit all kind of review's comments.
- *Book tag:* The book tags are games formed by different phrases or words related to a theme that *Booktuber* should associate with books or characters. An example could be a book tag of social networks, which includes questions related to: twitter (short favorite book), Facebook (a book that many people have recommended) and Instagram: (book with a very beautiful cover). At the end of the video, it is common for *Booktubers* invite other members of the online community to make the same video. Finally, it is important to note that *Booktubers* often use this type of videos to collaborate, in mutual benefit, with other colleagues, committing each other to upload a portion of the video in their respective channel. This is a very effective way to gain visibility and new subscribers.
- *Book challenge:* These videos are literary challenges that *Booktubers* are usually made in the company of other community members. We are in front of a friendly competition in which only one winner can remain. For example, the *Infinite Challenge* game consists of saying, in a minute, the greatest number of novel titles possible.

- *Vlogs:* In the world of Youtube, a vlog is a video composed of audio-visual fragments arranged chronologically. For the realization of these videos, *Booktuber* usually takes camera with him with the main objective of portraying an entire day and his daily routines such as: attendance to literary events; visit a publishing house, etc.

Positive aspects

With respect to the positive repercussion that *Booktube* generates on young people, it is necessary to emphasize its ability to promote reading. In words of Dominguez (2016), *Booktubers* describe books very closely, as if they were talking to a friend, and that is why message they transmit comes much more effective, even better than a class of a teacher. Besides, the Spanish *Booktuber* Fa Orozco declares that her followers are not lovers of readings; however, they have been encouraged to read by the connection that they feel with her, because users experience a certain attraction by her personality and because the idea of a community where members talk about books is newfangled.

Booktube not only favors readings, but also turns it into a social activity, allowing the opinion exchange between members and followers. According to Cordon and Gomez (cited by Rovira-Collado, 2015) the *Booktube* phenomenon promotes a sort of social or collaborative reading. Social or collaborative reading is developed in virtual platforms, forming a community that encourages diverse forms of exchanges about comments, annotations, evaluations, tags and labels. This emerging reality begins to cross the digital line, being already common meetings between bloggers, *Booktubers* and simple lovers of readings. Thus, reading promotion, participation and information exchange are so effective inside platform that there are those who already see in the *Booktube* community various didactic possibilities. This is how Sorensen and Mara points out (2013: 94):
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> Benefits of incorporating *Booktube* practices into a literature or writing classroom include the possibility of using videos as a model for their own writing. Encouraging participation in this community also invites students to experience with the literary art within a space where hierarchies are shifting. So, while in a traditional literature classroom teacher is always at the top of the chain, with the Booktube experience students can see reactions of other in front of their work and begin to understand that the external evaluation is based on adherence to share values within generic form and within accepted signifiers of quality. In this way, teacher, rather than being an expert and authority, can become a fellow fan who both loves and understands the new student culture.

METHODOLOGY

The applied methodology was the aulic pedagogy denominated *communication-action*, which consists in the implementation of the *Booktuber* theory with 35 undergraduate students of the Social Communication degree at the Technical University of Machala, a higher education institution located in the Ecuadorian coast. The practice was carried out in the academic semester of May-September 2017. The work assignment was to carry out book reviews in audiovisual format. Books were selected for personal preference and affinity of the student himself. The practice of the *Booktuber* theory sought to qualify the autonomous work of the student in extraclass assignment.

RESULTS

Parts of a Booktuber's video

The *Booktube* videos generated by 35 college students can be analyzed in two specific parts, which are:

- The first part normally provides a short overview of the book's general plot and it may include reading of the synopsis on the back of the book. This section provides the thrust of the review: is the book suggested for viewers to read. This portion of the video seems aimed toward those who have not read the book, but who are looking for suggestions in whether to, and how to approach the book.
- The second part of the video informs people who have already read the book and who want to see what the reviewer thought about it.

These portions are generally more animated because they can freely discuss content without fearing the same negative reaction they may get if they gave too much of the plot away in the review. When too much information about the plot of a book is given in the review portion, viewers can become angry (Scheuerer, 2017).

Topics

The next topics are analyzed in the *Booktube* videos produced by 35 college students:

- Certain topic, specific theme.
- Conventional the seasonally appropriate.
- Genre.
- Reading habits.
- Discuss works of particular current relevance.
- Works short-listed for literary awards.

Values

The following values are transmitted in the *Booktube* videos made by 35 college students:

- Promotion and discussion of books they love.
- Easily aligns with a publisher's goal of having their books sell.
- Creating an environment ripe for publishers and Booktubers to collaborate.
- Through Booktube, publishers can reach previously untapped communities of readers, create new readers, and access influential communicators that spread information about books.

CONCLUSION

- *Booktube* can help teachers design assignments. For example, students will be synthesizing information between channels but also between genres. In addition, they will be able to discuss how these videos are different than the traditional reports that they have been asked to do. Moreover, they can determine the difference between review and discussion and the reasons for each. Likewise, can be explored the importance of audience and medium and finally students can use this information to produce their own work (Dunn, 2015).
- Composing using a medium like YouTube can help involve students in their own learning process, In this case, students would apply what they have learned about genre in forming their *Booktube* videos. They would be concentrating not only on the basics of their book report, or even on the writing of the report, but they would also be synthesizing what they have learned about the genre to create their own contribution (Scheuerer, 2017).
- By introducing *Booktube* to students, teachers may be able to inspire additional engagement in both the reading and the reports or other assignments that are based on it. For example, the community aspect of Booktube may create a more inviting and social environment into which these students can contextualize their schoolwork. They will be able to write for an authentic non-teacher audience and see a broader reach for their work—and therefore a broader purpose. While assignments can be perceived as busywork or simply a way to prove that they completed the reading, production of a *Booktube* video contributes to the knowledge base of a far-reaching audience (Strangelove, 2010).
- The work becomes something larger than an exchange between a very limited audience. It gains importance and therefore provides additional motivation or impetuous to produce better work. In addition, negative feedback received from an external audience will likely carry additional weight for the students. While these comments from viewers should be discussed and even refereed, they can point out to students when reviews or summaries are lacking. They can also provide encouraging guidance (Burgess & Green, 2009).
- *Booktube* community is perfect for the kind of peer review that we want students to engage in as they write, create and revise their work in different media. Feedback from multiple channels can help students to improve their work in a type of peer review that is not standard. Whereas teacher comments might simply be addressed, these types of comments would likely be analyzed, weighed for accuracy—, and perhaps even discounted—before the students address them in a revision (Dredge, 2016).

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THE ANALYSIS OF THE ACQUISITION OF WRITTEN CHINESE BY POLISH STUDENT BEGINNERS

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ABSTRACT

Learning Chinese, comparing to other languages, especially Indo-European languages, requires individual approach. The specificity of Chinese written system makes all the notorious means of learning languages useless to certain extend. In this article the aspect of Chinese writing system acquisition by Polish student beginners will be examined.

At first, the specificity of the Chinese written system will be introduced, followed by a set of examples on its diversity and its implications on the further analysis. Then, the learning methods used in learning Chinese written system will be examined. The final part of the article will be devoted to the critical analysis of the students' progress and final remarks on students' learning strategies and their effectiveness in learning Chinese written system.

INTRODUCTION

Comparing to Indo-European speaking nations, Chinese are probably one of the few nations which still use an alphabet resembling their ancient writing style, which has been used for over 5000 years in the Far East. Obviously it has undergone numerous changes in its shape, style and writing system, however it still retains a close resemblance to the original written system, especially in terms of pictograms, and photographic icons of the ancient characters. Also, the specificity of the Chinese written system, namely the stroke order and the stroke shapes are still crucial for the Chinese native speakers, treated by them as their orthography system (Zhou J. 1998; Sun, Sun, Ch,., 2006).

FOCUS OF THE STUDY

The main focus of the study was a three months continuous assessment of the acquisition of Chinese characters and phonetic alphabet, called pinyin in two class environments, namely in teenagers study group and adults study group. In regard to writing, the author investigated the stroke order, character recognition, character acquisition, and how the specificity of Chinese influenced the learning process. Also, she focused on the process of association of the pinyin equivalents and their correspondence to the characters (hanzi) and the learning difficulties it brought to the students of both groups during their learning process.

RESEARCH PARTICIPANTS

As mentioned above, the study was conducted on two age groups, namely: teenagers and adults. As can be seen below (Table 1), the group of teenagers' age varied in between 16 and 19. There were 12 students attending the classes observed during the study, 4 male students and 8 female students. They were all high school students. The adult group, on the other hand, consisted of 18 students (10 female students and 8 male students)   in the age of 20 and more. The majority of the students (12) were university students, the other 6 students were workers of various companies mostly dealing with foreign trade and economy branches.

Research Sample	Age	Background	Amount of students
Teenagers	16-19	▪ No previous Chinese experience ▪ High school students	12
Adults	20 and over	▪ No previous Chinese experience ▪ Workers/ university students	18

Table 1.Research Sample Introduction

Both of the research groups were of Polish origin and none of the students of both groups had any previous experience with learning Chinese.

RESEARCH METHODS AND TOOLS

The corpus of this case study was collected by means of numerous tools and instruments, namely, questionnaires on perception of Chinese written systems (pinyin and hanzi), class observations, open discussion in class (oral group interviews and individual discussions) and language tests to assess the participants' progress in various areas of Chinese competence (short written tests, dictations, translation tests, etc.). The research lasted for three months.

THE SPECIFICITY OF THE CHINESE WRITTEN SYSTEM

It is said that Chinese has not more than 400 syllables. Unfortunately, hence Chinese is a tonal language each of these syllables may (with some exceptions) occur in 4 (or even 5) different tones, and each phonetic representation may have an individual character representation (usually more than five, up to even 20 distinct translations), creating a vast number of words in the written form, although Chinese has only 26 letters in the alphabet (Kostrzębska, K. 2007:6).

As was mentioned above, Chinese consists of the written characters called 'hanzi' and their alphabetical equivalents called 'pinyin' with their corresponding tones called 'shengdiao' (Sun, Chaofen. 2006:1-3) . It is a syllabic language, thus as opposed to other languages, there are only few words which consist of only one letter, such as onomatopoeic sounds or interjections like a for instance sound of surprise '啊!' or '哦!'.

Syllable	Tone	Character representation	Translation
MAO	māo	猫	A cat
	máo	毛	hair / feather / down / wool / mildew / mold / coarse or semifinished / young / raw / careless / unthinking / nervous / scared / (of currency) to devalue or depreciate / classifier for Chinese fractional monetary unit
	mǎo	泖	still water
	mào	帽	A hat/ cap

Table 2. Chinese phonetic and written representation of one syllable and its meaning

For the further reference in terms of phonetics of Chinese see: Chao, Y. R. (1930), Yip, Moira. (1980), Shen, Norman, J.L. (1988), Xiao-Nan.(1989). Qian, Kan. (1996), Sun, Ch. (2006)., Branner, D. (2006), San, Duan-mu. (2007), and also: Sun, Ch. (2006).

What makes Chinese unique, as opposed to any Indo-European language, when learning Chinese one has to learn five various elements at the same time:
- the phonetic equivalents - 'pinyin' (syllabic or multisyllabic words),
- their tonal representation
- the meaning,
- the characters,
- and their stroke order

Stroke's name	Visual representation	Example	Explanation of the writing system
竖折 shùzhé		医	The horizontal stroke with a downward turn is written first from left to right and then downward.
横折钩 héngzhé gōu		喝	The horizontal stroke with a downward turn and hook is written first from left to right, then downward, and finally a turn is made toward the top-left by quickly lifting the pen to make the hook.
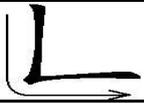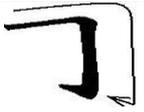
Table 3. Chinese writing system – a sample of strokes and their writing explanations
(based on: Sun, Chaofen, (2006): 107-109; (I-1);Yang Jizhou, 2006)

Table 3 presents two out of twelve distinct stroke shapes necessary to master in the learning process. The above mentioned aspects make the learning process significantly more complex and challenging. The specificity of Chinese is even more complex than the above mentioned examples. Stroke shape and count may influence the meaning of the character (Table 4).

Stroke shape influencing the meaning		Stroke count influencing the meaning	
土 'earth, ground'	士 'bachelor'	日 'day'	目 'eye'
天 'sky'	夫 'husband'	大 'big'	太 'too much'
见 'to see'	贝 'selfish'	工 'work'	王 'king'

Table 4. Stroke shape and count influencing the meaning of the character

Above are only few out of hundreds of examples of such words that are very similar in their visual representation, however their detailed analysis shows that even one false stroke shape or inappropriate length, etc. may end up in writing an entirely different character. For instance the character '土' that means 'earth, ground' and the character '士' which means 'bachelor' although very similar in general, however, entirely different. The difference is in the length of the base stroke (the last stroke written in both characters) in the lowest part of the character. In the first example it is significantly longer than in the second character, not to mention that their meaning is entirely diverse.

As proven above, the Chinese written system is unique and challenging in terms of learning. Below there is the analysis of the two groups in question and their Chinese written system acquisition.

THE STUDY
Before the study itself, the author have conducted a questionnaire verifying students' motivation and attitude towards learning.
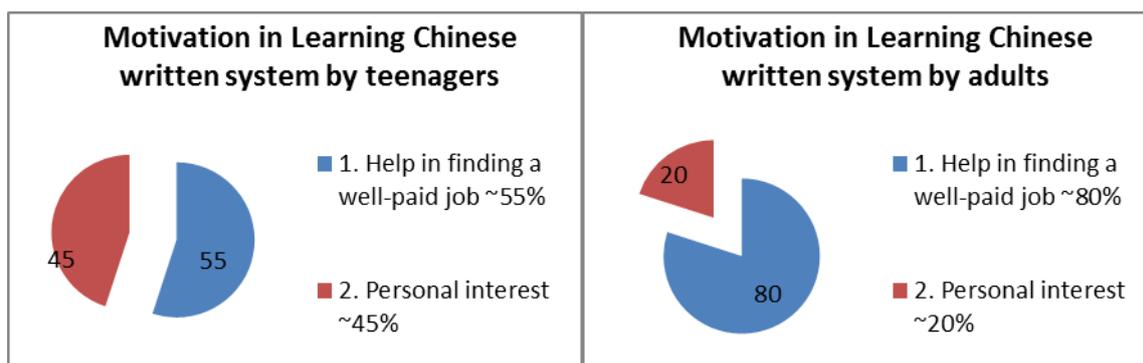
Figure 1. Motivation in learning Chinese written system by teenagers and adults.

As can be seen in the figure 1 above, there is a significant difference between the motivational factors of the research groups in question. 55% of teenagers claim that their motivation is instrumental and learning Chinese will help them finding well-paid jobs, however, 45% of the group claim that they learn Chinese out of personal interest in the language and Chinese culture. There is a significant difference in terms of the results of adults motivation attitude, namely the majority of adult students claim that their motivation is purely instrumental (80%) and claim that learning Chinese will secure their future, however only 20% claim that they learn Chinese solely out of their personal interest.

The author also examined the teachers' teaching methods used in class. The teaching approach and method during classes was eclectic in form, in the following proportion:

- Student-oriented teaching (active learning, students solve problems, answer questions, formulate questions of their own, discuss, explain, brainstorm during class) 40%
- teacher-centered and content focused teaching 10%.
- Interactive/participative teaching and direct method (student-centered method) 20%
- Grammar- translation teaching (teacher-centered method) 30%

Students were active in class, the relationship between the lecturer and the students was positive, the instructions were clear and direct, the students received positive feedback from the teacher.

It is interesting, how various people see characters, children see them as: 'pictures, paintings, etc.' however it seems that with age the visual introduction tends to narrow down to 'a group of strokes arranged in a certain way'. Both groups of the study created a very good system of memorizing characters by means of association and collocation. Research shows that the reasons for choosing the above mentioned strategies included the fact that *hanzi* was often perceived by the students as pictographic images or symbols with distinct meanings and pronunciations difficult to comprehend and learn separately. Thus their visual association of particular characters with the meaning or with other similar *hanzi* characters often facilitated the students' learning process.

Chinese characters were indeed pictograms, thus seeing them as pictures really helps in the learning process (Mc Naughton, W. and Li Ying. 1999:10-15).

Character	Teenagers- Students (16-19)	Adults (20 and more)
Traditional association technique		
一 - 'one'	One stick	One stick
二 - 'two'	two sticks	two sticks
三 - 'three'	three sticks	three sticks
人 - 'human'	A headless human being	A headless human being
口 - 'mouth'	Mouth	Mouth
女 - 'female'	A female	A female
Visual collocations technique		
四 - 'four'	Geometrical shape	Football field
六 - 'six'	A human being with a head	A human being with a head
书 - ' book'	An open book	A set of books
厨房 - 'kitchen'	A human in the kitchen stirring something in the pot put on a stove	-
说 - 'to speak'	A tv with an antenna	A tv

Table 6. Chinese characters' graphic interpretation

The study showed that, as can be seen in the table 6, there were two main ways of associating the characters by the students, namely by means of the traditional association technique and visual collocations. There were certain similarities in both groups' perception of the characters, however there were also noticeable differences. The traditional association technique turned out to facilitate each groups learning process identically. For all of the students the pictograms of numbers 1,2,3 and the words 'human', 'mouth' and 'female' were the same and corresponded to the characters meanings. However, the analysis of the visual collocations technique shows more diverse results. As can be seen, the number 'four' was not associated with the number '4', but with two diverse collocations. The teenagers saw the word in question as a geometrical shape of a large square with a shape corresponding to a 90 degree angle in its left top corner and a square in the right top corner, however, the adults saw a football field instead. None of the associations was even remotely close to the meaning of the word. In order to connect the word with the meaning, the students of both groups created stories including the association of the character's shape and the meaning, e.g.
四 - The **square** has got **four** sides (teenagers).
四 - The **football field** has got **4** corners. (adults)

Similar situation occurred in the case of the word 'six' and 'to speak', however both groups of students had simmilar associations of the meaning to the characters' shape, namely:
六 - **six people** spread their arms and legs and turned their heads right. (teenagers and adults)
说 - there is an interesting **talkshow** on the **tv** (teenagers and adults)

The significant difference could be observed in terms of more complex characters, e.g. '厨' from the word 'kitchen'. The adults had problems to find a visual collocation, whereas the teenagers have instantly provided a visual association of: 'a person in the kitchen stirring something in the pot put on a stove'. The teenagers were more open-minded about the association technique than the adults, thus it proved to be more effective in their case.

The collected data analysis (second and final questionnaire conducted in the end of the research) showed that the students underwent a change in their perception of their learning process. Initially, the tones turned out to be the most difficult element for them. The reason for this seems to be the specificity of Chinese characters which were new to the students, which led them to devote most of their time to learning this distinct writing system of hanzi and the stroke order. At the same time, due to the appearance of the Latin script based alphabet of pinyin, the students devoted less time to the tonal and pinyin acquisition.

All in all, the cognitive strategy of association enabled all the students to connect the newly acquired *hanzi* with the old ones by memorizing. They then overcame their limitations regarding speaking and writing so they could cover more material in significantly less time. The indirect meta-cognitive strategy helped students evaluate their results by self-testing. The affective strategy, in question, influenced the students' motivation by improving their learning efficiency. The final data collected in the end of the research showed that he students in the teenage group have learned 10 distinct characters a week, resulting in acquiring knowledge of approximately 120 characters, whereas the adults learned 20 characters a week, resulting in their acquisition of 240 characters within the research period.

FINDINGS

In the previous chapters, the detailed analysis of the specificity of the Chinese language and its writing system was introduced, explaining the difficulties which students have to undergo in the learning process. What is more, the research concerning two groups of students was performed, resulting in establishing the Chinese characters association system. The results were followed with a summary of the amount of acknowledged, learned characters by both age group.

Although, there was a lack of language environment outside the classroom, the change in language competence could be seen in the last stage of the characters' learning process resulting also in the emotional impact on the students making them respect the language more, and tending to spot more details in terms of stroke order, stroke shape, etc.

After the research, it is fair to say that learning Chinese is a struggle, especially in terms of writing Chinese characters. It is a continuing process of doubting one's abilities and talents. Fortunately, due to their persistence in striving for educational success, and their inner motivation, they succeeded in learning a satisfactory amount of characters, what brings them one step closer to the final success resulting in fluent communication in Chinese.

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THE BEHAVİORS CREATE INNOVATİON ON SOCİAL NETWORKS İN MULTİMEDİA TECHNOLOGY OF UNDERGRADUATES

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ABSTRACT

The purpose of this study was to investigate the relationships between creating innovation on social network of students in multimedia technology. The participants are the undergraduate students in the second semester of the 2016 academic year in Multimedia Technology, faculty of Arts and Industrial Design at Rajamangala University of Technology Isan in Thailand. The samples of participants used the tables of Confession and Morgan (1970) at 95% confidence level. The 108 participants were selected by specific accidental sampling and used links to the online form. The research tool was a questionnaire for innovative behavior on social networks of multimedia technology in undergraduates. The research has developed 2 parts: 1) To study the basics of using social networks, 2) To study the relationships between creating innovation on social networks.

The results of the first part showed that undergraduates used YouTube for creating innovation the most as it accounted for 80.30 percent, with the aim of using social networks to follow news, and current social issues. The majority of undergraduates believe that social networks have many options and are modern. The second part can be concluded that the relationships between creating innovation on social network of students in multimedia technology: 1) Use social networking to explore opportunities including the behaviors of valuing social networking opportunities, seeking opportunities for innovation on social networks, and gathering information to bring opportunities for innovation through social networking. 2) Use social networking to create new ideas or approaches. And 3) Creating innovation on social network had relationships with basic usage on social network of students in multimedia technology.
Key Words: behaviors, create, innovation, social networks

Background Motivation

Creativity is the quality that exists in human. If supported, developed, and used properly, it will be very useful. If the populations have high creative, it will be a driving for the rapid development of society. Developing creative thinkers is therefore a great goal. (Areephan Mani, 2015) As well as Multimedia Technology is one of the fields of Rajamangala University of Technology Isan in Thailand where the course is taught to create an innovation and for developing every media.(Multimedia Technology, 2016) But, students can't create a good and effective media. So, I would like to think of a way to help students develop creativity quickly, so they can use in society. And then, currently in Thailand, there is support for the development of education into Thailand Education 4.0 change from listening (1.0), search (2.0), and analysis (3.0) to develop innovation (4.0) (Paitoon Sinararat, 2017); which corresponds to the objective of Multimedia Technology. That is focus make students as creating of developing media and innovation to benefit society and create a new interesting media to everyone. And, the discovery is the statistics online social networks that are becoming popular around the world. According to surveys by We Are Social, the agency for social media research in 2017, Global Social Media Usage: The number of Social Media users now exceeds 2.7 billion, or 37% of the global population. And social media that people around the world used the most is Facebook, active users about 1.87 billion per month. The United States is most active countries 214 million people, and Bangkok, Thailand is the most cities Facebook where 24 million people. (We Are Social, 2017)

From the background and motivations, I'm interested in the study that the behaviors create innovation on social networks in multimedia technology of undergraduates. As the results, it can be used to tools for teaching and learning to manage appropriate for students. Then, apply the results to develop instructional model as the next step.

OBJECTIVE OF THE STUDY

Study was to investigate the relationships between creating innovation on social network with basic usage on social network of students in multimedia technology.

METHOD
Participants
The students of Multimedia Technology, faculty of Arts and Industrial Design at Rajamangala University of Technology Isan, Thailand in the second semester of the 2016 academic year 150 person. And the samples of participants 108 used the tables of Morgan (1970) at 95% confidence level, selected by specific accidental sampling and used links to the online form.

Hypothesis of the research
H0: The relationships between the creating innovations on social network with basic usage behaviors on social network.
H1: The relationships between the creating innovations on social network with basic usage behaviors on social network are not related.

Variables of the research
The variables of the research have used 2 variables as showing in the table:

Table 1. Variables of the research

Basic usage behaviors	Innovation behaviors created
• Social networking experiences • Social networking channels • Types of social networks • Purpose of social networking • Reasons of used social networking	• Problem recognition behavior • New idea behavior • Opportunity exploration behavior • Creativity behavior • Formative investigation behavior • Leadership behavior • Application behavior

The research tools
The research tools were a questionnaire links to the online form and develop 2 parts:

1) Basic usage behaviors on social network (We Are Social, 2017)
2) Innovation behaviors created on social network (Bruner, L. S., 1969, Kleysen and Street, 2001, Eric Jensen, 2000, Guilford, J.P., 1967, and De Jong, J. P. J., 2007)
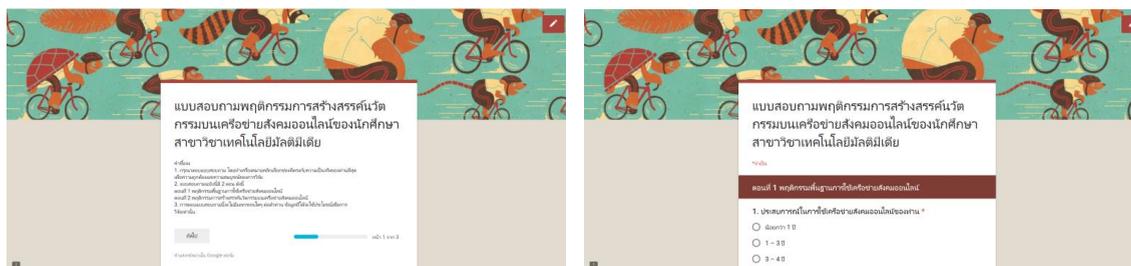
Figure1. The research tools were a questionnaire links to the online form

Analysis of data
Find out the mean and percentage of basic usage behaviors on social networks.
Find out the chi-square of Pearson for each relationship by crosstab method to find out the hypothesis set.

RESULTS
This research was a survey research to study about the investigation of the relationships between creating innovation on social network with basic usage on social network of students in multimedia technology. And showing the results are there descriptive analysis consists of frequency, percentage, mean, and standard deviation. The results have divided into two parts follow as:

Chapter 1: Basic usage behaviors on social network as follows

1) Social networking experience
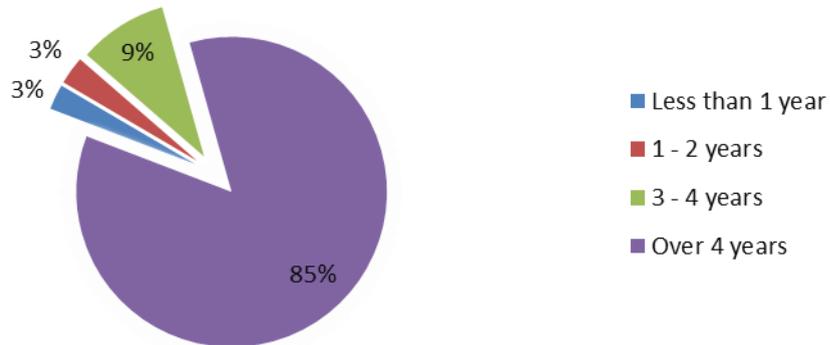
Figure2. The results of social networking experience

From the figure 2 shows that the experience of a sample group in the undergraduate; 85 percent of them have the experience to use the social networks more than 4 years, 9 percent are using the social networks about 3-4 years, and 3 percent are showing the number of a sample group who are having the experience to use a social network for 1-2 years and less than 1 year.

2) Social networking channels
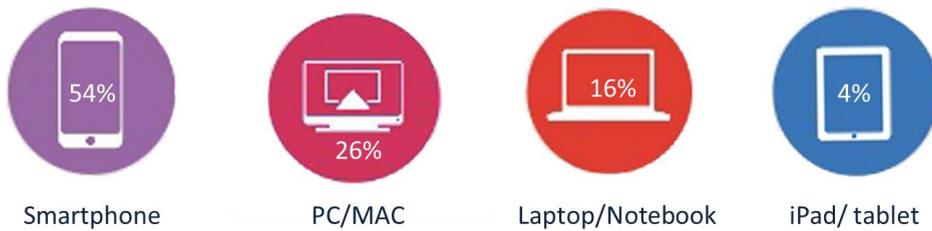
Figure3. The results of social networking channels

From the figure 3 shows, the channels that using for social networks are almost use through a smartphone there are 54 percent, 26 percent are using PC and MAC, 16 percent are using laptop and notebook, and 4 percent of a sample group are using i-Pad and tablet.

Types of social networks
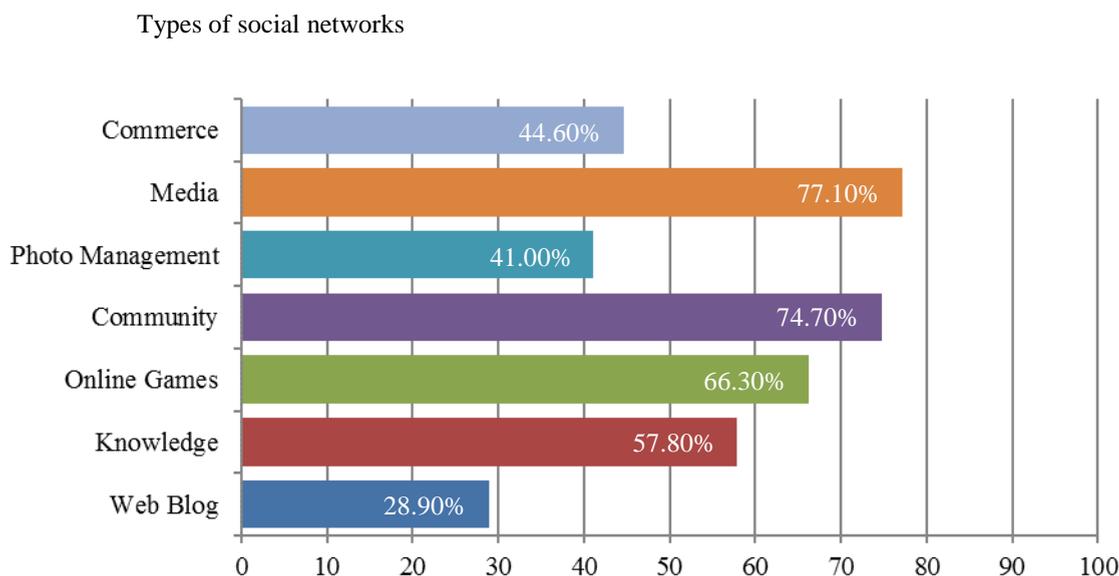
Figure4. The results of types of social networks

From figure 4 is the results of types of social networks, we can conclude that the people of a sample group; 1) 77.10 percent of them are almost used a media (e.g. YouTube is the media that most people also use in their life), 2) 74.70 percent are using community (e.g. Facebook is the media that most people also use in community), 3) 66.30 percent are using online games, 4) 57.80 percent are using data and knowledge (e.g. Wikipedia is the media that most people also use in data and knowledge), 5) 44.60 percent are using business and commerce (e.g. Amazon is the media that most people also use in business and commerce), 6) 41.00 percent are using photo management (e.g. Instagram is the media that most people also use in photo management) and 7) 28.90 percent are using web blog (e.g. Pantip is the media that most people also use in web blog).

3) Purpose of social networking
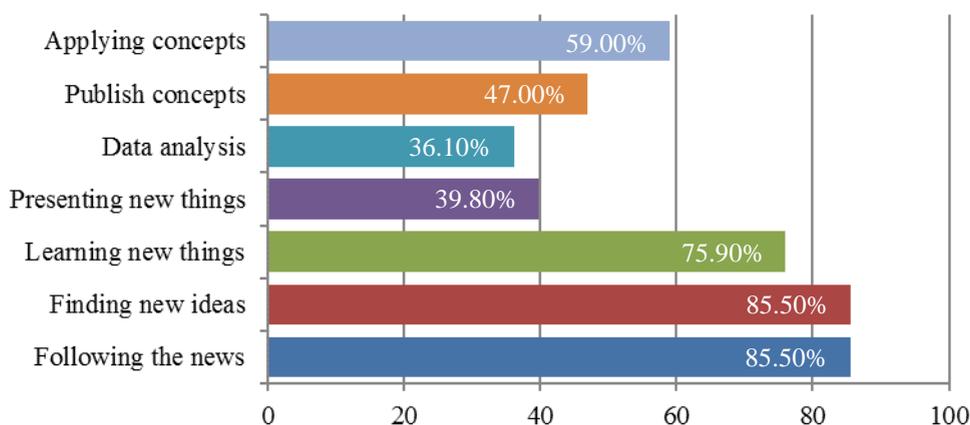
Figure5. The results of purpose of social networking

From the figure 5, the results of purpose of social networking, shows that the objective that people use through the social networks are; 1) 85.50 percent are using of them following the news and finding new ideas, 2) 75.90 percent are using of learning new things or ideas, and 3) 59.00 percent are using of applying concepts for create their work.

4) Reason of used social networking
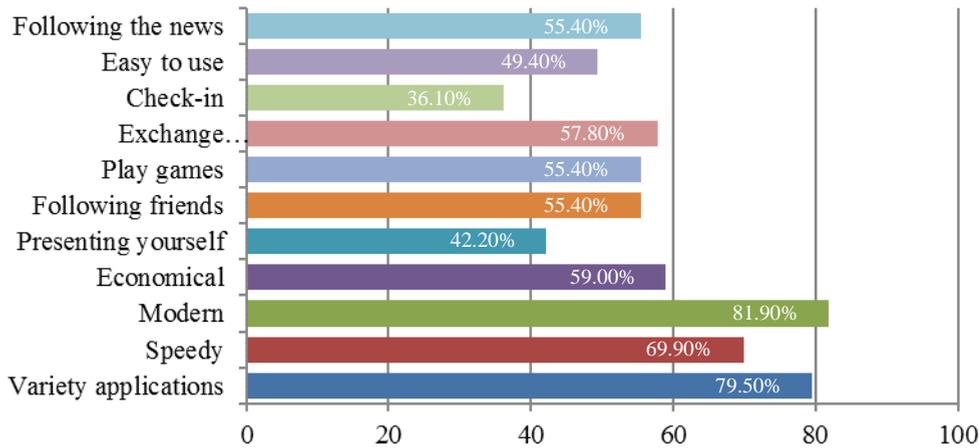
Figure6. The results of reason of used social networking

Form figure 6, the results of reason of used social networking shows, 1) 81.90 thought there are modern, 2) 79.50 percent of them are having several of application, and 3) 69.90 percent of them thought that they can receive data faster through the social networks.

Chapter 2: Innovation behaviors created on social networks as follows
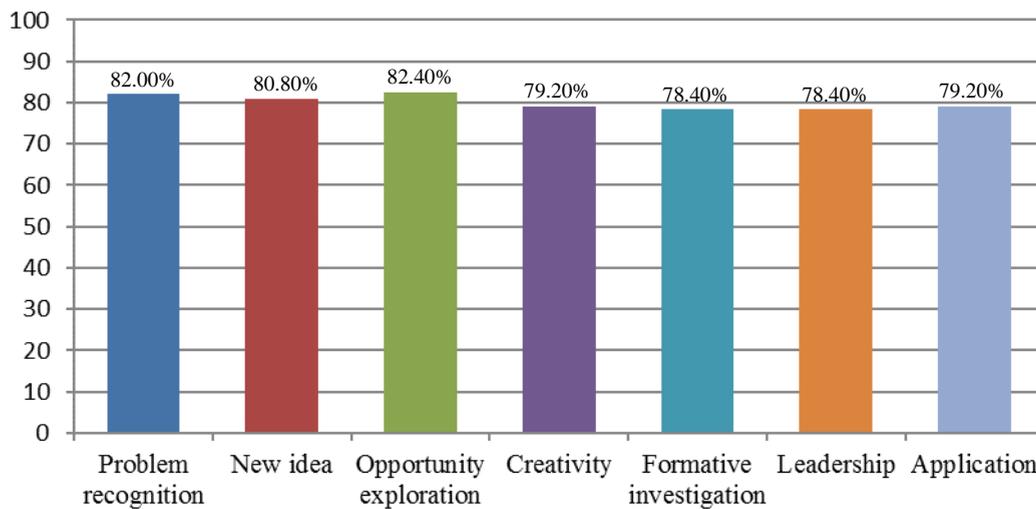
Figure7. The results of innovation behaviors created on social networks

From figure 7, the results of innovation behaviors created on social networks, shows that a sample group are using the innovation behaviors created on social networks for; 1) Opportunity exploration about 82.40 percent, 2) Problem recognition about 82.00 percent, and 3) New idea about 80.80 percent.

CONCLUSION

Table2. The relationships between the creating innovations on social network with basic usage behaviors on social network

Innovation behaviors created on social networks	Basic usage on social networks				
	experiences	channels	Types	Purpose	Reasons
Problem recognition	*	*	-	-	-
New idea	*	-	-	-	-
Opportunity exploration	*	*	*	-	-
Creativity	*	*	-	-	-
Formative investigation	*	*	-	-	-
Leadership	*	*	-	-	-
Application	-	-	-	-	-

Note:

* (star):   It was statistics significant relationship at .05 levels.

- (Dash): It was not statistics relationship.

1)   Social networking experiences had relationships with creating innovation on social network namely problem recognition, new idea, opportunity exploration, creativity, formative investigation and leadership.

2)   Social networking channels had relationships with creating innovation on social network namely problem recognition, opportunity exploration, creativity, formative investigation and leadership.

3)   Types of social networks had relationships with creating innovation on social network namely opportunity exploration.

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THE BELIEFS OF TEACHERS OF CHINESE AS A FOREIGN LANGUAGE (CFL) IN AUSTRALIAN SCHOOLS

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Beliefs play an important role in many aspects of teaching. What teachers believe about themselves, their students, as well as their subject matter, can and does influence how and what they teach. In an ethnographic study of four Chinese as a Foreign Language (CFL) teachers in Australian schools, there is evidence of both collective and individual identity. CFL teachers see themselves as 'Chinese' if they originate from the Peoples' Republic of China, Hong Kong or Taiwan, and this catalyses a collective identity. Indeed, many researchers have essentialised the 'Chineseness' of people from such places in their studies of people movements. At the same time, individuality is expressed in the various contexts they move into. It is argued, in this ethnographic study, that CFL teachers, and what they do in classsrooms, are better understood in terms of the beliefs they themselves express. Teacher voices are thus the key source of data in this qualitative study.

THE CBLT IN ALGERIA: PROSPECTS AND PERSPECTIVES

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ABSTRACT

This presentation draws a general picture of today's time-based educational system in Algeria with the teaching of English as a Foreign Language as a case in point. We shall then expose the pros and cons for the implementation of the CBLT in Algeria. A number of classroom observations and empirical results will be given as markers of school failure in Algeria today. The system under study lacks in fact the opportunity and the adequate environment for the acquired knowledge to become dynamic rather than static. A time-based system as expounded in our schools and universities remains inadequate for such an achievement. The answer would rather be teaching and training based on competencies. An adequately implemented Competency Based Approach to Language Teaching (CBLT) is a possible avenue of exploration for a more appropriate ELF/EFL learning and teaching in Algeria.

Key words: time-based educational system, school failure, Algeria, dynamic vs. static learning, CBLT.

Despite a growing tendency in Algeria among syllabus designers, textbook writers, teachers, university lecturers and other actors in the Algerian educational sector, and a de facto recognition amongst higher level decision makers that changes must be brought

urgently[1], together with the most recent debates on schooling and education, the current educational system in Algeria remains essentially based on courses scheduled to last for a given period of instruction (School / University). This means that learners in various fields of study like Maths, Physics, or languages are involved in courses that supposedly -and erroneously- prepare them for a profession that will integrate them as white collar staff in the Algerian economic and social spheres.

If one takes the case of English for illustration, progress in these school courses is time-based (1st year English, 2nd year English, 3rd year English, 4th year English, etc.). This means that during this learning phase, the teacher is supposed to have given an amount of knowledge and reached a particular stage in the textbook or the course content. This in turn entails that the learner is supposed to have learnt at the pace "imposed" by the teacher, the text-book, or the course itself. Yet, we know today that not all learners learn at the same pace, nor is the teacher's output necessarily the same as the learner's input (Krashen, 1995). Tests are scheduled on a periodic basis to determine the input of the learner and scores are compared to check his/her progress in the course. In case of failure, some remedial work is sometimes conducted, but it has never been based on the individual. The failing student rarely obtains individual assistance unless he resorts to private courses outside the school or the university and provided the parents or else are prepared to pay for the course in private institutions.

The typical effects and affects of a time-based teaching programme in the Algerian educational sector today are clearly shown in the rates of success during the upgrading from one school or university level to another and more particularly in the O level and A level exams results (BEM, Baccalaureate, etc.) which are published each year and which are indicative of school failure and of the inadequacy of the teaching / learning policies in Algeria.

Time-based teaching has proven successful at times over the years and in specific teaching environments (sandwich courses, crash courses, etc.).

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[1] . Cf. the successive ministerial instructions in this vein, the different committees of programs and syllabus designers and experts, TV and radio debates, speeches and recommendations, the documents published by under the banner of the National Education Reform in Algeria, etc.

Nevertheless, such approaches to education have also proven to be inadequate if the course objective is to lead the learner to perform a number of tasks on the basis of the knowledge he has acquired during the learning phase. A point in case would be our 'Licence d'Enseignement de Langues'[2] which has produced over the years teachers who have been poorly prepared for *teaching* (rather than for the teaching profession) mainly because the programmes, knowledge and training given in our universities are inadequately designed for performing the task of a teacher of a foreign language. Similarly, the school learner knows basically how to perform an addition, a multiplication, a subtraction or a division in class, but he fails to apply this knowledge in real everyday situations simply because he has been trained and used to 'return back' what he learnt in the classroom during an assessment, a test or an exam scheduled during the school year. This entails that knowledge is such cases remains confined to the classroom environment and for evaluation purposes both for the teacher, the learner, and the school institution.

What lacks in the case of the teacher and that of the learner is the opportunity - or at least the adequate environment-, where the acquired knowledge becomes dynamic rather than static. The learner needs to put to work the acquired knowledge in terms of skills and capacities, to be able to re-invest it during the performance of a task and to call upon his/her individual strategies as breakdown strategies in problem solving situations, among other things. The learner needs to develop a new behaviour in class as well as outside class, and most of all he/she needs to be guided to develop the feeling of having achieved something on the basis of what was learnt.

No doubt, a time-based educational system as expounded in our schools and universities is not appropriate for such an achievement. The answer would rather be teaching and training based on competencies that are acquired during teaching, learning and practice. This new vision of teaching has come to be called a Competency Based Approach (henceforth, CBA) and extended to the Competency Based Language Teaching (CBLT).

From a socio-educational and a socio-linguistic perspective, we shall present below a general picture of the teachers' and the learners' profiles in Algeria. These profiles are in fact subject to changes in the Algerian society at different periods of time. The main objective here is to illustrate how social upheavals in Algeria have affected the teaching / learning processes and the Educational sector as a whole.

The Teacher's Entry and Exit Profile in Algeria

For comparison purposes, we shall use the eighties as a demarcating line to illustrate changes that occurred in the teacher's profile[3].

Prior to the 80's

Teaching as a profession was *motivation based*. The would-be teacher of English was undoubtedly someone who, for various reasons (cultural, vocational but hardly ever triggered by instrumental motivation) *wanted to be a teacher*. Teaching was than considered it as a respected and respectable profession in the society. The teacher stood as the source of knowledge inside as well as outside the classroom and he represented somehow the Authority in the city. Prior to getting the job and as a prerequisite for teaching, the would-be teacher was then integrated into teacher-training programs (ITE) for a better practice and an adequate management of his profession.

Teaching was *a profession* and a creative source in terms of cultural and scientific activities. Official texts encouraged at that time the exchanges between the University and the industrial sector in terms of applied research.

For the case of English, there was an open access to educational reviews, journals and magazines on Teaching / Learning English. The magazine "Forum", for instance, to which most teachers of English used to subscribe, was available and the subscription was free of charge. Open air activities such as theatre plays and dialogues in contexts were performed almost daily. Movie sessions, Language laboratory sessions, tape recorders and self-access teaching cards constituted teaching aids, materials and realia available and accessible to teachers to help the learner at school or at university.

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[2] . It is no more called so. The cover label "Licence" is a global term for what is taught in the BA in Foreign Languages in Algeria.

[3] . We concentrate on the Teachers of English in Algeria as a case study.

 The relationship teacher-learner was based on mutual understanding. Parents or relatives (even at university level) were part of the game and worried about their children's behaviour at school or at university, their progress and their results.

One may venture to say that teachers were professionals as they were aware of how to handle a class and they represented an honourable profession.

In the 80's, the teacher had an exit profile of someone who had mastered a know-how that can be used and improved by future generations. Teaching was teacher-oriented. Yet, the Statistics of the eighties are indicative of substantial results obtained by pupils and students alike during their school or university studies.

After the 80's

Teaching has become a *trade* i.e., a transaction for a particular job or task to perform or *a business of buying, selling, or exchanging goods and services*, (Longman, p. 1173) rather than a *profession*, i.e., *a form of employment, especially one that is respected in society as honourable and is possible only for an educated person and after training in some special branch of knowledge* (Longman, p. 874).

After the 80's and because of abrupt changes and social upheavals in Algeria, together with uncontrolled population movements heading towards big cities, the teacher has become a kind of 'knowledge supplier'. He stands, in some cases, as a provider of *grades* and *marks* for *Evaluation* and *Testing* which are hardly ever conducted and administered properly. In spite of the massive program for higher studies abroad of the eighties whose aim was to provide qualified national teaching personnel, the teacher has become a better knowledge holder to some extent but he / she remained more a knowledge provider than a professional as it were. The exception to this would probably be very few cases where individual initiative has been stronger than the environmental pressures and routine of the teaching at university (handouts, consultation, personal contribution, etc.). The teaching of English and other Foreign Languages in Algeria boiled down to individual initiatives with inadequate teaching material and documentation. University libraries were literally stagnating (no new books or magazines, emptied library shelves, unqualified librarians and personnel, etc.).

For example and within the same Department (that of English in this case), a given module is taught differently from one teacher to another. The teaching staff was fully national and trained locally. The exit profile of the teacher after the 80's was that of someone looking for a full or part-time job to survive financially as unemployment raised extensively as a result of the oil prices sliding down of 1986 in as much as the teachers' salaries had dropped significantly. The teacher became then a job seeker and if he/she was lucky enough he would do some extra hours outside school or university and get paid for them as a trader more than as a professional.

The teacher who used to be a model for the English language and culture did not hold that place of pride anymore. His teaching has become routine work with the same modules being taught over the years without keeping on a par with new theoretical trends or new teaching principles, methods or techniques. This is mainly true for content modules. Even the topics in oral expression, reading comprehension and listening comprehension were the same year in year out. The lack of teaching material, documented literature, teacher training courses, adequate teaching programs etc. did not help to overcome this vacuum where social tensions undermine the teaching itself. Unfortunately, this state of affairs seems to last even today. In fact, the whole question on the teacher's attitude and his motivation towards teaching a foreign language remains open to debate.

The Student's Entry and Exit Profile
Prior to the 80's

The student's profile was that of a Baccalaureate holder with an above average in English and a strong motivation to learn this language and its culture. Socially, the father was a skilled worker living in an urban area. Some of the freshers came from mixed secondary schools (boys and girls in the same classroom). Their motives for English language studies were more *integrative* and *cultural* than *instrumental*. These preferences and motivations for learning English were dictated somehow by the environment in the city (American and English folksongs, films, the British Council, The Afro-American Institute, etc.)

The teaching staff was partly national and partly expatriate (UK, US, Australia, New Zealand, and India). Algeria was then a promising oil and gas producer heading for socio-economic prosperity.

After the 80's

Today's students do not seem to 'worry much' about what or how knowledge in general and learning in particular may help them shape their personality and prepare them for a future integration into a profession. They worry more about an overall average of 10 out of 20 (or an equivalent pass mark or grade) in the exams. The student comes from a mixed urban / rural background. In most cases, the students are weak in English and almost ignorant of the culture of the language they study at university. The motives for a BA in English have become more instrumental than cultural. Attitude and motivation towards the target language (English in this case) have changed substantially in the past twenty years or so. Attitude here refers to the student's general state of apprehension towards the target language and culture. Motivational props at the family and university levels are scarce for the student nowadays. This appears in his basic need in ELT that is to get a degree for a job (rather than teaching as a profession). It is clearly summarised in expressions used among students and produced in the mother tongue. These may be translated as: « I want to *lock* the module» (I want to get a pass mark), «I only need half a point to *close* my module», «I don't think I'll be able to *close* the module this year ».

These sociolinguistic characteristics of the student are closely linked to environmental characteristics for ELT. On the whole, direct contact with the native speaker does not exist. Programs such as «Follow me» and «On we go» that used to be shown on Algerian TV have disappeared from the screen. This may be due to a shortage of supplies in the series. It may also be the result of a dictated language policy. The only contact then, remains through social networks, the satellite TV programs in English and scarcely through written literature available in situ, i.e., in our university libraries and perhaps in some bookshops downtown. Both the TV channels and the book represent a uni-directional contact that is not always very motivating for the student to learn about culture. When the student reaches university, he comes with a cultural background in his own home language (Arabic and Berber in particular), some cultural knowledge in French and a rather poor knowledge of English language and culture. This background knowledge made of a mixture of Arabic (including Berber) culture and French culture constitutes the common layer on which his learning is based.

The Current Situation

As it stands, the quality of L2 instruction is not effective enough to achieve an adequate teaching/learning that not only allows the student to cultivate himself for a better cross-cultural communication but also to preserve his own 'forces propres' and cultural identity. No adequate responsive educational or pedagogical programs have been suggested this far. The BA curriculum dates back to the 1980s (perhaps prior to this date) and no substantial amendments have been made in spite of the drastic changes in the socio-economic picture of the country. The teacher lacks qualified ELT professionalism despite new ELT methodologies and approaches that proliferate in the market. The teaching is often conducted hastily with no suitable teaching material or adequately trained instructors. EFL methodologies and approaches are often made available to the teacher once they are outdated and they most of the time leave him bewildered and intimidated in the performance of his task.

We have this far failed to develop appropriate curricula. As teachers, we still use English as an educational end (i.e., leading to a BA degree). We do not always see it as a means to an end, i.e., a language that opens up ways to global communication and modernity. The question often raised is where does the problem actually lay? Some teachers and course designers see it in the dissimilarity that exists between L1 and L2 which affects language instruction, while they agree that the cultural background (Arabic/French) of the learner may help bridge this gap. Others see the 'cloisonnements universitaires' and the 'malaise social' as the prime factors that hinder the development of a proper English language curriculum where culture understanding and learning should be implemented. Others still blame the student himself whose motivation has become purely instrumental. In any case, they all agree that the lack of internal support (governmental funds) and external material and moral support have a direct impact on the quality of L2 instruction in Algeria. This issue remains open to debate.

Since September 2003 and the amendment of the Educational system in Algeria, together with the Algerian society becoming an affluent and a consumer society and above all with the 'famous' texts of the Réformes de l'Education' (Educational Reforms of 2003), decision makers in Algeria called upon local and foreign experts to implement the Competency Based Approach as a teaching/learning approach and suggest curricula and programs for 'a new vision and new perspectives' for the training and formation of the 'New Algerian Citizen' through Education, Teaching and Learning.

Some Views on the CBLT

We shall not embark here on the various shades and shapes of a Competency Based Approach (CBA). The proliferation of definitions of this fairly new approach to teaching and training pushes us to select what we consider as the most appropriate ones for this study and for the Algerian educational system in particular. We shall thus present some typical European definitions of this approach and then expose one or two anglo-saxon definitions of a 'competency'.

A prime distinction between what we were used to in terms of teaching and learning practices and this new approach is that while a time-based teaching is teacher-oriented (centred) and progression is essentially based on a time unit (teaching/learning schedule or programme), the Competency Based Language Teaching is learner-oriented (centred) and based essentially on progression in terms of the acquisition of specific knowledge and skills[4] to perform tasks. The key concept is obviously the concept of '***Competency***'.

An overall definition of the concept of competency is that it encompasses a 'know-how-to-do' and a 'know-how-to-act' combined together and acted out under specific conditions. However, these two factors have been subject to debate[5] for a long time. Perrenoud (2000) rejects the factor of 'know-how-to-do' as elements of a competency which he defines as:

La compétence n'est pas un état ou une connaissance possédée. Elle ne se réduit ni à un savoir ni à un savoir-faire. Elle n'est pas assimilable à un acquis de formation. Posséder des connaissances ou des capacités ne signifie pas être compétent. On peut connaître des techniques ou des règles de gestion comptable et ne pas savoir les appliquer au moment opportun. On peut connaître le droit commercial et mal rédiger des contrats. (Perrenoud, 2000 : 45)

Perrenoud insists, as it were, on the fact that a competency does not boil down to knowledge per se, nor is it a know-how-to-do on its own. It is rather a manifestation of some skills in particular circumstances and at a particular time.

For a clearer definition, De Ketele (1996) attempts to break out a competency into its basic constituents. He defines as:

... un ensemble ordonné de capacités (activités) qui s'exercent sur des contenus dans une catégorie donnée de situations pour résoudre des problèmes posés par celles-ci.

   (Xavier Roegiers, 1999 : 65)

The key concepts that envelop the general concept of competency, according to De Ketele, are capacités (skills), contenus (contents) and situations (contexts). It stands as an integrating concept in comparison to specific objectives of the former approaches to teaching. It envelops at the same time the contents of the course in terms of acquired knowledge, the activities that are subsequent to this content, and most of all the situations in which these activities are put to work.

Johanne Myre (2000) also spells out what she considers as prime features of a competency. Accordingly, a competency emerges when the following characteristics are observed in the learner's behaviour and actions:

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[4] . A skill is enveloped in a task or tasks that the learner performs within a given competency e.g. interact orally. It usually requires cognitive and motor functions such as performing a form of address in the foreign language with the necessary behaviour and the required greeting forms. It is knowledge- and attitude-based in this case. In the technical field, a skill is easily detected during the manipulation of instruments or equipment, e.g. mantling / dismantling a tool or a machine (a drill, an engine, a fridge, etc.)

[5] . The term 'savoirs' is often used as a blanket term for "knowledge". It was then divided into 'savoir-faire', 'savoir agir' and 'savoir-être'. This in turn was split out into 'savoir-redire' and 'savoir-refaire' that belong more to a skill than to a competency (cf. De Ketele, 1989, in Xavier Roegiers, Une pédagogie de l'intégration, De Boeck, 1999, pp. 55-56

- elle se démontre par des résultats observables;
- elle fait appel à plusieurs habiletés;
- elle a une valeur sur le plan personnel, social ou professionnel;
- elle est associée à la réalisation d'activités que l'on retrouve dans des situations réelles;
- elle permet de mettre à profit des habiletés.

In other words, Myre (2000) argues that a competency is demonstrable in terms of observable facts (performance of the participant – learner / student). It requires various skills, it represents a personal achievement in actual situations and contexts and it helps to make use of the skills of the performer (learner / student).

Gillet (1991) argues along the same lines:

La compétence est un des principes organisateurs de la formation. Elle s'inscrit dans une logique d'organisation de la formation qui supplante la logique d'exposition des contenus. La définition des contenus est imposée par la compétence et non par le développement expositif de la discipline. C'est elle qui est le maître d'œuvre dans la composition d'une formation.

   (P. Gillet 1991: 72)

Gillet stresses on the fact that in terms of teaching programmes, the contents are dictated by the competency(ies) that are going to be installed. This view diverges from the traditional approach in teaching programmes whereby the contents of the course are prior to the skills to be attained by the learner. This is paramount for syllabus designers and text-book writers who must think in advance of what competency (ies) must be installed in the first place before they think of the content of the discipline. This is far from what we used to find in text-books in terms of the lesson followed by some practical exercises and drills to make sure the learner has grasped the content of the lesson. In fact, this approach requires that the learner puts into practice and acts out the knowledge he has received in problem solving tasks.

In the Programme d'Anglais (2ème Langue Etrangère (3ème Année) of the Ministry of Education (2001), a competency is defined in these terms:

La compétence *est un savoir-agir qui intègre et mobilise un ensemble de capacités, d'habiletés et de connaissances utilisées efficacement dans des situations problèmes, circonstances variées qui peuvent ne jamais avoir été rencontrées.*

The Teacher / Learner under the CBLT
The Teacher
The teacher should reconsider his teaching behaviour and procedures, his techniques and motivations in order to create a new environment for himself and his learners under the CBLT. In fact, it is no more a situation where he/she should spend hours teaching a given subject while his learners try to store as much as they can for future evaluation in class. The teaching will be based primarily on putting the learner in several situations and contexts which become increasingly complex as the course develops. The teacher should train his learners to follow procedures which help them carry out tasks to discover new situations. This requires the need to put the learner in authentic and increasingly complex situations. The teacher must check the performance of a task and the knowledge which is necessary for the performance of a particular task. This is mainly true when we, as teachers, ask the learner (who has carried out a task almost to the perfection) the question why he/she used such or such a procedure, or why he/ she started with a given procedure and finished with another. In most cases, the learner would not be able to answer these questions. This is in fact due to his / her meta-knowledge where several processes based on his own experience are put to work and gathered to carry out a task. Basically, the learner acts by using his primary knowledge (knowledge not necessarily acquired in class) with that which he/she learnt in class. He must be led to feel that he has to organize his knowledge to perform a task.

The Learner

The learner can interpret and produce verbal and nonverbal messages of average complexity in English. He can use personal working methods and share it with groups (negotiation, exchange of ideas, etc.). He is equipped with strategies to face problem situation and he has some knowledge of the cultures of the Target Language. He can interact in real situation inside and outside class. He can interpret authentic documents of average complexity with a certain degree of autonomy. He can hold an informal talk in simple and correct English. He can exploit and interpret authentic documents of average complexity and produce oral messages and relatively elaborate writings.

As an exit profile, the learner is supposed to have consolidated pre-required language material with some methodological procedures to perform a task (mémoire, Magister, etc.). He is able to interact in real situations by using transversal competencies on a wider scale (intercultural contacts). He can interpret more complex authentic documents in a rather more autonomous way. He is ready to re-invest acquired knowledge for professional purposes. He is able to act adequately in English with fluency, accuracy and a relative spontaneity.

His motivation increases as the task of problem solving he has been trained to perform can be projected in real life situations. He gets the feeling of giving significance to the task rather than prepare for a test or an exam. During the presentation of a task the learner feels the need to put to work his knowledge and know-how. Knowledge and the know-how the learner acquires during a problem solving task and its realization can in turn be put to work (completely or partially) to carry out other similar tasks or more complex ones. The teacher checks if a given competence is installed as the learner chooses for himself the procedures he knows. The teacher should also check if these procedures are adequate for the performance of the task in question.

We conclude this paper with some steps to follow under the CBLT. These steps are landmarks for discovery, observation, application, reformulation and control. They allow the learner to:
- To observe
- To discover what he is being trained for.
- To analyze a given problem solving task
- To get involved in targeted exercises and activities that are part of his training
- To be evaluated.

One of the primary advantages of CBLT (CBA) is that the focus is on the success of each participant. Watson (1990) states that the competency-based approach "*appears especially useful in training situations where trainees have to attain a small number of specific and job-related competencies*" (page 18). Norton (1987) includes benefits of CBLT and identifies in the following terms:
- Participants will achieve competencies required in the performance of their jobs.
- Participants build confidence as they succeed in mastering specific competencies.
- Participants receive a transcript or list of the competencies they have achieved.
- Training time is used more efficiently and effectively as the trainer is a facilitator of learning as opposed to a provider of information.
- More training time is devoted to working with participants individually or in small groups as opposed to presenting lectures.
- More training time is devoted to evaluating each participant's ability to perform essential job skills.

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THE CONSTRUCTİON OF ASSESSİNG INDİCATORS OF SELF-EVALUATİON CAPACİTY BUİLDİNG THROUGH FUZZY DELPHİ FOR VOCATİONAL HİGH SCHOOLS

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ABSTRACT

The purpose of this study is to construct assessing indicators of self-evaluation capacity building for vocational high schools. School evaluation has been implemented for nearly 10 years in vocational high schools in Taiwan. It is important to improve spontaneity and self-management of schools and discuss the issues of schools implementing self-evaluation. However, it is lack of appropriate indicators to assess self-evaluation capacity building for schools in Taiwan. The study of evaluation capacity building (ECB) is a significant trend in the development of evaluation. It can be the essential theoretical basis for self-evaluation capacity building capacity for schools. In this study, the theoretical basis and literature were explored, and focus group review was conducted to submit the draft of revised self-evaluation capacity building (RECB) for schools, which includes categories, dimensions and 68 indicators. Then, the draft mentioned above was mailed to 20 educational experts and scholars, including scholars in educational administration, committee members of school evaluation, principals, directors and teachers in schools, etc. The assessing indicators of self-evaluation capacity building for schools were constructed through fuzzy Delphi, and then 6 categories, 15 dimensions and 52 indicators were produced.

Keywords: vocational high school, school evaluation, self-evaluation capacity, evaluation indicators, fuzzy Delphi

BACKGROUND AND PURPOSE

12-year compulsory education is being implemented in Taiwan. Because there is no need to pay to enter a vocational high school, the quality and efficiency of schools draw the public's attention. Thus, to effectively keep the educational quality in vocational high schools through applying the concept of educational evaluation in school evaluation is important. Every vocational high school in Taiwan accepted at least twice school evaluation over the past decade. So far, school evaluation is in its third stage, so school self-evaluation can be planned and conducted more proactively. This means that the construction of appropriate indicators to assess self-evaluation capacity building for schools has its importance and reflects the times. According the research (Davies & Rudd, 2001), self-evaluation can bring cultural change, enhance teachers' attention and participation in school affairs, and can help to lead schools' development and change.

Evaluation capacity building is a significant trend in evaluation research development. Over the past decade, evaluators who used ECB to assist non-profit organizations to develop evaluation skills have gradually increased. The construction and verification of appropriate assessing indicators and models of self-evaluation capacity building for schools can provide evaluated schools references to keep growing and developing. And they also emphasize that ways of evaluation improved by all members are vital for school reform project. Nevo (2002) suggested that inner evaluation is an important process for school to self-manage and reflect; thus, it is a necessary and prospective issue for school evaluation research to plan assessing indicators of self-evaluation for vocational high schools, to make evaluated schools continuously set up self-check plans based on the indicators, and to make school members apply the indicators efficiently, construct complete assessing information for schools to develop clear purposes.

Based on the description above, the purpose of this study is to explore the theoretical basis and literature related to self-evaluation capacity building for schools, to submit the preliminary model of revised self-evaluation capacity building for schools, and to construct assessing indicators of self-evaluation capacity building for vocational high schools through fuzzy Delphi.

LITERATURE REVIEW

Evaluation capacity building (ECB) is the intentional work to continuously create and sustain overall organizational processes that make quality evaluation and its uses routine (Stockdill、Baizerman & Compton, 2002). ECB can also promote the continuous development of organizational learning and cultivate the perception of enhancing the rate which represents individuals or groups using results or suggestions of evaluations, that is, ECB can be used to assist in producing expected results (Fetterman、 Kaftarian & Wandersman, 2015).

It was found in literature review that there are 5 important theories of evaluation capacity building which are evaluation capacity building pathway model (ECBP) (Urban、Burgermaster、Archibald & Byrne, 2014), evaluation capacity building measure model (ECBM) (Nielsen、Lemirec & Skov, 2011), evaluation capacity building of multidisciplinary model (ECBMP) (Preskill & Boyle, 2008), integrate model of evaluation capacity building (IECB) (Labin、Duffy、Meyers、Wandersman & Lesesne, 2012), and the expanded IECB model (EIECB) (Labin、 Duffy、 Meyers、 Wandersman & Lesesne, 2012).

The important content of basic evaluation capacity building pathway model (ECBP) and evaluation capacity building measure model (ECBM) are introduced as follows.

The Pathway model was brought by Urban, Burgermaster, Archibald and Byrn (2014). They suggest though experts and scholars keep emphasizing that building evaluation capacity and the quality of evaluation are both important, it is still lack of the tools to identify the high-quality evaluation. Thus, they applied the pathway model and designed the measurement under Systems Evaluation Protocol (SEP), then used it to evaluate the quality of the evaluation plan and the evaluation model. Urban et al. believe the above-mentioned analysis method can integrate paradoxes, that is, when researchers use different methods and produce paradoxical results, the way of integration can be used to find out the differences. The important content of this model is shown below: (1) statement of missions or purposes in the plan: this includes communication of the purpose in the plan, for example, to express the main purpose of the plan; (2) explanation of characteristic in the evaluation plan: for example, statement is a wide-ranging description directed against the plan, not against organization; (3) explanation of execution of the plan: for example, the explanation of the information about target member, the scale of the plan, evaluation process, etc.; (4) explanation of pattern in the plan: for example, the explanation of the information about the pattern of society, culture and equipment in the plan, and all the explanation is the actual situation of the plan; (5) explanation of expected result or goal; and (6) explanation of background of the plan: for example, the explanation of the progress in the development of the plan and/or the reference of proved foundation in related studies. The structure of the pathway model is shown in Figure 1.
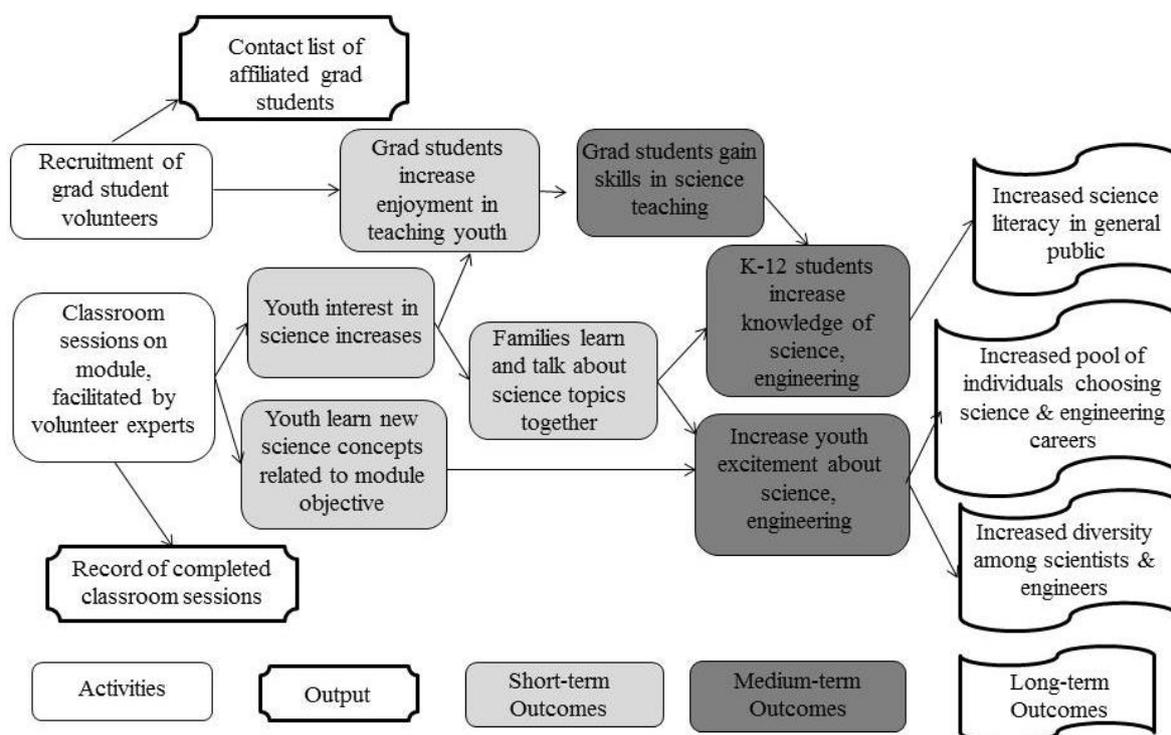
Figure 1: The structure of the pathway model

Nielsen, Lemirec, and Skov (2011) presented Evaluation Capacity Building Measure Model (ECBM). Since then, the Evaluation Capacity Building (ECB) has become a practical model, which attracts scholars' attention, for evaluators in evaluation field. Though there are still different concepts of the consistence of ECB in recent related literature review, this leads different capacity dimensions to be attracted and built. In the early literature discussion, a concept of so-called evaluation capacity (EC) was developed. Then researchers used this concept as a foundation to draw the EC structural model and measure tools. They used "evaluation capacity building measure model" to test the public organization in Denmark, and explore the validity in surface, content, and structure of the model based on the empirical evidence. The structure of the evaluation capacity building measure model is as shown in Figure 2.
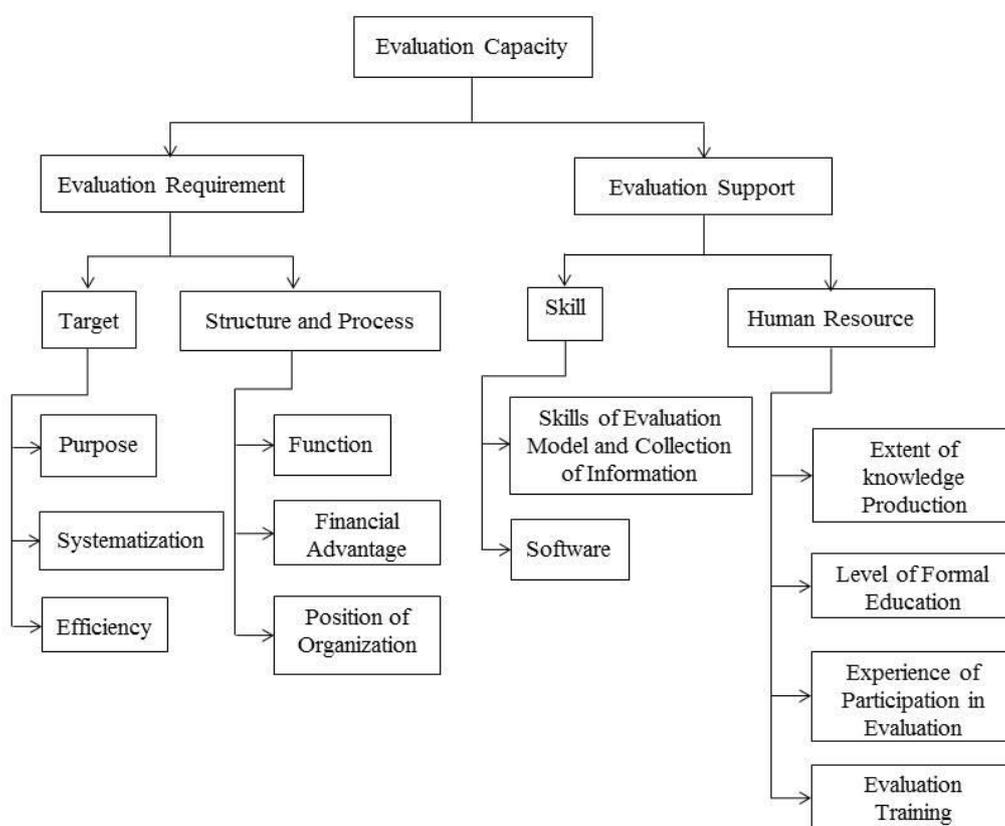
Figure 2: The structure of the evaluation capacity building measure model

About the discussion of the concept of evaluation capacity (EC), Stockdill, Baizerman and Compton (2002) suggested that all the efforts of evaluation capacity building research is worthy, only there is still a lot to be discussed, including conceptualization, introduction, assessment, analysis and writing, etc., and needed to be proved and further studied. the model of self-evaluation capacity building for schools can be divided into variable, category and dimension and is shown in figure 3. The definition of every dimension is also described as below.
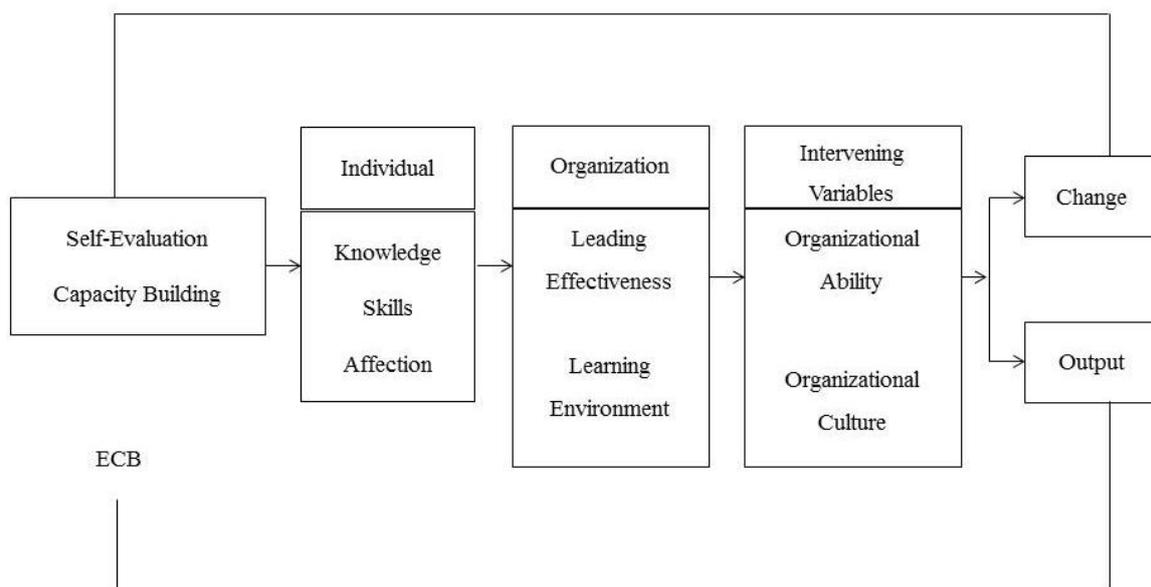
Figure 3: The framework of revised self-evaluation capacity building (RECB)

From the structure of revised model above, the model of self-evaluation capacity building for schools can be divided into categories, dimensions and indicators.

1. Input Variable

    (1)   Individual Factor: Knowledge, skills and affection.

    (2)   Organizational Factor: Leading effectiveness, learning environment and evaluation resource.

2. Intervening Variable

    (1)   Organizational Ability: To improve organizations' abilities and to apply information efficiently.

    (2)   Organizational Culture: Open atmosphere and organizational learning.

3. Output Variable

    (1)   Output: Effectiveness perception, knowledge acquirement and self-evaluation skills.

    (2)   Change: Initiative of evaluation and problem solving.

RESEARCH METHOD

In order to construct assessing indicators of self-evaluation capacity for vocational high schools, the draft of it was sketched out based on literature review, and 90 indicators were produced. Next, focus group interview was conducted, and there were 68 indicators left. Then, fuzzy Delphi method was conducted to gain feedback and suggestion.

The theory of fuzzy Delphi method was first brought up by Murray, Pipino and Gigch (1985) who integrated fuzzy theory and Delphi method. The process of using questionnaire repeatedly lingers out too much time, but by using this method, this defect can be corrected and several experts' opinions can be integrated and make them reach a consensus. However, choosing experts is the key of fuzzy Delphi method. Experts who are in different fields should be interviewed, and they need to have specialties, work experiences or research experiences related to the issue. Thus, 20 experts, including scholars in educational evaluation, educational administration and technical and vocational education, educational administration staff, principals and directors in vocational high school were invited to examine the indicators and establish the fitness of categories, dimensions and indicators of self-evaluation capacity building for schools.

RESULT

Fuzzy Delphi questionnaire was conducted in this study, and there were 9 points in it to assess the fitness of indicators. Point 1 is the lowest and point 9 is the highest. The minimum, the most probable value and maximum should be marked in each indicator. After regaining and integrating 20 experts' feedback, triangular fuzzy number of each indicator was calculated. "L" means the minimum that all the experts agreed, "M" means the geometric mean of the most probable value that all the experts agreed, and "U" means the maximum that all the experts agreed. The triangular fuzzy number and defuzzication analysis of each assessing indicators of evaluation capacity building are shown in table 1, and described as follows.

I.   The triangular fuzzy number analysis of assessing indicators of self-evaluation capacity building for schools

    1.   Input Variable

        (1)   Individual Factor: The minimum (L) of indicators of knowledge, skills and affection is .503-.604, the maximum (U) is .812-873, and the most probable value (M) is .675-.753.

        (2)   Organizational Factor: The minimum (L) of indicators of leading effectiveness, learning environment and evaluation resource is .497-.557, the maximum (U) is .789-.851 and the most probable value (M) is .643-.718.

    2.   Intervening Variable

        (1)   Organizational Ability: The minimum (L) of indicators of improving organizations' abilities and applying information efficiently is .514-.582, the maximum (U) is .794-.849, and the most probable value (M) is .661-.743.

        (2)   Organizational Culture: The minimum (L) of indicators of open atmosphere and organizational learning is .539-.603, the maximum (U) is .799-.867 and the most probable value (M) is .675-.744.

    3.   Output Variable

(1)   Output: The minimum (L) of indicators of effectiveness perception, knowledge acquirement and self-evaluation skills is .492-.597, the maximum (U) is .792-.846, and the most probable value (M) is .659-.732.

(2)   Change: The minimum (L) of indicators of initiative of evaluation and problem solving is .512-.617, the maximum (U) is .779-.856, and the most probable value (M) is .654-.742.

II.   The defuzzication number analysis of assessing indicators of self-evaluation capacity building for schools

After gaining triangular fuzzy numbers, defuzzication, which was brought up by Wang, Lu, Liu, Lin, Kuo (2011), was conducted, and fuzzy Delphi 1.0 package software was used to calculate the right value, left value and total effectiveness value of each indicator. Total effectiveness value represents the consensus value of each indicator.

Quartile was used to sift total effectiveness value in this study. The threshold of Q1 is .61, and any indicator that was lower than it was eliminated. After examined, the indicators number 1-1-4, 1-3-4, 2-1-4, 2-2-2, 2-2-3, 2-3-1, 2-3-2, 2-3-3, 2-3-4, 3-1-5, 5-2-2, 5-3-1, 5-3-2, 5-3-3 and 6-2-4 were lower than the threshold, so they were eliminated. Besides, there were only 1 indicator left in 2-3 "evaluation resource", so the whole dimension was eliminated.

Overall, there were 68 assessing indicators of self-evaluation capacity building for vocational high schools at first. But after 16 indicators (those which didn't achieve the threshold of total effectiveness value and 2-3-5) were eliminated, and 11 indicators in "individual factor", 6 indicators in "organizational factor", 8 indicators in "organizational ability", 9 indicators in "organizational culture", 10 indicators in "output" and 8 indicators in "change" were retained, there were only 52 indicators in total as shown in table 1.

Table 1: Triangular fuzzy number and defuzzication number analysis of assessing indicators of self-evaluation capacity building for vocational high school

Self-Evaluation Capacity Building for Vocational High Schools	Triangular Fuzzy Number			Defuzzication Number			
	L	M	U	Right Value	Left Value	Total Effectiveness Value	Delete or Not
1-1 Individual Factor-Knowledge							
1-1-1	0.542	0.697	0.812	0.728	0.397	0.666	
1-1-2	0.524	0.692	0.814	0.725	0.407	0.659	
1-1-3	0.550	0.693	0.838	0.732	0.394	0.669	
1-1-4	0.503	0.675	0.819	0.716	0.424	0.646	Delete

1-2 Individual Factor-Skills							
1-2-1	0.579	0.714	0.854	0.749	0.371	0.689	
1-2-2	0.567	0.723	0.856	0.756	0.374	0.691	
1-2-3	0.585	0.725	0.867	0.759	0.364	0.698	
1-2-4	0.604	0.753	0.873	0.780	0.344	0.718	
1-2-5	0.575	0.723	0.862	0.757	0.370	0.693	
1-3 Individual Factor-Affection							
1-3-1	0.594	0.743	0.861	0.770	0.353	0.708	
1-3-2	0.541	0.682	0.833	0.724	0.402	0.661	
1-3-3	0.505	0.676	0.828	0.719	0.423	0.648	
1-3-4	0.502	0.661	0.787	0.699	0.430	0.634	Delete
2-1 Organizational Factor-Leading Effectiveness							
2-1-1	0.527	0.705	0.851	0.742	0.402	0.670	
2-1-2	0.557	0.718	0.851	0.751	0.381	0.685	
2-1-3	0.542	0.705	0.836	0.739	0.394	0.673	
2-1-4	0.527	0.653	0.803	0.698	0.420	0.639	Delete
2-1-5	0.542	0.674	0.816	0.715	0.404	0.655	
2-2 Organizational Factor-Learning Environment							
2-2-1	0.497	0.658	0.804	0.702	0.433	0.634	
2-2-2	0.520	0.670	0.806	0.709	0.418	0.646	Delete
2-2-3	0.505	0.652	0.792	0.695	0.432	0.631	Delete
2-2-4	0.511	0.693	0.819	0.727	0.414	0.657	
2-3 Organizational Factor-Evaluation Resource							
2-3-1	0.446	0.663	0.806	0.705	0.455	0.625	Delete
2-3-2	0.456	0.665	0.797	0.704	0.450	0.627	Delete
2-3-3	0.451	0.643	0.790	0.689	0.461	0.614	Delete
2-3-4	0.452	0.650	0.789	0.693	0.457	0.618	Delete
2-3-5	0.530	0.674	0.801	0.711	0.411	0.650	Delete
3-1 Organizational Factor-Improve Organizations' Abilities							
3-1-1	0.586	0.716	0.833	0.746	0.366	0.690	
3-1-2	0.539	0.683	0.810	0.719	0.403	0.658	
3-1-3	0.599	0.743	0.849	0.768	0.351	0.709	
3-1-4	0.565	0.710	0.833	0.742	0.380	0.681	

3-1-5	0.514	0.661	0.794	0.700	0.424	0.638	Delete
3-2 Organizational Factor-Apply Information Affectively							
3--2-1	0.582	0.713	0.833	0.744	0.370	0.687	
3-2-2	0.556	0.692	0.820	0.727	0.391	0.668	
3-2-3	0.561	0.722	0.846	0.753	0.378	0.687	
3-2-4	0.570	0.703	0.844	0.740	0.379	0.680	
4-1 Organizational Culture-Open Atmosphere							
4-1-1	0.598	0.737	0.867	0.767	0.354	0.706	
4-1-2	0.603	0.744	0.867	0.772	0.348	0.712	
4-1-3	0.565	0.711	0.841	0.744	0.379	0.683	
4-1-4	0.539	0.675	0.799	0.711	0.406	0.653	
4-1-5	0.574	0.741	0.856	0.767	0.365	0.701	
4-2 Organizational Culture-Organizational Learning							
4-2-1	0.557	0.701	0.827	0.735	0.387	0.674	
4-2-2	0.559	0.696	0.818	0.729	0.388	0.671	
4-2-3	0.553	0.704	0.822	0.735	0.388	0.674	
4-2-4	0.551	0.698	0.831	0.733	0.392	0.671	
5-1 Output-Effectiveness Perception							
5-1-1	0.589	0.708	0.839	0.742	0.368	0.687	
5-1-2	0.573	0.705	0.831	0.738	0.377	0.681	
5-1-3	0.597	0.732	0.844	0.759	0.355	0.702	
5-1-4	0.583	0.716	0.839	0.747	0.368	0.689	
5-1-5	0.583	0.699	0.820	0.732	0.374	0.679	
5-2 Output-Knowledge Acquirement							
5-2-1	0.533	0.670	0.810	0.710	0.411	0.650	
5-2-2	0.515	0.659	0.792	0.699	0.424	0.638	Delete
5-2-3	0.534	0.674	0.798	0.710	0.409	0.651	
5-2-4	0.585	0.731	0.838	0.757	0.362	0.697	
5-3 Output-Self-Evaluation Skills							
5-3-1	0.492	0.660	0.788	0.698	0.435	0.632	Delete
5-3-2	0.509	0.661	0.797	0.702	0.426	0.638	Delete
5-3-3	0.520	0.655	0.798	0.698	0.423	0.638	Delete
5-3-5	0.551	0.696	0.812	0.728	0.392	0.668	

6-1	Change-Initiative of Evaluation						
6-1-1		0.547	0.672	0.799	0.709	0.403	0.653	
6-1-2		0.531	0.675	0.816	0.715	0.410	0.653	
6-1-3		0.530	0.673	0.803	0.710	0.411	0.650	
6-1-4		0.559	0.691	0.828	0.728	0.390	0.669	
6-2	Change-Problem Solving						
6-2-1		0.617	0.742	0.849	0.767	0.340	0.714	
6-2-2		0.603	0.740	0.856	0.767	0.349	0.709	
6-2-3		0.543	0.670	0.803	0.709	0.410	0.649	
6-2-4		0.512	0.654	0.779	0.692	0.427	0.633	Delete
6-2-5		0.573	0.709	0.841	0.743	0.376	0.684	

CONCLUSION

The purpose of this study is to construct the draft of assessing indicators of self-evaluation capacity building for vocational high school through the information gained from document analysis and focus group interview, and construct assessing indicators of self-evaluation capacity building for vocational high schools through fuzzy Delphi method. It was found in this study that this indicator system can be divided into categories, dimensions, and indicators. The conclusion of this study is as follows.

1. The assessing indicators of self-evaluation capacity building for vocational high school can be divided into 6 categories, which are individual factor, organizational factor, organizational ability, organizational culture, output and change.

2. The assessing indicators of self-evaluation capacity building for vocational high school can be divided into 15 dimensions, which are knowledge, skills, affection, leading effectiveness, learning environment, evaluation resource, improving organizations' abilities, applying information efficiently, effectiveness perception, knowledge acquirement, self-evaluation skills, evaluation initiative and problem solving.

3. There are 52 assessing indicators of self-evaluation capacity building for vocational high schools which are shown in table 1.

Vocational high schools or their administration authority can use indicators above to conduct examination if they want to understand the assessment of self-evaluation capacity building for vocational high schools. Besides, though document analysis, focus group review and fuzzy Delphi method were used in this study to gain the indicators, and the indicators have certain reliability and effectiveness, larger questionnaire investigation still can be used to examine these indicators afterwards. And these indicators can be used to assess the current situation of

self-evaluation capacity building for every vocational high school and to be the reference of establishing policies related to school evaluation.

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THE DEVELOPMENT OF ACTIVITIES ON THE SCIENTIFIC CARICATURES RELATED TO PROVIDE THE AWARENESS ON RECYCLING FOR THE ELEMENTARY SCHOOL STUDENTS

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ABSTRACT

The most important structuring occurs in the years of elementary school in order that the sensitive societies which have awareness on the environment with the training of environment, which turn the awareness to the lifestyle are formed and this awareness is handed to the next generations. It is necessary that the teachers use the method and techniques to attract the students' attention in order that the environmental awareness is gained in the students and the awareness becomes a permanent one. It was aimed in the research to develop the scientific caricatures related to raise the knowledge and awareness about the varieties of domestic solid wastes, their collection, transport, recycling and the products from the recycling for the elementary school students. Three activities were prepared within the scope of research, the pilot scheme was done with 40 elementary school students in total who received their training at the first, second, third and forth grades in the center of a province at Turkey's north in order to determine whether there are the parts which aren't understood in the activities which are prepared or that the students can have difficulty in them. It is expected that the learning by doing and experience occurs as the active participation of students to the process is provided with the use of caricature-thematic activities, which are prepared within the scope of this research, in the process to teach the distinction of domestic solid wastes' varieties and the recycling. The use of visual materials in the learning will develop the individual's creativity as it is important in order that the meaningful learning occurs and those to be learned become permanent.
Keywords: elementary school student, scientific caricature, solid waste, recycling, awareness

INTRODUCTION

The training on environment aims to create an awareness related to the environment and environmental problems in an individual (DPT, 1994), to gain the positive and permanent behaviors to the individuals as affecting their behaviors, and they have an active role to solve the environmental problems (Şimşekli, 2004; Eilam & Trop, 2012). The environmental awareness will be transformed to the next generations as the sensitive societies which have an awareness on the environment with the training of environment, which turn the awareness to the lifestyle. The training which is given in the small ages is very important for the occurrence of positive attitude, perception, behavior and awareness related to the environment (Dewey, 1996). The structuring of values related to the environmental problems occurs especially in the years of elementary and secondary schools. Thus, it is very important that the teachers use the method and techniques to attract the students' attention in order that the environmental awareness is gained in the students and the awareness which is gained becomes permanent.

It is possible with taking the different teaching materials to the classroom that the permanent learnings occur in much more effective way in the modern education - training perception. The learnings occur in much more effective way as the teaching materials address to many sense organs (Fidan, 2008). Especially, the much more effective results of visual teaching materials are gotten in the teaching rather than the other materials. So, the searches which have been done reveal that the use of visual materials in the training makes easy to remember the subjects which are learned as it increases the attention and participation on the course (Akçay, Feyzioğlu & Tüysüz, 2003; Örs, 2007).

It is very important that the applications which give an opportunity for the students to learn by having fun in the education are included. The caricature which is one of the applications is an important educational tool which provides to see but not to look which takes the people to think, which gives an opportunity for the individuals to review the environment in the socio-cultural and economic aspects.

So the educational searchers state that the caricatures is an important tool which is used to raise the students' creativity, the critical thinking (Alaba, 2007), the learning becomes easier in the caricatures which are prepared in consideration with the interest, development level, age, environment, needs and desires of students (Taş, 2013), they affect positively on the students' success and increase the students' motivation (Bayülgen, 2011), they help students to focus on their attention during the learning, to learn in a meaningful and permanent way as having fun (Koçoğlu, 2017). It was aimed with the research which was done in this sense to develop the scientific caricatures related to raise the knowledge and awareness about the varieties of domestic solid wastes, their collection, transport, recycling and the products from the recycling for the elementary school students.

METHOD
The research is a descriptive one, the scientific caricatures were developed about "the domestic solid wastes and the recycling" as one of the important environmental subjects to the elementary school students in the research. As it was paid attention in order that the scientific caricatures which were prepared include the samples of daily life, they were designed in consideration with the opinions of elementary schools' teachers and the students' level, and their last manner was provided as they were drawn by a caricaturist.

A pilot scheme was done with 40 elementary school students in total who received their training at the first, second, third and forth grades in the center of a province at Turkey's north in order to determine whether there are the parts which aren't understood in the activities or the students would have difficulty to draw as three activities were prepared within the scope of research.

FINDINGS
Three activities were prepared with the titles of *"The varieties of domestic solid wastes the separate collection of wastes and the recycling, the collection of domestic solid wastes in the correct boxes and the reinforcement of subject and the transport of domestic solid wastes and the products from the recycling"* within the scope of research. The cards of caricatures were prepared in colorful in order that they get the studemts' attention in the first activity, the drawings in the second and third activities were prepared in a colorless form in order that they can be painted after they are completed by the students.

Activity 1. The varieties of domestic solid waste, separate collection of wastes and recycling
The caricature cards which had 100 domestic solid wastes included the separate collection of wastes the recycling at the first activity which were prepared within the scope of research. The scientific caricature cards which were prepared in order to gain an awareness on the symbol of recycling and the boxes of solid wastes for the students were given at Figure 1.
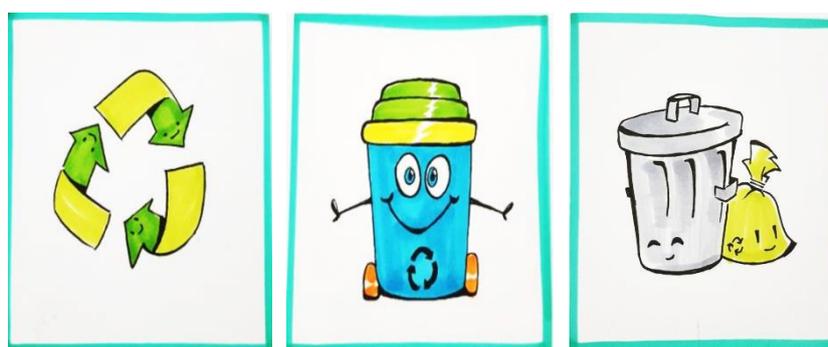
Figure 1. The symbol of recycling and boxes solid wastes

The samples of scientific caricature cards which were prepared on the domestic solid waste varieties were given at Figures 2a, 2b, 2c, 2d, 2e and 2f.
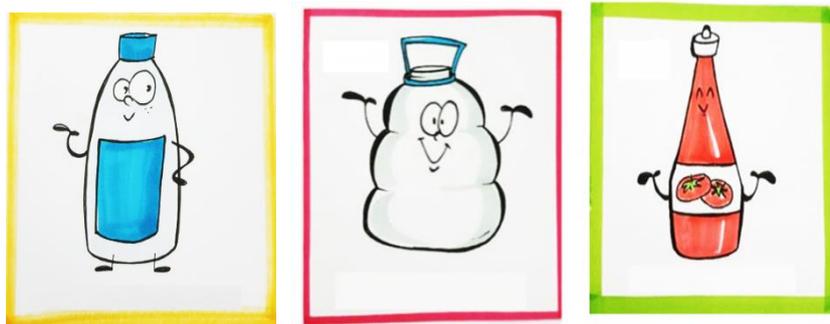
Figure 2a. The varieties of domestic solid waste: plastic

Figure 2b. The varieties of domestic solid waste: paper/carton
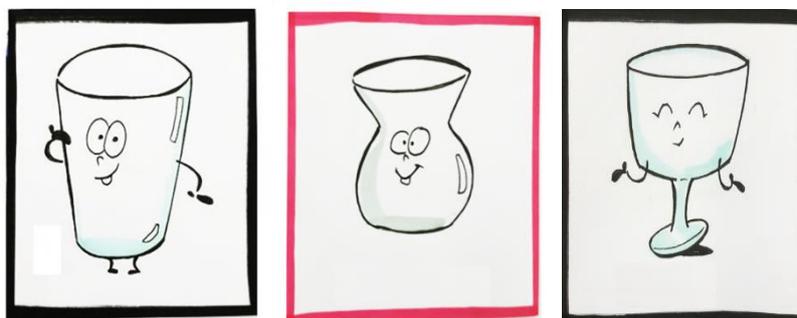
Figure 2c. The varieties of domestic solid waste: glass

Figure 2d. The varieties of domestic solid waste: metal
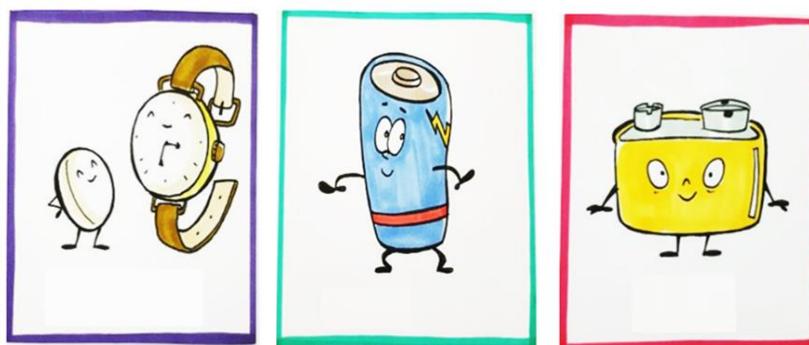
Figure 2e. The varieties of domestic solid waste: waste batteries

Figure 2f. The varieties of domestic solid waste: organic waste

The varieties of wastes in the scientific caricatures which were prepared about the domestic solid wastes were prepared on the base of wastes which would be oftenly seen in the students' daily life. It was aimed to provide with the use of these cards that the students realize the varieties of solid wastes and they recognize those which have the recycling.

The samples for the scientific caricature cards which were prepared to distinguish the varieties of different domestic solid wastes were given at Figure 3.
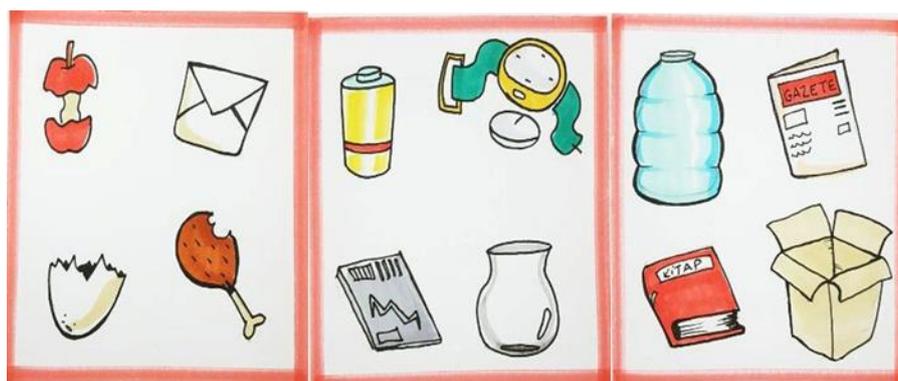
Figure 3. The varieties of domestic solid waste

It was aimed with those scientific caricature cards that the students realize the varieties of domestic solid wastes and they distinguish by the varieties.

The samples for the scientific caricature cards related to the separate collection of domestic solid wastes were given at Figure 4.
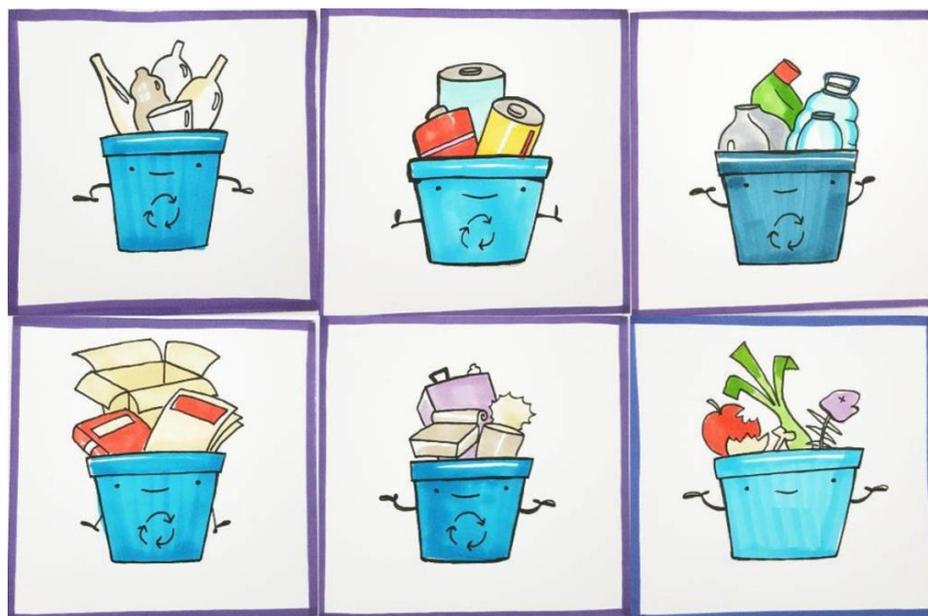
Figure 4. The separate collection of domestic solid wastes

It was aimed with those scientific caricatures that an awareness related to the separate collection of waste batteries and organic wastes occurs in the students with the glass, paper/carton, metal wastes from the domestic solid wastes.

The samples for the scientific caricature cards related to the teaching what the products are gotten from the domestic solid wastes as a results of the recycling.

Figure 5. The products which occur as a result of recycling

It was aimed with the scientific caricature cards that the students realize that paper/carton, glass, plastic and metal wastes turn into the same products but the waste batteries turn into the metal products due to the metal in them.

Activity 2. The collection of domestic solid wastes into the correct boxes and the reinforcement of subject
The caricature cards related to reinforce the collection of 6 domestic solid wastes in the correct boxes were developed at the second activity which was prepared within the scope of research. The samples with plastic paper/carton, glass, metal, waste batteries and organic wastes were included in those cards. The students were asked to determine which expression is necessary in the caricature in consideration with the boxes that the domestic solid wastes are thrown, and to paint the caricature card as completing them, with those scientific caricatures. The samples for those scientific caricature cards were given at Figure 6.
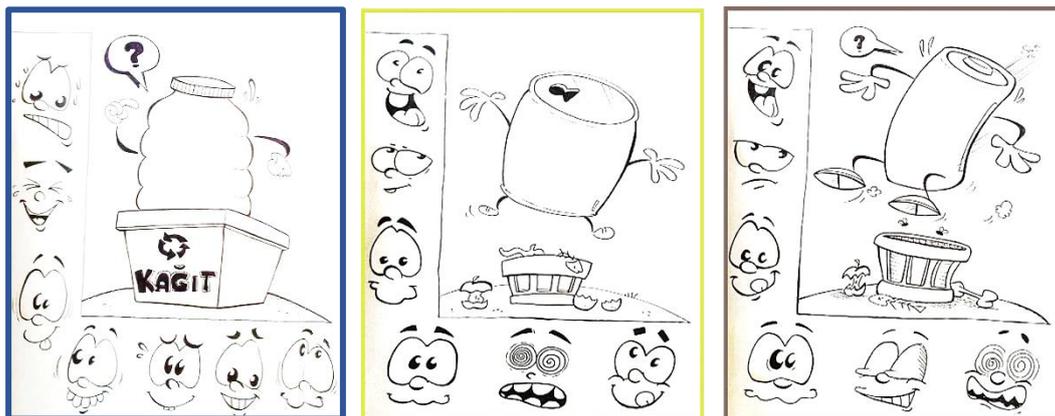
Figure 6. Samples belonging to the collection of domestic solid wastes

It was aimed with those scientific caricature cards to reinforce the collection of domestic solid wastes in the correct boxes for the students.

Activity 3. The transport of domestic solid wastes and the products from the recycling
The caricature cards were developed to get the attention on the transport of 8 domestic solid wastes and on what the new products which occur as a results of the recycling are at the third activity which was prepared within the scope of research. The samples for the scientific caricature cards related to the transport of those collected solid wastes were given at Figure 7.

Figure 7. Transport of solid wastes which are collected

The students were asked to select about which facial expressions will be used for the manner that the waste batteries are in the vehicle of waste batteries recycling, at the first of those scientific caricatures. The goal is to provide that the students realize that the waste batteries are among the type of wastes which would be recycled. They were firstly asked to paint the recyclable wastes in the recycling vehicle and to find the wastes which are unnecessary in the recycling vehicle, in the second scientific caricature. They were asked to state which wastes at the bottom of page and in a caricatured form should be in the recycling vehicle and to paint the solid wastes which should be in the vehicle. It was aimed with this activity that an awareness is createcreated in the students d to transport the organic wastes and the other recyclable solid wastes separately.

The samples for the scientific caricature cards related to reinforce which products are gotten from the solid wastes as a result of recycling were given at Figure 8.

Figure 8. Reinforcement of products which occur from recycling

The students were asked to paint which product is gotten as a result of the recycling of paper/carton, glass, plastic, metal and waste batteries with those scientific caricatures. It was aimed to provide with the activity that the students realize that paper/carton, glass, plastic and metal solid wastes will turn into the same products but the waste batteries will turn into the metal products as a result of the recycling.

CONCLUSION

It was aimed as a result of the research that the learning by doing and experience occurs as the active participation of students to the process is provided with the use of scientific caricature-thematic activities, which were prepared, in the process of teaching the discrimination of domestic solid wastes and the recycling for the elementary school students. As the use of visual materials in learning will develop the individual's creativity, it is important in the event that the meaningful learning occurs and those which are learned become the permanent ones. In this sense, it is considered that the application of scientific caricature-thematic activities will make the value more explicit that is demanded to gain for the students to transfer the environmental awareness and the value of being sensitive to the environment.

When the literature is reviewed, Kılınç (2008) states in his study that the scientific caricatures have an impact positively on the students' success, their attitudes related to the biology lesson and their motivation in the biology lesson. Similarly, it is seen that Üstün (2007) got the result in his study that the academic success increases with the caricatures. Rule and Auge (2005) and Curran (1973) state that the caricatures have an impact to facilitate the subject in the learning process. Moreover, Rule, Sallis and Donaldson (2008) state in their study that the teaching candidates learn much more information with the caricatures and they are motivating. It was determined that the caricature-supportive teaching is more effective than the traditional teaching, in the searches which were done in the subjects of respiratory system (Kılınç & Salman, 2006), environment (Özalp, 2006; Oluk, Özalp & Sarıkaya, 2005; Sezek, Özay Köse & Kaya, 2013), immune system (Özay Köse, 2008), electric (Taş, 2013) and in the teaching of biology (Kaya, Özay Köse & Konu, 2016). All of these results reveal that the scientific caricatures are the important and effective teaching tools. In this sense, it is considered that the scientific caricatures, the development of scientific caricature activities, their application and the review of these activities' impact on the teaching are very important in the each grades of education and the different disciplines.

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THE DEVELOPMENT OF INTERACTİVE MULTİMEDİA LEARNİNG PYRAMİD AND PRİSM FOR JUNİOR HİGH SCHOOL USİNG MACROMEDİA AUTHORWARE

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ABSTRACT

Limited access to information due to the unavailability of internet connection in remote areas of Indonesia, especially in South Kalimantan, causes low mathematics achievement of students in junior high school, so still, require offline packages of learning such as interactive multimedia learning, therefore this study aims to develop interactive multimedia learning of pyramid and prism. The research was applied Luther (1994) method that consists of six steps: concept, design, collecting material, assembly, testing, and distribution, and for the development was using Macromedia Authorware. The result is an interactive multimedia learning pyramid and prism with following the description of the steps of developments.

Keywords: interactive multimedia pyramid and prism, mathematics achievement.

INTRODUCTION

The current globalization era, the development of science and technology is growing rapidly which effects of the progress or the decline of a nation. The progress can be realized in life if human resources having the ability of science and technology in any various fields. Therefore, various ways related to the improvement of the quality of human resources, especially through education. Education can be interpreted as a process of training and teaching for individuals to achieve knowledge, understanding, skills development and behavioral ways that suit their needs. Moreover, education also is a very important factor in improving human quality.

Various efforts have been made by education managers to develop education in order to improve student learning achievement by optimizing the available educational resources. One of the goals of today's education is to provide stock so that we can function effectively in this era of technology.

Mathematics as the science underlying the development of modern technology has an important role in various disciplines and advances the human mind. In fact, mathematics is indeed considered the most difficult lesson for both children and adults (Reynolds, 2008). In Indonesia, this can be seen from the survey that conducted by Trends in International Mathematics and Science Study and by Organization for Economic Co-operation and Development by using PISA instrument, showed that the achievement of Indonesian student on mathematics are still low with ranking 45 and 69 from 55 and 65 countries (Mullis et al., 2015; OECD, 2017).

The successful of mathematics learning process during this time is still experiencing many obstacles because of the dominance of teachers in learning is still high, the lack of use of media and props (Fitriah,

2011). In the delivery of learning, teachers pay less attention to the use of learning media to help students understand the concept of mathematics (Anggraeni, 2012).

Mathematics consists of four aspects: algebra, arithmetic, geometry, and analysis. Geometry has been taught since elementary school, but it turns out students' ability in solving three-dimensional problems are still low (Fitriana, 2010). In fact, this material is very important to learn the next material on a higher level of education.

In the three-dimensional learning process, teachers typically use three-dimensional learning media that has been provided in schools such as props pyramid and prism made of wood or other concrete objects. However, not many teachers utilize existing technology in delivering learning materials whereas today's technology has contributed greatly to providing educational media in education.

Information and Communication Technology (ICT) has spread to almost every aspect including the world of education (Neo & Neo, 2014). One technology that developed in the world of education is multimedia technology which has a very important role in the learning process (Mumpuni, 2013). It is expected that multimedia can bring a positive impact on classroom learning that can bring learning into an active, fun and effective and can overcome the problems that we have often encountered in the world of education, especially mathematics subjects.

Multimedia is a way to produce and deliver learning materials by combining several types of computer-controlled media where the interactive multimedia program is one of computer-based learning media that combines and synergizes all media consisting of text, graphics, photos, videos, animations, music, narration and interactivity programmed by theory and principles of learning (Warsita, 2008).

One of the computer programs that support for making interactive multimedia learning is Macromedia Authorware. Macromedia Authorware is a multimedia software that integrates with global network internet with graphical display sound, digital movie, video and interaction buttons that can generate its own attraction (Adjarriawan, 2011). Limited access to information due to the unavailability of internet connection in remote areas of Indonesia, especially in South Kalimantan and regarding to the background, it is important for researchers to contribute in providing an interactive multimedia learning, especially for the pyramid and prism material which created by using Macromedia Authorware.

LITERATURE REVIEW

Multimedia Learning

Multimedia learning is a multimedia application used in the learning process, in other words, to channel the message (knowledge, skills, and attitudes) and can stimulate thoughts, feelings, attention and willingness to learn so intentionally the learning process occurs, aimed and controlled (Ariani & Haryanto, 2010). While the interactive multimedia is a multimedia display designed by the designer so that it can meet the function of informing the message and has interactivity to its users (Munir, 2012).

Multimedia interactive learning has its own characteristics such as having more than one convergent media (can combine audio and visual elements), interactive, has the ability to accommodate user responses, is self-contained, provides convenience and completeness of the content so that users can use without the guidance of others. In addition, interactive multimedia learning should meet the following functions: be able to strengthen user response as quickly and often as possible; able to provide opportunities for learners to control their own pace of learning; notice that learners follow a coherent and controlled sequence; and able to provide opportunities for participation of users in the form of responses, either in the form of answers, selection, decisions, experiments, and others. The interactive multimedia learning capabilities of interactive multimedia have several capabilities not shared by other media; multimedia provides an interactive process and provides ease of feedback, giving multimedia freedom to learners in determining the topic of the learning process, giving multimedia ease of systematic control in the learning process (Lee, 1999).

The benefits that can be gained from the interactive multimedia learning is the learning process is clearly more interesting, more interactive, the amount of teaching time (lectures) can be reduced, the quality of student learning can be more motivated and boosted and learning can be done anywhere and anytime (very flexible), as well as student attitudes and attention can be improved and centered (Ariani & Haryanto, 2010).

Text Design and Multimedia Learning Layout
The text is a learning multimedia component that is very important in delivering a learning message. For that the use of text in the development of multimedia applications need to pay attention to the way or technique that is the use of concise but solid text, use the appropriate typeface and font, make sure the text can be read, the selection of writing style and text color and the selection of fonts and concepts consistently (Munir, 2012).

Some considerations of text design in multimedia view, among others (Marzuki, 2009):
a. Consider formatting, a text designed for easy reading.
b. Text design is a visual hierarchy; people tend to read the largest element, then the smallest.
c. The text arrangement should improve readability.
d. All factors of letter spacing, word spacing, and line spacing are easy to read, communicative and expressive.
e. Consider using letters, use original characters, and think about positive/negative spaces.
f. When mixing the text surface, it must be ethnically adapted to the message, contrast, weight, scale and visual hierarchy.
g. Avoid anything new or decorative typeface.

Munir (2012) explains that to create text in the development of multimedia products there are several ways that can be used include:
a. Be careful in choosing the appropriate font type so that the display on the computer screen is not hard to read.
b. Use of large number faces of font type on one screen should be minimized.
c. Spacing the characters, lines, and spacing between text and text with other objects such as images.
d. Use text of any size, type, thickness, and so on to deliver messages to attract more users and should use larger text and bold fonts.
e. Use white text if the background is black or dark and avoid using the same color or color mix that resembles the background color.

In addition to text, another thing to note is the layout (layout) multimedia. Layout (layout) is the placement of text, images, audio, video, and animation as a multimedia display of learning (Marzuki, 2009). The placement of multimedia elements greatly affects messages or information visualized because of improper placements the impression is unattractive; otherwise, the perfect placement will give the impression that multimedia display is interesting (Marzuki, 2009).

Implementation of all layers visualized with the same concept (not exactly execution), in the design of visual communication this is called unity, which uses the audio and visual language harmonious, intact and matching so that the teaching materials are perceived as intact (Marzuki, 2009). To help the execution of layout can be made grid system, that is division of field according to ergonomic element functions, for example laying of navigation adjusted with mean of command of navigation, navigation 'next' placed on the right and 'back' placed on the left and so forth (Marzuki, 2009).

Preparation of the text is consistently left, right, or symmetrical depending on the desired concept, but the left flat layout tends to give the impression of informal and flowing, left-right average more formal and rigid impression, and symmetrical memorable very formal and the layout is made more for the purpose of adding value to ite communicative aspects of multimedia learning, not for beauty alone (Marzuki, 2009).

As a first step, you should create a simple layout, so that visualization is not complicated to reduce noise on the clarity of the content of teaching materials and also intended for the subject matter easy to remember

and the layout is expected to meet the aesthetic rules, among others: the composition is maintained and produces rhythm, balance, and controlled harmony. Keeping the simplicity can be done by choosing the right graphics layout, minimal and matching according to the character of information and pay attention to the closeness of the layout to the characters/habits of the target or the tastes of students who are in most of the young dynamic spirited and in preparing the layout of the multimedia display of learning need to consider the principles of balance, contrast, harmony, proximity, and repetition (Marzuki, 2009).

Macromedia Authorware

Authorware is multimedia software that integrates with global internet network with graphical display of sound, digital movie, video and interaction buttons that can generate its own attraction (Adjarriawan, 2011). Authorware is used to create interactive programs that integrate various multimedia content (Wikipedia, 2012). Currently, Authorware 7.0 has two choices of programming languages namely Authorware programming languages and JavaScript language version 1.5. The use of icons and the flow line under which Authorware is operated makes it easy to create interesting tutorial applications. The use of a flow line differentiates Authorware from other authoring programs, such as Adobe Flash and Adobe Director that rely on visual timelines and action scripts

RESEARCH METHODOLOGY

This research was applying Luther (1994) method which then modified by Sutopo (2009) into six stages: concept, design, collecting material, assembly, testing, and distribution as explained below:

1) *Concept*

Stage of concept making is the initial stage in making multimedia-based learning media. What is done in this concept stage is the determination of the purpose of the use of instructional media, determining who can use this learning media and analyze the extent to which the material will be applied in this multimedia learning.

2) *Design*

In the design stage, is to specify in detail about the structure of media, style, and material needed. In this design phase begins by arranging the order of presentation and arranging the flow of learning flowchart. This is done in order to make multimedia learning more focused.

The steps of design include: writing the script material that will be made as a multimedia learning, composing the contents of the outline in the media learning, storyboard making, arranging the flow of learning in the form of a flowchart, and the design of learning media layout. The design of media layout done with the help of some image editor such as Adobe Photoshop 7.0 and Paint.

3) *Material collecting*

This stage is the stage of collecting materials and also the advanced stage of the design stage. The sequence in the process of collecting materials includes the collection of materials needed for multimedia learning such as animation, music, video, and images. For animation and video creation, researchers use some supporting software such as Macromedia Flash MX, Macromedia Flash 8, Swish Max 4.0, Adobe Flash CS4, and Anim FX and development of test questions (Competency Test) which further compilation of test instruments pay attention to several things, referring to education unit level curriculum, assessments viewed from the cognitive aspect, the items are multiple choice items.

4) *Assembly*

Assembly is the stage where all multimedia objects are created or inserted into each frame called screen mapping. The steps taken in the manufacture of the media begin by integrating all the material that has been made into the layout according to the storyboard and transfer all the components that have been made into the screen mapping by using flow line on the Macromedia Authorware program.

5) *Testing*

Stage testing is done by running the application for errors tracer for application improvement (Sutopo, 2009). In this study, testing is done by using black box testing for testing some functions that were wrong or missing, interface design, or other performance errors.

Black box testing is to see whether all the device functions are running properly according to the defined functional requirements (Pressman & Maxim, 2014). Black box testing is done to 2 teachers of mathematics subjects and 72 students of grade VIII of Madrasah Tsanawiyah Hidayatullah Banjarmasin South Kalimantan Indonesia. Black box testing focuses on Interactive Learning Multimedia error searching. Black box testing performed on testing system functionality including buttons, interface design, animation and material that is displayed is in accordance with the standard GUI (Graphical User Interface) that allows users to interact with the computer. If all the buttons on the Interactive Learning Multimedia being tested can run as expected then this interactive multimedia learning can be said to fulfill the GUI.

Distribution

In the Luther method, this stage is the stage of distribution or stage of program sales. However, in the Luther-Sutopo method (Sutopo, 2009), this stage is modified into a multimedia distribution or packing stage into a storage medium. In this research, storage media is CD.

Multimedia packaging is done after this interactive multimedia learning is published in the form of .exe for subsequent burning into CD.

RESULTS AND DISCUSSION

Developing interactive multimedia learning of pyramid and prism material for VIII grade the 2nd grade of Junior high school is done with multimedia development procedure. The design of this research is done through six stages: the concept of concept, design, collecting material, assembly, testing, and distribution (Luther, 1994).

The researcher's concepts include determining the purpose of using instructional media, determining the objectives in making instructional media, analyzing the extent to which the material will be applied, and determining the competence standard, basic competence and the material indicator that will be applied in this learning multimedia. From the results of material analysis obtained two sub-materials that will be delivered in this interactive learning multimedia that is pyramid and prism. Each sub-material is divided into 4 parts namely understanding, painting, surface area, and volume.

The results of research on the design of interactive multimedia learning include narrative script, storyboard, flowchart and layout of learning media. Based on the script written then this interactive learning CD is divided into three parts, namely:

    The initial (preliminary) section consists of intros and preliminary menus.

    The core consists of several parts of the menu are figures, menu materials, competency test menu, glossary menu, and menu list of libraries, and profiles of researchers.

    The cover contains an exit menu. As for designing layout of this interactive learning CD, the researcher uses adobe Photoshop 7.0 software. This application is used for processing images that will be imported into Macromedia Authorware to be used as background, buttons, and text that will be used in this learning CD also made using adobe Photoshop. Here are the layout design results:
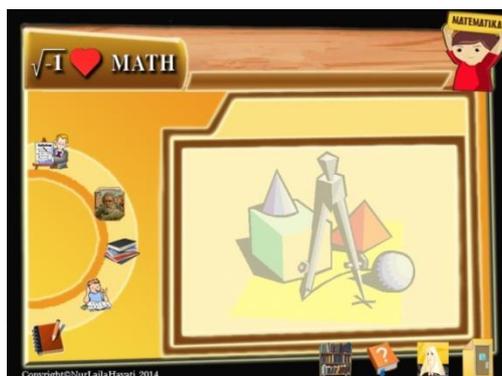
Capture 1. Background Main Page
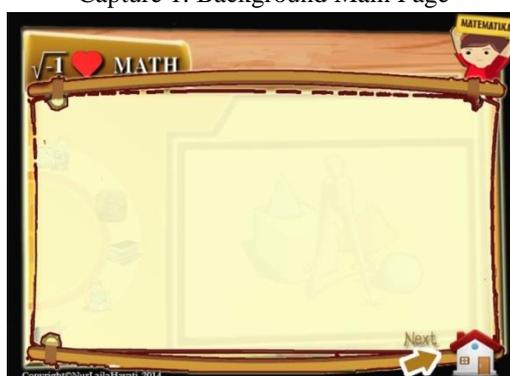
Capture 2. Design of information on interactive multimedia learning CD package
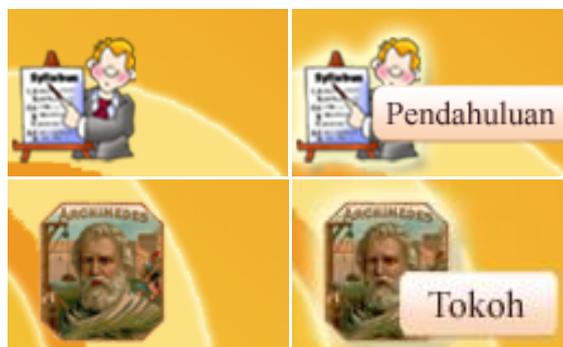
Capture 3. Samples of buttons and their response

At the collecting material stage, the collection of video, animation, instrumental music and the results of the development of test instruments that have been tested and then will be applied to interactive multimedia learning.

A testing instrument that tested there is two packages questions that are a package of questions A and a packages questions B, each package consisting of 30 multiple choice questions which then analyzed the validity, reliability, difficulty level, and discrimination.

At the assembly stage, media creation is done gradually. Making learning media applications based on the storyboard, flowchart view, navigation structure or object diagram comes from the design stage. These interactive learning multimedia is created using Macromedia Authorware 7.0 as the main software. Making interactive multimedia learning in Macromedia Authorware 7.0 using a flow line system that can facilitate the process of importing animations, music, videos, exercise questions, navigation systems and so forth into the work area Macromedia Authorware 7.0.

Macromedia Authorware 7.0 also can not be separated from the programming language used to run program commands. The existing programming languages in Macromedia Authorware 7.0 are Authorware and JavaScript. In this case, researchers use an Authorware language that can facilitate the creation of programming commands. A programming language is used when making the contents of the menu "competency test" in which there is a process of giving time to do problems and the process of scoring and used on the menu "out" to give commands to the program to end the interactive multimedia learning applications.

Each page in this interactive multimedia learning consists of title text animation, text animation and provided a navigation button that links one page to other pages like next to next page, back to page previous and buttons to the main page.

Black box testing results performed on testing system functionality including interface design, animation, and material that is displayed is in accordance with the standard graphical user interface (GUI) so as to facilitate the user in interacting with the computer.

Based on the results of black box testing, it can be concluded that the standard GUI all the buttons can function in accordance with the order that has been designed.

After testing, the next process is to save the file in the form *.exe then packaged in the form of CD learning that is run by using CD-ROM. Here is the label design and cover CD-ROM.

Capture 4. Label and cover design of interactive multimedia learning CD package

In general, developed multimedia focuses on the activities of students in using it; therefore this learning media contains problems related to pyramid and prism material. For that, interactive multimedia learning is ready for use by teachers and students.

Before students or teachers using this interactive multimedia learning CD, at the first they have to know the computer specifications that support to run this program and how to use it. This application has a capacity of 98.3 MB and the minimum requirement to run this interactive CD is Intel Pentium II or more computers with 32 MB memory, 120 MB free hard drive capacity, Windows operating system, 800x600 resolution (SVGA) and a CD ROM drive.

This interactive multimedia learning CD is very easy to use because the program comes with a help menu and instructions that appear each time the cursor is directed to a button that is either icon or text. To enter into this interactive learning multimedia program, simply select this program insert the CD ROM folder, then press enter or double-click.

Conclusion and Recommendation

Making interactive multimedia learning using Macromedia Authorware on pyramid and prism material is done in six stages: concept, design, collecting material, assembly, testing, and distribution. In the concept stage, the objective is determined that this research produces an interactive multimedia learning product in the form of learning CD prism and pyramid of class VIII which can be used by teachers and students as learning media of pyramid and prism.

In the design stage, the results obtained are manuscript produced in the form of analysis of pyramid and prism material, storyboard produced in the form of detailed explanation for each interactive multimedia learning view, the flowchart in the form of the whole learning path in instructional media, and interactive

multimedia learning layout design. In the material collecting stage, the results obtained are collecting materials of pyramid and prism which will be displayed in the media in the form of animation, image, video, and music. While at the stage of assembly, all the materials that have been collected processed using Macromedia Authorware program and media results include nine main menus that are The preliminary menu, character, material, competency test, glossary, bibliography, help, profile, and exit.

At the testing, the stage is done by black box method stating that all the buttons can function in accordance with the order that has been designed. The distribution stage is done by packaging process of interactive multimedia learning of pyramid and prism into the form of learning CD.

In the next research is expected to develop an integrated interactive multimedia learning with the model and equipped with games that match the material being taught. Multimedia interactive learning is basically an early development, to furthermore is expected to be tested to the user (student or teacher) to obtain an input to improve the interactive multimedia learning.

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THE DYNAMICS OF MOBILE LEARNING UTILIZATION İN VOCATIONAL EDUCATION: FRAME MODEL PERSPECTIVE REVIEW

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ABSTRACT

This study aimed to describe the dynamics of content aspects, user aspects and social aspects of mobile learning utilization (m-learning) in vocational education from the FRAME Model perspective review. This study was quantitative descriptive research. The population in this study was teachers and students of state vocational school and private school in Makassar, Indonesia. Samples of the study were 103 teachers and 320 students, determined by a proportional random sampling technique. Data collection techniques were questionnaires. Data analysis uses descriptive analysis techniques. The results showed that the available content on the internet and accessed by teachers were relevant to the major, whereas students stated them relevantly less to their majors, so the value and substance of the utilization of m-learning content were still less relevant. The user aspect showed that teachers and students utilized mobile devices for vocational learning purposes, so the value and substance of m-learning could be still maintained. The social aspect showed that teachers and students expressed socio-cultural support influenced the utilization of m-learning, so that the value and substance of m-learning in vocational education could be continually maintained. So the value and substance of m-learning in these three aspects could be maintained and improved, this study showed alternative model of utilization and development of m-learning that were appropriate for vocational education.

THE EDUCATİONAL QUALİFİCATİON OF SOCİAL MEDİA: A SEARCH FOR A NEW PUBLİC SPHERE*

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ABSTRACT

The concept of "New Media" is a concept that was introduced by social, psychological, economic political and cultural researchers in the field of information and communication based research approximately four decades ago (in the 1970s). However, the meaning of the concept changed and developed in the 1990's with the momentum of the digital age and Internet technologies. By the 2000's, with the establishment of social media platforms, it was observed that interpersonal communication was conducted on this indispensable new medium.

Although the communication throughout Social Media platforms is primarily based on entertainment, some communal and global issues are debated on these platforms as well. This characteristic of the Social Media is discussed as it could be regarded as the current rendition of Habermas's "Public Sphere" (öffentlichkeit), which enabled the bourgeoisie to participate in the process of discussing social issues and making various decisions which were influential in the formation of the laws regulating social life. It is thought that it cannot be interpreted easily and this has caused controversy. The debate over whether the Social Media can be treated as the new Public Sphere is the focus of this current study. The study will debate whether it will be effective in creating important socio-global outcomes, participation and the global educational debate.

Keywords: Social Media, Habermas's Public Sphere, Society Involvement-Global Involvement.

INTRODUCTION

The continually developing mass-media makes individuals technologically able to gather local and international information much faster and facilitates the process of expressing their thoughts. With the rise of the Internet in particular, the debate over whether its usage is positive, such as for gathering data, expressing thoughts, performing useful discussions on local and international issues, or whether it is negative, by transforming the society to *a society of the spectacle*, enabling illegal access to individuals' private data and lives, causing unrest in nations, disrupting or even removing states' authority, has been extensively discussed. The positive argument regarding the usage of the Social Media - the media taking an important place in the Internet - has led to comparisons between the Social Media and Habermas's bourgeois Public Sphere.

GENERAL INFORMATION
Methodology

In the study, the Social Media is compared and contrasted with Habermas's bourgeois Public Sphere. It will be examined whether it is effective in creating social-global impacts through providing nationwide or even global informative discussions.

The scope of the study is drawn within the framework of the Social Media and the Public Sphere Theory of Habermas. Firstly, the Public Sphere Theory of Habermas and secondly the New Media - the Social Media - are explained. Subsequently, the two concepts are compared and contrasted to determine the possibility of interpreting the latter as the new Public Sphere.

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* The study is developed from the paper introduced at the International Educational Technology Conference (IETC 2017) held in the Harvard University Campus, USA in 16-18.08.2017 by the authors.

The data gathered about the two concepts is examined through content analysis and their commonalities and differences are viewed through comparative analysis.

Öffentlichkeit (Habermas' Public Sphere)

"Öffentlichkeit", meaning *"Public Sphere"* in English, is a term that has been used throughout history, and the meaning has transformed over time. The word means *the public*, *something concerning the public*, and *common* in German. However, the book, *Strukturwandel der Öffentlichkeit*, written by J. Habermas in 1962, was translated to English as *The Structural Transformation of the Public Sphere*. Thus, *öffentlichkeit* acquired the meaning of *public sphere*. Differing from its German meaning, its English translation includes the meanings referring to spatial, physical, and topographic elements. However, in the original theory, the word carries a meaning beyond spatial logic, as it is described by Habermas as a general sphere not as a physical arena (Falay, 2014: 52).

In his study, he follows the meaning and its changing uses of the concept in Western society, starting from its meaning in everyday language to the second half of the 19th century when he draws the framework of the theory of *the ideal public sphere*. According to Habermas, *the ideal public sphere* is the *bourgeois Public Sphere,* which materialised under specific sociological circumstances at the end of the 17th century (Köroğlu & Köroğlu, 2013: 915).

Before describing the *ideal public sphere*, he refers to the three public spheres based on different historical periods. The first one arose in the middle-ages; however its foundation was based on an administrator or a landlord, not on the public itself, and therefore it is a representative and it is not related with the latter two spheres. The first one represents the authority, it has the masses in front of it, and such a representation occurs in front of the public, although it does not actually include the public. The second sphere is *the literary public,* which occurred after the Middle Ages and the last one is the political or *bourgeois Public Sphere,* whose intellectual accumulation came from *the literary public* (Köroğlu & Köroğlu, 2013: 915).

It is possible to discuss the two major developments in the rise of Habermas's *bourgeois Public Sphere* (Melton, 2011: 15-16; Falay, 2014: 53).

- With the formation of the modern nation states at the end of the 16th century, *the concept of society* appeared as a separate concept of *the state*. *The state* is interpreted as *the public power (policy maker),* while *the society* represents *the private interest and activity's sphere*. In particular, during the absolutistic regimes of the 17-18th centuries, phenomena like *monarch* and *special subject to the monarch* empowered this division between the two and this division formed the primitive style of what Habermas called *the public sphere*.

- On the other hand, with Capitalism, the relationship between *the state* and *the society* was almost terminated and with the acceleration of the circulation of materials increasing with the development of national and international markets, the communication net also improved. In particular, it was in the 19th century when the *public* and *private* spheres were distinguished from each other.

In the Middle Ages, the homes of the nobility were not only the centre of control/domination, but were also the centre of production which was later assumed by the free market; thus the concept of home gained the meaning of something that was more private. However, the importance of home gained another dimension as private property provided families with privacy; nevertheless, such privacy caused those who were not members of the family to be excluded, which contradicted the concept of *being open to all* according to *the bourgeois Public Sphere* (Falay, 2014: 53-54). In the Middle Ages, with the advent of the *home as the space of privacy*, the concept of *street* also gained a different quality. The street assumed a quality that was out of the private space and without which, socialising would be considered impossible.

Habermas argued that the *public street* as well as coffee shops, salons and clubs were the centres which were independent of the state, in which opposite views to the state were formed in the 18th century. Here, *the public sphere* defines a structure which is formed by the individuals themselves (Habermas, 2002: 63), not by *the will* formed in the representative public structure (Habermas, 2002: 80). The *bourgeois* first came together to discuss literature in this private sphere and then they began to use it as an independent sphere of the state and economy, where political issues were debated and opposite views to policies were expressed.

His understanding of the Public Sphere bears some specific basic criteria:

1. Ignoring the social statuses

Rank/positions are replaced with equality. *Power and dignity* gained through *public positions* and *financial dependencies* lose their importance in this context.

2. Questioning those issues that were not discussed previously.

Individuals have easier access to materialised cultural productions due to the effect of Capitalism, which gives the opportunity for them to be discussed commonly.

3. The Public Sphere must be open to all citizens.

The essence is to include everyone in the discussion of societal issues. If discussions are held only by a limited group of people, then the public sphere can no longer be considered public.

He argued that such a sphere should fundamentally assume the systematic and critical role of controlling the policies of the public authority.

The New Media and the Social Media

The concept of New Media was introduced to information and communication based studies by researchers studying social, psychological, economic, political, and cultural phenomena over 40 years ago. Nonetheless, the meaning of the concept has evolved and expanded with the advent of the digital age and Internet technology, which accelerated in the 1990s. It has been observed among New Media that social sharing sites like Facebook and Twitter have been established in a short period of time and they are reaching an ever increasing number of users (Avşar & Öngören, 2010: 13; Dolunay & Kasap, 2017, 535).

Social Media has transformed into a tool for creating media content, discussing views, and sharing many things mutually. It has already become a space that covers different areas of life and determines the life styles of people.

Today, it is undeniably a medium which is able to combine all forms of communication media under one structure, providing people with the opportunity to socialise and communicate. People can easily share their views and thoughts with each other. Before the New Media, the sharing of views face-to-face was only possible in a limited physical environment or with the assistance of the printed and visual media. However, everyone is now capable of sharing with the larger masses with the advent of the New Media. Individuals in separate geographical locations can connect through virtual spaces to share and discuss their views

The social net is defined as the Internet environment where people can communicate with people from different cultures after they define themselves as well as where they socially communicate, share their feelings and thoughts with others regarding their normal daily lives with the help of symbols representing gestures and mimics (Koç & Karabatak, 2011: 1).

The Internet, through the use of Web 2.0 technology, has become a global phenomenon. Previously, there was only a limited number of newspapers that were circulated and read globally. Now, each individual who writes on virtual environments has the potential to express their thoughts globally. Any individual's writing can reach someone on the other side of the world. Naturally, this has changed the media, Internet publishing and journalistic techniques.

According to Christopher Callahan, the Internet seems to be the only source of information that can be accessed around the world. The more data that is uploaded, the more effective it will be. Journalists' desire for information is endless (Callahan, 1999: 1). The intersection between the Internet and journalism has caused an important difference today. *The networked journalism*, whose news gathering, processing, and delivering stages' centre is based on the digital, online technologies and the Internet is an example of this difference (Beckett & Mansell, 2008: 93; Aydoğan, 2012: 25).

COMPARING AND CONTRASTING THE SOCIAL MEDIA AND THE PUBLIC SPHERE
The Space and Participation
According to Downes (2005), the social net is the connection of the individual nets coming together through the interrelationships' sets (Downes, 2005: 411). A social net is defined as the act of interaction among a group of people, organisation or community who share sources and information to achieve desired ends (O'Murchu & Breslin & Decker, 2004: 9).

As mentioned above, the English translation of *öffentlichkeit* does not address the exact meaning of the word in the original theory of Habermas's Public Sphere. In the *bourgeois Public Sphere*, *home* is defined as a *private sphere,* while *street* represents *the Public Sphere* hence, the meaning is still combined with *arena* and not with *sphere*.

(The Bourgeois Public Sphere)

As mentioned above, *the Bourgeois Public Sphere* appears and is maintained in locales such as clubs, salons, and coffee shops. In this regard, McLuhan's argument that *the medium is the message* must be considered. McLuhan opposes the long-lasting argument that the point is the neutrality of the medium, arguing that the chosen medium is the message itself as it is chosen consciously and it bears certain messages. When *homes* become *the private spheres*, whose productivity quality is assumed by the free market, which structure will assume the role of the centre of control?

Habermas explained the Bourgeois Public Sphere as a sphere that is open to everyone when discussing the social issues to determine appropriate solutions, saying, "it must be something which cannot be locked. On the other hand, as its name denotes, it is the sphere of the bourgeois, which means that the participants are formed of only one class and imposed decisions can still be taken there.

Additionally, because *homes* are the places of privacy that rely on the concept of private property, those that do not own property are externalised from the family sphere. Moreover, women do not exist in his public sphere as well. Seemingly, *only the bourgeois* makes the sphere closer, which is not open to other social classes.

However, in comparison to Habermas's Public Sphere, the Social Media exists in the virtual environment, which is a platform open to all. It provides people with the opportunity to connect virtually, without the necessity to meet physically, in order to discuss their common concerns.

(Humans and Social Media)

Özbek explained the Public Sphere as: "the sphere of the democratic opposition which critically scrutinizes and transforms the arbitrary and repressive Power, which is principally and historically concentrated in the state instrument (Özbek, 2004, 132). In this regard, the public sphere has the quality that it is both independent of the state as well as a critical element of it (Yegen, 2013: 128).

Nevertheless, when the Social Media is considered, its users are aware that they are being watched by the Power; moreover, they can support or criticize the Power only with its permission for usage. Another fundamental difference between the two is that the Social Media is not only used to criticize the Power, but also to support it.

Furthermore, the principal of the privacy of private life is respected more by the traditional media than by the social media. The user seemingly shares the content in a private sphere, yet it is actually shared on a public platform. Thus, the privacy of the user is transgressed. Having his/her privacy in a secret and independent sphere is an integral part of his/her fundamental rights and freedom. The private life is the sphere in which an individual has the right to relaxation and freedom, which is not open to everyone and related with his/her own private world. The acts of observing, searching, and disseminating to others the activities performed by an individual within this private sphere without his/her consent transgress the individual's rights (Kahraman, 2008: 110).

Aims
From the outset, the public sphere was formed of a structure in which people came together in coffee shops, salons and other locations for the purpose of socialisation. Subsequently, they began to discuss literature and later, the sphere gained a political character through which the Power was criticized, social issues were debated and ultimately decisions were taken. The sphere aims to reach a consensus among differing views in order to make future decisions and to enact essential laws.

DISCUSSING THE WAR IN A PARIS CAFE.
SEE PAGE 504.

(Discussing the War in a Paris Cafe – Public Sphere)

However, the Social Media is not only for the purpose of discussion, but also for obtaining news as well as for entertainment. It facilitates people's ability to contact each other. The communication that occurs on Social Media, which does not requires users to be geographically close or have face-to-face connection, leads to the communication being fast, but also artificial.

The social media also leads to the bombardment of information. For example, an individual who wants to know where another individual has been and when they were there, can access such information by clicking on his page. The structure of communication enables users to share the views mutually and to give feedback to each other. Thus, it has become an indispensable part of everyday life. An individual can share and discuss his/her opinions mutually and publicly. There is no longer the necessity to come together as homogenous users. Heterogeneous users may share the same virtual environments.

In Habermas's Public Sphere, however, only one class's participation is observed; in fact, statuses, titles as well as economic dependencies carry significant importance. However, equality is the key principle. Although some exceptions are possible, differing views can be maintained and after a consensus is reached, common decisions are taken. Nevertheless, the discussions that occur on the Social Media are not aimed at reaching a consensus. The different sides in a discussion may also be in a superiority competition, which makes it difficult to achieve social/mass-related positive ends. Another difference is that the Public Sphere only focuses on discussing the societal (public-related) problems, whereas the Social Media is not only aimed at societal, but also at masses-related subjects, as the latter is a mass media medium. According to Baudrillard, "*Mass* is a black hole absorbing *the societal*" This view reflects the dark face of the issue in connection with the theory of the Simulation Universe. In this theory, reality is questioned and it is argued that people do not actually live in the reality. Along with other factors, this simulative structure is developed with the help of the mass media. The mass media, such as newspapers, were originally designed to provide news and inform people. Then, they started to assume entertainment qualities. This quality has become increasingly sophisticated with the rise of the Internet and the Social Media. However, the media not only informs, educates, and entertains the masses, but it has also become

a medium of shaping perceptions. For instance, in the Arab Spring, people organized, came together and participated in mass demonstrations through the help of the Social Media. After the Arab Spring, which expressed the prevalent social issues and unrest, it is now only perceived as a simple medium of socialisation, but also an important way of organizing.

(Perception Management via Social Media)

On the other hand, from a more positive perspective, because not only the societal but also mass-related discussions are held to suggest solutions the Social Media, this creates the image of a mass sphere. As McLuhan previously identified in his theory of the global village, individuals discussing on the issues may sometimes make universal decisions that are acted upon, although the *"world citizenship having a common view"* has not been achieved yet. For example, in the Gezi Park events, although the protests started in a small area of Istanbul, they later expanded to a global scale and achieved wider support, and the park was ultimately preserved. The park, which the government had planned to destroy in order to construct a new shopping centre, still survives as a green area with may trees even though 4 years have passed.

The Impact It Creates
The Social Media is also used to increase the societal awareness. Efforts to form public opinion decrease, while larger masses can be reached in a shorter period of time. Although the Gezi Park events were initiated by a few people, the protests expanded to larger masses over a period of one month.

Evidently, it now plays a pivotal role in disseminating local issues to people throughout a country or around the world. While in the era of the newspapers, only a certain amount of information was allowed to be published, with the advent of the Internet, uncensored information can now spread at amazing speed. Thus, societal awareness can be created.

It is observed that the reason behind new societal movements is not 'the economics, social, internal affairs, and the military security', but it is the life-quality, equal rights, individual self-actualisation, participation and the human rights' (Karagöz, 2013: 135). The structural characteristic of activists is that they are higher education graduates, economically well-positioned, and middle-class university students   (Offe, 1999: 60; Yılmaz, Dündar, & Oskay, 2015: 258).

In Habermas's Public Sphere, economically similar individuals come together, while in the Social Media, people from all economic strata can participate. Furthermore, people become addicted to it voluntarily, as it provides

them with the ability to show myriad products, which cannot be shown in real life. This addiction leads to individuals sharing of all of their photos and videos portraying all aspects of their lifestyles.

This virtual life has created *the society of the spectacle*. Veblen interpreted that ostentatious consumption is an individual's way of expressing their wellness. The basis of their desire to flaunt their wealth is the underlying thinking that richness is directly proportional with power. In this regard, people perceive themselves to be stronger when they are richer, and the opposite perception occurs when they become poorer. In ostentatious consumption, people consume not only to satisfy their factual needs, but also in order to be appreciated by others. The social and cultural interest in the ostentation in a society, directs people's behaviours. (Veblen, 2005: 97; Kadıoğlu, 2013: 111).

Today, digital reactions on the Internet can have as much of an impact as street demonstrations. Journalists scan Facebook and Twitter before agenda setting meetings, and topics discussed on the Social Media can become agenda items for newspapers as well news bulletins. Moreover, according to the Institute of Politics, Democracy and the Internet in the USA, Internet activists have seven times more impact power on policy makers than those demonstrating on the streets, because of their ability to reach larger masses (Savaş, 2013; Yılmaz, Dündar, & Oskay, 2015: 490).

ANALYSIS
The Field and Scope

- Whereas the Public Sphere has a structure based on coming together physically in places such as coffee shops and salons, the Social Media has a foundation that is reliant on virtual working on the basis of digital coding.

- The Public Sphere is a phenomenon where issues related with the country in which the meetings' places are located can be discussed; however, the Social Media is a phenomenon where time and space limitations are removed and where not only local or national, but also global issues are debated.

Aims

- In the Public Sphere, although *openness to all* is emphasised, only one class (bourgeois) can actually enjoy the sphere. Nevertheless, the Social Media includes individuals from all classes as well as from all of the economic and educational strata. Therefore, the aims of both spheres differ, as the former is only societal (national), while the latter is societal as well as masses/classes-related.

- The Public Sphere only seeks to open up societal discussions to argument with a limited group, with the aim of reaching consensus in order to find a solution and resolve the problem. The Social Media, on the other hand, is open to a larger amount of people worldwide and, as the main concern, instead of reaching a consensus, informing, educating and entertaining people as well as shaping the perceptions are more important. Moreover, in the Social Media discussions, one-upmanship and exhibiting status are increasingly prominent.

The Impacts it Creates

- The Public Sphere is where people with similar economic statuses discuss the societal issues with the desire to enacting the related national laws and to solve problems. Thus, its effect is national and it only provides the opportunity to organise nationally, while introducing ideas and suggestions.

- The Social Media welcomes a myriad of initiatives. This assumes a role in setting the agenda on multiple societal issues. It provides the users freedom, which results in individuals' self-actualisation. It creates the opportunity to organise beyond national boundaries. Individuals can be informed about global issues easily and more rapidly. Thus, they can form and introduce their own ideas and suggestions.

CONCLUSION

If the comparisons and contrasts between the two of the concepts are summarise, the Public Sphere relies on physical environments, such as coffee shops and salons. However, the other sphere is based on working in the virtual environment using the digital coding system of the Internet.

While the Public Sphere is closer and only open to the bourgeois in the reality, the Social Media is open to everyone from all statuses and classes.

The main concern in the Public Sphere is to discuss the issues to reach a consensus with the end goal of finding a solution. On the Social Media, the aim is not to find a consensus and the primary concern is to inform, educate and entertaining people and shape their perceptions.

Aside from their differences, both have limited similarities in terms of their educational qualities. Societal and global topics are also opened up for discussion on the Social Media. Nevertheless, the aim is not to reach a consensus. Therefore, only if it is used consciously by the users can results be achieved, messages can be sent to public or global figures and policy making can be affected.

The result of the study shows the Social Media may not be deemed as a completely new sphere. However, it can be evaluated as a new sphere in a limited manner if users have commonalities in terms of their aims and the goals they wish to achieve.

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THE EFFECT OF A WORKSHOP ON PRESERVICE SCIENCE TEACHERS' KNOWLEDGE STRUCTURES OF TECHNOLOGY-ENHANCED ARGUMENTATION

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Lack of argumentation practices in science classrooms has been associated with teachers' lack of pedagogical skills and argumentation. For successful implementation of argumentation in school science, preservice teachers should be equipped with skills and experiences towards argumentation. However, there is limited knowledge on successful implementation of technology-enhanced argumentation workshops. Therefore, the purpose of this study was to investigate the effect of a workshop on preservice teachers' knowledge structures of technology enhanced argumentation. The participants were 25 preservice science teachers studying across 17 different universities in Turkey who attended to an 8-day workshop on technology enhanced argumentation. A holistic case study approach was followed throughout the study. Data was collected through word association test. Cut-off points were identified by the frequency tables. At the end of the workshop, preservice science teachers' knowledge structures were improved.The results also showed that Technologies included in the workshop and concepts related to argumentation were present in the preservice teachers' responses. Based on the findings, implications include (a) incorporation of current technologies in argumentation, (b) explicit teaching of rebuttal and counterargument construction, and (c) explicit teaching of collaborative argumentation technologies.

THE EFFECT OF STRUCTURE İN FLİPPED CLASSROOM DESİGNS FOR DEEP AND SURFACE LEARNİNG APPROACHES

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ABSTRACT

A growing body of research is concerned with the implications of Flipped Classroom (FC) model at higher education institutions. There is a wide range of the opinions and experiences on FC model and the model is still being tested by the researchers and practitioners. For the purpose of examining best practices in FC models, the present study was conducted to investigate the effects of structure in the FC models on academic success of the students who adopt deep and surface learning approaches. The study was conducted quasi-experimentally with 119 students. A pre & post achievement test and a study process questionnaire were used to collect data. The results indicate that scores on academic success of students learning in structured FC model is significantly higher than the scores of the students in flexible-structured FC model and control group. In terms of study process approach, the students in FC models who adopt deep learning approach scored significantly higher on achievement test than the students in control group while there is no significant difference between experimental groups. The results are the same for the students who adopt surface learning approach. The outcomes of this study have implications for designing an FC model and strategies for the practitioners.

Keywords: Inverted classroom; flipped classroom; surface and deep approaches; structured and flexible-structured flipped classroom

INTRODUCTION

It is important to promote meaningful learning environments in all levels of education. With regard to higher education institutions, there has been increasing number of studies regarding leveraging deep learning of the students against the assumption that "most students in most undergraduate courses become increasingly surface and decreasingly deep in their orientation to learning", while the generic aim of teaching is to promote meaningful learning (Biggs, Kember, & Leung, 2001; pg. 5-6). As Beattie, Collins and Bill (1997; pg. 1) remark in recent years, deep learning has been a concern of evaluations of higher education relative to surface learning and these concepts which were developed in 1970s and 1980s are now well-founded in higher education literature. Today, in line with the discourses to engage the students with meaningful and effective learning experiences, information and communication technologies (ICTs) have been integrated into education underlined with the pedagogies such as active learning. A concrete and prominent example of this is Flipped Classroom (FC) model, which have two important pillars as technology and pedagogy of active learning, has been rapidly accepted mainly by higher education institutions (Estes, Ingram, & Liu, 2014). In this model, essentially, students are provided with pre-course materials to get ready for the course through systematic use of ICT and it is aimed to promote interaction and the meaningful learning activities that occur during the face-to-face time" (Bergmann, Overmyer, & Willie, 2012; np).

Deep and surface learning in higher education

Deep learning refers to high level of cognitive activities such as critical and creative thinking, problem solving skills and engaging the learning activities and content (Salmon, 2004; James, Chin, & Williams, 2014) while surface learning is associated with rote and temporary learning (Beattie et al., 1997). In the literature, students' approaches to learning concern individual traits such as motivation and attitudes (Beattie et al., 1997) and also a host of factors such as students' perceptions of task demands, instruction methods, classroom climate and so on (Biggs et al., 2001).

FC model as a kind of blended learning (Staker & Horn, 2012) has the potential to foster deep learning (James et al., 2014) as it is a comprehensive model consisting of the elements influencing the students' approaches to learning. It is remarked in the literature that as a kind of blended learning, FC model helps with managing cognitive load (Turan, 2015) possibly because of the reason that the resources are provided to the students prior to the course (Seery & Donnely, 2012) so that the students could process the knowledge beforehand, and the content is presented in chunks (Mayer & Moreno, 2003). In line with these finding in the literature, Garrison and Kanuka (2004; pg. 13) also provide a discussion of blended learning's potential to support deep and meaningful learning; however they suggest that "systematic evaluation of satisfaction and success of the teaching, learning, technology and administration of new course" is necessary. In terms of evaluating the different variables for providing the students with deep learning processes, it is important to examine learning experiences of the students who adopt surface learning and deep learning approach in an FC model. Biggs et al. (2001) refer to two learning approaches of students as deep and surface approaches. This identification is important in the context of an FC model in understanding its effectiveness on the students who adopt different learning approaches. Yilmaz and Orhan (2011) articulate that the students with surface approach tend to perceive learning tasks (e.g. assignments) as a burden, and to narrow their focus to the learning activities connected with the assessment of the course. Given the facts that FC model is inherently carried out with the learning responsibilities (such as assignments) materialized out-of-class times, and usually specific tasks (such as watching videos) are given to the students; the experience and success of these students need to be examined. On the other hand, it could be assumed that FC model could be best suited with the students who adopt deep approach as this approach enables students to learn from the educational materials. When considering that the relationship between deep approach and high academic success was established in the literature (Yilmaz & Orhan, 2011), it is expected that in a course designed with FC model the students with surface learning approach might not perform better than the students with deep learning approach.

Against this background, to sum up, taking a surface learning approach is one of the problems experienced in higher education today, and learning technologies along with an active learning pedagogy have been adopted in education as a promising medium in education in order to engage students with active and meaningful learning. At this point, it is believed that FC model has the potential to promote deep learning associated through systematic use of ICT and meaningful interaction time in class. However, given the fact that there are also students who adopt a surface learning approach, it is important to design an FC model helping surface learners engage in meaningful learning experiences.

Learning Structure and learning approaches in FC models as a blended learning

Drawing on the literature, Kalelioğlu (2011) defines structure as a way of designing the learning environment using instruments such as planning and organising the activities, roles, teacher support, aims, instructions, rules, group formations and resources. Moore (1993) defines the structure as an extent where an education program meets individual learning needs of the students (cited by Yilmaz, 2014). According to Moore, if learning activities are not designed in a flexible structure and unable to meet learning needs of the students, the transactional distance, "communication and psychological distance (not geographical distance) between instructors and students" (cited by Chen, Wang, Kinshuk, & Chen, 2014, pg. 19), would be increased. There has been increasing literature over the past ten years aiming at reaching the best practices of FC models in higher education. If it is aimed to promote meaningful and active learning experiences in blended learning systems such as an FC model, it is important to consider the amount of learning structure. Drawing on the literature, Salter and Conneely (2015) argue that providing structure to students might have a different level of impact on student engagement, and critical engagement has the potential to lead deep thinking, interactive activities and educational experiences. Also, usually in a flexible learning design students are regarded as active participants and they are supported by deep learning (Drennan, Kennedy, & Pisarski, 2005). Here, structure is one of the key aspect of distance education systems. Chen et al. (2014) note that in flipped classrooms transactional distance is changing constantly and in the situations which the students watch videos at home, transactional distance is high due to the lack of communication between the students and the instructor. Chen et al. (2014) stress that high transactional distance might have negative effect on learning

experiences such as poor learning and in that sense, Moore and Kearsley (2011) recommend to increase dialogue as well as to decrease pre-determined structures. They point out the proper combinations of structure and dialogue which has the potential to engage students with effective learning.

On a closer look at the relationship with the learning structure in distance and blended learning systems and deep learning experiences, there are controversial debates on the extent of a learning structure and likely consequences of the structures. For instance, in a flexible-structured discussion forum, when students are allowed to dictate what they want to learn, then they are inclined to explore the course topics more broadly whereas they "may not know to how create a dialogue that is engaging and involved" (Salter & Conneely, 2015, pg. 20). On the other hand, there are findings in the literature which support the view that putting the structure into the learning environments can help obtain positive learning experiences. In their study, Cadwick and Ralston (2010) identified that when the structure is provided in the student discussions, students' higher order perspective-taking and learning is correlated with each other in structured discussions. In line with this, Kalelioğlu (2011) reports that the participants in her study performed critical thinking skills mostly in the structured/guided environment.

A further point in regard to the structure in distance and blended learning is concerned with the individual differences. Researchers point out that individual differences and students' approaches to learning should be taken into account in learning environments (Hall, Ramsay, & Raven, 2004; Wilson & Fowler, 2005; Yilmaz & Orhan, 2011). However, on a closer examination, in some studies, there is no significant statistical result found in relation to the individual differences and learning structures in blended learning environments. According to a study by Zheng, Flygare and Dahl (2009), there is no significant difference between the students with different cognitive styles in well-structured and ill-structured online learning environments, whereas students showed different levels of performance based on the mean average. Also, as reported by Yilmaz and Orhan (2011; pg. 1028), there is no significant difference in "academic achievements, web material using behaviors, and attendances to face to face and Web based learning environments" between the students who adopt surface and deep learning approach. However, returning to the point raised by Moore (1993) suggesting that individual differences should be taken into account due to the transactional distance in distance learning systems and influence of individual differences on students' performance in different learning environments as presented earlier, there is a need to further examine learning experiences of the students with various individual differences. In the scope of the present study, as a type of individual difference, students' academic success with deep and surface learning approaches will be examined in FC model as an emerging model in education based on the learning structure.

RESEARCH PROBLEM

Biggs (2003; pg. 31) assumes that "surface and deep approaches to learning are not personality traits, as is sometimes thought, but are most usefully thought of as reactions to the teaching environment". In the same fashion, Bonwell and Eison (1991) point out that many individuals adopt learning styles which best suit with pedagogical techniques rather than lecturing. In that sense, providing deep and surface learners with suitable learning environments consistent with their learning characteristics would enhance their learning experiences. Given the varying effects of different levels of structures on the students, it is important to investigate learning experiences of the learners who adopt surface and deep learning approaches. At this point, Hung (2015) suggests that there is a need to examine effects of structured versus flexible-structured flip lessons on student learning. In this context, the main purpose of this research is to compare the academic success of the students who learn with deep and surface learning approach in structured and flexible-structured FC models. Against this background, following hypotheses were generated:

H1: The students learning in structured FC environments have significantly higher academic success than the students learning in flexible-structured FC environments and traditional learning environment.

H2: The students with deep learning approach in the structured FC environment have significantly higher academic success than the students with deep learning approach in flexible-structured FC environment and traditional learning environment.

H3: The students with surface learning approach in the structured FC environment have significantly higher academic success than the students with surface learning approach in flexible-structured FC environment and traditional learning environment.

METHODOLOGY
Designing the research site
A quasi-experimental research was carried out with 119 first year students enrolled in Computing I course. In the course, it was aimed to teach word processing, spreadsheet and presentation software to the students studying at a faculty of education in Turkey.

Participants of the research
Table 1 below summarises the number of the participants based on the departments.

Table 1. Participants of the research based on the departments

Departments	Frequency	Percentage
Psychological Services in Education	41	34.45
Elementary Mathematics Education	40	33.61
Social Science Education	38	31.93
Total	119	100.0

Participants in this study were 119 first year students from 3 different departments taking Computing I course. As a result of random assignments, Experimental Group I (EG I) consists of the students in the department of Psychological Services in Education; Experimental Group II (EG II) consists of students in the department of Elementary Mathematics Education and Control Group (CG) consists of students in the department of Social Science Education.

Study process
The study process consists of two stages. At the first stage, the research was designed based on the research questions and a technical infrastructure was built up. In the second stage, experimental procedures were carried out and then data were collected.

First stage: The research design
At this stage, the Experimental groups were formed and digital materials (e.g. quiz, videos, readings and guidelines) were produced and then placed on Moodle. A learning group consisting of students were formed on Facebook for communication purposes.

Drawing on the research problems, two experimental groups were formed and an FC model was adopted in these groups. In addition, one group was formed as a control group and the course was run in face-to-face session without the digital materials produced for the experimental groups whereas syllabus remained the same.

Experimental groups were formed as flexible-structured and structured FC model. Moore (1993) defines the structure as curriculums' potential to meet individual learning needs of the students and drawing on this definition (cited by Yilmaz, 2014), it was aimed to examine which FC model best suits with the students adopting deep and surface learning approaches. In the next section, formation of experimental groups based on the course structure will be expanded.

Experimental Group I (EG I). Flexible-structured flipped classroom model
Chen (2003; pg. 25) argues that "in order to make one aspect of the instruction flexible, usually other aspects have to be made more structured". In the case of present study, the assessment, tasks and digital resources were structured so as to guide the students with clear targets, in other words, they were informed about assessment, learning tasks to be fulfilled and digital resources to be utilised for learning online before in-class time.

In line with this, Chen (2003) suggests that in a commonly accepted flexible learning definition, students must be provided with flexible access at least one of the following learning elements: time, place, pace, learning style, content, assessment and pathways. In the case of EG I, in terms of time, the students were allowed not to attend to the class but they were required to submit their assignments before the subsequent week begins. In terms of place, they could watch online videos anywhere including the computer labs. In regard to the element of learning style, as Chen (2003; pg. 25) remarks that flexible learning by definition requires students to actively engage in learning process "and that students should be more independent and more responsible for their own learning". In the case of EG I, during in-class time, the students were asked to fulfil hands-on tasks in the computer laboratories and submit their assignments. When they failed to perform the tasks before the course hours ended, then supportive videos on how to perform the tasks were provided to them online and they could submit in a week time. The tutor was also in the laboratories to assist students with their tasks but the interaction between the students and the tutor were limited with the time and student/tutor ratio. Therefore, rather than tutor-student interaction in face to face sessions, the teaching and learning methodology of the course was informed by peer interactions. When the course was structured in this way, it helped the students to empower their learning experience with peer collaboration, self-regulated learning via digital materials and also feedback from their tutor, otherwise the huge number of the students working in a computer lab with limited number of computers would constrain the tutor's teaching practices within these conditions. Thus, EG I's learning experience was underlined by characteristics of flexible learning as collaboration with peers, support of learning resources, context-sensitive learning experience and teacher as a facilitator (Chen, 2003).

However, in a flexibly designed FC model it is important to examine learning experiences of the surface learners because although the students with deep learning orientation might take an active role by engaging in digital resources before the class and "come to most classes with questions in mind" (Biggs et al., 2001), the students with surface learning orientation might merely follow what they are asked to do without a deep engagement with the course content. Although a week time is assigned for students to study on the weekly course content and submit their assignments, these students might minimize the time to learn the content on surface rather than allocating more time for deep learning. Therefore, their academic success must be examined in a flexibly designed FC model.

Experimental Group II (EG II). Structured flipped classroom model
In distance education systems which are usually delivered mainly via instructional videos and these are the environments where there is not significant amount of feedback and interaction mechanism, the structure of these courses is described as structured course (Yilmaz, 2014). Usually what makes a course structured is all about unchangeable course goals, a single teaching and learning method and limited options of assessment (Yilmaz, 2014). Also, unlike flexible learning, these courses are teacher-centered.

Learning tasks and learning resources given to the students in EG II are similar to the tasks in EG I, Although these tasks and learning resources in EG II are more structured. The students were expected to watch the videos before the class and instructed by the teacher. The students were required to attend in-class time courses. As learning and teaching methods, question and answer methods as well as didactic teaching methods were adopted; thus source of the interaction mainly relied on the dialogue between the teacher and the students. The assignments were due on the same day of the in-class course and the students were not given extra time unlike in EG I.

In regard to the structured learning models as mentioned above, Moore and Kearsley (2011) remark that the more an educational program is structured the less it has the potential to accommodate individual needs of the students as the students are provided with limited number of alternatives. From this point of departure, it is expected that students who adopt surface approach to learning might not be actively involved in learning process due to high structure of the course and hence their learning experience needs to be examined.

It is important to note that in both of the groups, same syllabus, learning tasks, technology and assessment methods (e.g. marking assignments and achievement tests) were employed. Among flexible learning elements, teaching and learning methods, time and place were applied differently in order to examine how to best accommodate learning needs of the deep and surface learners.

Other designing issues on FC model

As Kim, Kim, Khera and Getman (2014) suggest "The design of flipped classrooms has often been limited to the concept of replacing in-class instruction with videos and using class time for homework" while FC concerns "flipping conventional events both inside and outside of the classroom and supporting them with digital technologies" (Hughes, 2012, pg. 38). In that sense, it was aimed in this research to promote students' learning before the class by videos and supporting digital materials such as e-books and presentation documents.

Videos were produced for the purpose of teaching students the basics of the course content as well as showing them how to fulfil the hands-on activities. As an example of hands-on activities, the students were given a list of fictional students whose two exam results were presented on a spreadsheet as a working sheet. A guideline was given on the spreadsheet and they were asked to calculate scores of the fictional students by calculating 40% of the first exam results and 60% of the second exam results. Two videos were located on Moodle and on the social network site to help students on this activity. The first video was concerned with the spreadsheet software in general and how to fulfil basic functions on the software. In the second video, some instructions were given on how to calculate the exam results by using formulas and functions on the spreadsheet. When students attended to the face to face sessions, they were expected to be knowledgeable about spreadsheet software and how to make basic calculations by using formulas and functions. The duration of the videos was between 5-10 minutes length.

Second stage: Conducting the experiment

The course lasted in 13 weeks. In the first 2 weeks, the course was run in the class for all students and they were introduced with theoretical aspects of the course. The students in the experimental groups were made familiar with the Moodle. Discussions took place on FC implications in Education so as to make the students familiar with the pedagogical approach in the course.

In Week 2, the pre-test (an achievement test) was administered to the students. During the remainder of the course, an FC model was implemented. In the final week, the post-test was administered in order to measure academic success of the students. The model of the research is presented in Figure 1.
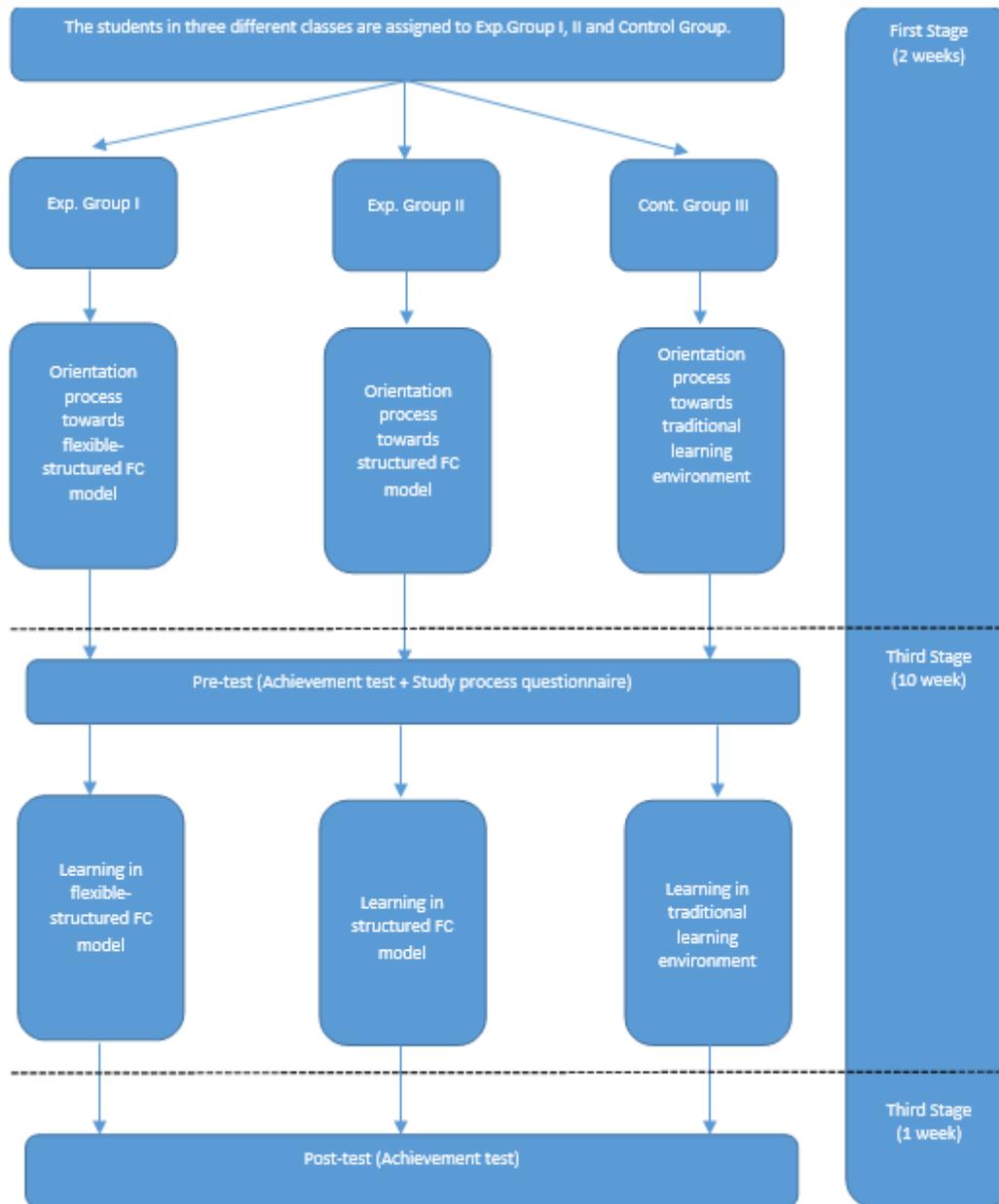
Figure 1. Procedure of the experiment

METHOD

The research was conducted as a quasi-experimental study and participants of the study consist of the students enrolled in Computing I course from 3 different teacher education departments in Turkey. The process that which department will form which group was determined randomly, in other words, students enrolled in two departments were assigned as the experimental group, while the students in the remaining department were assigned in the control group. Experimental Group I (EG I) consists of the students learning in the structured FC model in the department of Psychological Services in Education; Experimental Group II (EG II) consists of students in the flexible-structured group in the department of Elementary Mathematics Education and Control Group (CG) consists of students learning in the traditional environment in the department of Social Science Education. Quantitative data were collected via a scale and an achievement test examining the academic success of the students with different study process learning.

The scales were administered online and the online system required the participants to answer all of the questions. Thus, emergence of missing data was avoided.

Instruments

A Study process questionnaire and a pre & post achievement test were used to examine the research questions. It is important to note that in order to examine academic success of the students with different learning approaches, only the students who returned both the scale and pre & post tests were taken into account (N=119). The students who did not return any of the measurement tools were excluded for this stage of analysis so as to ensure robust data analysis.

Study process questionnaire

In order to examine the students' study processes, Two Factor Study Process Questionnaire (SPQ-2F) developed by Biggs et al. (2001) was used in the research. SPQ-2F aims to identify students' learning approaches as deep and surface approaches. Yilmaz and Orhan (2011) point out that, reported by Entwistle and McCune (2004), there are a variety of instruments in the literature to measure study approaches of the students such as Inventory of Learning Processes, Learning and Study Strategies Inventory, Inventory of Learning Styles, Approaches to Studying Inventory and Study Process Questionnaire and among these instruments, Study Process Questionnaire has some advantages over the others since the questionnaire contains small number of items, it is used in different cultures, with different variables and different teaching and learning process. For these reasons, SPQ is also used in the present study.

As the participants of the present research were Turkish students, Turkish translation of the scale was administered to the participants. The scale was translated into Turkish and adapted by Yilmaz and Orhan (2011). In their study, Yilmaz and Orhan (2011) report that the 20 item-scale has two factors as deep and surface approaches and its Cronbach alpha coefficients were 0.79 and 0.73. They conclude that Turkish version of SPQ is suitable for the Turkish university students.

Achievement test

In order to measure the students' academic success, an achievement test consisting of multiple answers was developed based on the goals of the course. In the first version of the test, there were 54 items. In order to ensure its construct validity, four experts' opinions were consulted and the test was revised according to their opinions. Experts have had teaching experience on the Computing I course. Subsequently, the test was administered to the 89 second year students who have already taken Computing I course in their first year so as to ensure its validity and reliability. In investigating the internal consistency of the test, Cronbach's coefficient alpha was found 0.73. In the Table 2 below, analysis results for each item is shown based on the item's difficulty index and discrimination power.

Table 2. Item's difficulty and discrimination power on the achievement test

QN	D	P	QN	D	P	QN	D	P
Q1	0.346154	0.326923	Q19	-0.03846	0.096154	Q37	0.5	0.557692
Q2	0.115385	0.75	Q20	0.076923	0.538462	Q38	0.307692	0.423077
Q3	0.461538	0.5	Q21	0.346154	0.288462	Q39	0.346154	0.480769
Q4	0.230769	0.5	Q22	0.269231	0.173077	Q40	0.230769	0.5
Q5	0.346154	0.519231	Q23	0.076923	0.153846	Q41	0.5	0.596154
Q6	0.269231	0.365385	Q24	0.384615	0.538462	Q42	0.346154	0.673077
Q7	0.192308	0.826923	Q25	0.153846	0.423077	Q43	0.307692	0.230769
Q8	0.115385	0.865385	Q26	0.384615	0.230769	Q44	0.384615	0.346154
Q9	0.269231	0.865385	Q27	0.115385	0.134615	Q45	0.153846	0.192308
Q10	0.153846	0.384615	Q28	0.269231	0.326923	Q46	0.307692	0.653846
Q11	0.269231	0.865385	Q29	0.230769	0.153846	Q47	0.269231	0.673077
Q12	0.115385	0.711538	Q30	0.230769	0.153846	Q48	0.115385	0.288462
Q13	0.423077	0.557692	Q31	0.307692	0.230769	Q49	0.384615	0.230769
Q14	0.115385	0.519231	Q32	0.461538	0.615385	Q50	0.307692	0.538462
Q15	0.384615	0.692308	Q33	0.192308	0.25	Q51	0.307692	0.576923

Q16	0	0.153846	Q34	0.346154	0.326923	Q52	0.346154	0.673077
Q17	-0.03846	0.096154	Q35	0.384615	0.653846	Q53	0.269231	0.403846
Q18	0.269231	0.711538	Q36	0.346154	0.442308	Q54	0.192308	0.326923

QN: Question Number, p: difficulty index, d: discrimination power

The items whose item difficulty index was below .50 and discrimination power was below .30 were removed from the test. Among the remaining items, 25 items were included by taking into account of equal distribution of the course content (e.g. it was aimed to include equal number of questions on spreadsheet, word processing and presentations). The final achievement test's average score for item difficulty index was found .49 and item discrimination power was found .34.

Data analysis
Kolmogorov-Smirnov test was used in order to ensure that the scores obtained from the Study Process Questionnaire meet the assumption of normality. As a result of the test, it was found that the data demonstrated normal distribution ($p > 0.05$). Therefore, ANCOVA and ANOVA tests as parametric tests were used in analysing the data. Reliability rate of .05 was taken into account in data analysis.

FINDINGS
In the scope of the study, first of all, students' study process approach was identified in the structured, flexible-structured and traditional learning environments through analysing the findings obtained from the Study Process Questionnaire. The findings are as follow;

- In Experimental Group I (EG I) consisting of the students from the Department of Psychological Services in Education, 21 out of 41 students (51.2%) adopt deep approach while 20 out of 41 students (48.8%) adopt surface learning approach.
- In Experimental Group II (EG II) consisting of students from the Department of Elementary Mathematics Education, 22 out of 40 students (55%) adopt deep learning approach while 18 of 40 students (45%) adopt surface approach.
- In Control Group (CG) consisting of students from the Department of Social Science Education, 20 out of 38 students (52.6%) adopt deep learning approach while 18 out of 38 (47.4%) adopt surface approach.

Drawing on the findings, it could be seen that the ratio of the students with deep and surface learning approach is more or less similar.

In an answer to the first hypothesis, while structured group's (EG I), flexible-structured group's (EG II), and control group's (CG) pre-test scores were stabilized, post-test scores of the groups were analysed in order to find out whether there was a significant difference between groups.

The students' post-test average scores are $\bar{x} = 80.68$ (sd=11.62) for EG I, $\bar{x} = 83.70$ (sd=7.87) for EG II and $\bar{x} = 67.05$ (sd=9.64) for CG. While students' pre-test achievement scores were taken under control, covariance analyse was used in order to analyse whether there is a significant difference between the groups' post-test scores as could be seen from Table 3.

Table 3. Covariance analysis result of the groups' post-test scores when their pre-test achievement scores are taken under control

Source of the Variance	Sum Squares	Df	Mean Square	F	Sig.	Significant Difference Between Groups
Pre-test achievement scores	822.156	1	822.156	9.062	.003	EG I-EG II EG I-CG

Groups	4480.125	2	2240.063	24.692	.000	EG II-CG
Error	10433.017	115	90.722			
Corrected Total	17352.874	118				

Table 3 shows that when pre-test scores of the groups were taken under control, there is a significant difference between the groups' post-test corrected average achievement scores [F(2,115)= 24.692; p= .000<.05; Cohen's f=.30]. In order to examine the source of this difference, Bonferroni test was run. The results reveal out that there is a significant difference between EG I and EG II; EG I and CG; and EG II and CG and this shows that the most successful group based on the post-test scores are the students in EG II in the structured FC environment. Therefore, H1 hypothesis is accepted.

In an answer to the second hypothesis of the research, within the EG I and EG II groups, and CG, the students' scores were examined based on their deep and surface learning characteristics. In other words, it was aimed to examine whether there is a significant difference between the students' average scores on the post-test based on their learning approach.

Post-test achievement test average scores of the students with deep learning approach are as follow respectively; $\bar{x} = 79.43$ (sd=10.53) for EG I, $\bar{x} = 83.86$ (sd=7.81) for EG II and $\bar{x} = 67.13$ (sd=10.44) for CG. ANOVA was used to analyse whether there is a significant difference between the post-test scores of the students as could be seen in Table 4.

Table 4. ANOVA results of the post-test scores of the students with deep learning approach

Source of the Variance	Sum of Squares	df	Mean Square	F	Sig.	Significant Difference
Between Groups	3677.264	2	1838.632			
Within Groups	6263.180	69	90.771	20.256	.000	EG I-CG EG II-CG
Total	9940.444	71				

Table 4 shows that there is a significant difference between the post-test average achievement scores of the students with deep learning approach in different groups [F(2,69)= 20.256; p= .000<.05; Cohen's f=.61]. In order to identify the source of this difference, Scheffe test was run. The results reveal out that there is significant difference between EG I and CG; and EG II and CG. Drawing on the findings, it was found that there is no statistically significant difference between the scores of the students with deep learning approach in structured FC learning approach and the students in the flexible-structured FC environment, while post-test scores of the students with deep learning approach in the structured FC environments are found to be higher than the students with deep learning approach in the flexible-structured FC environment and traditional learning environment. Based on these findings, H2 hypothesis is partially rejected. Accordingly, hypothesis on "The students with deep learning approach in the structured FC environment have significantly higher academic success than the students with deep learning approach in flexible-structured FC environment" was rejected. However, the assumptions about "The students with deep learning approach in the structured FC environment have significantly higher academic success than the students with deep learning approach in traditional learning environment" and "The students with deep learning approach in the flexible-structured FC environment have significantly higher academic success than the students with deep learning approach in traditional learning environment" were accepted.

In the third hypothesis of the study, in which environment the students with surface learning approach are more successful was tested. Post-test average achievement scores of the students with surface learning approach are as follow; $\bar{x} = 82.00$ (sd=12.81) for EG I, $\bar{x} = 83.33$ (sd=8.33) for EG II and $\bar{x} = 66.93$ (sd=8.61) for CG. ANOVA test was run in these groups in order to examine whether there is a significant difference in post-test average achievement scores of the students as could be seen in Table 5.

Table 5. ANOVA results of the post-test scores of the students with surface learning approach

Source of the Variance	Sum of Squares	Df	Mean Square	F	Sig.	Significant Difference
Between Groups	2488.102	2	1244.051			
Within Groups	4921.600	44	111.855	11.122	.000	EG I-CG EG II-CG
Total	7409.702	46				

Table 5 shows that there is a significant difference between the post-test average achievement scores of the students with surface learning approach in different groups [F(2,44)= 11.122; p= .000<.05; Cohen's f=.58]. In order to identify the source of this difference, Scheffe test was run. The results reveal out that there is significant difference between EG I and CG; and EG II and CG. Based on the findings, it was found that there is no statistically significant difference between the post-test scores of the students with surface learning approach in structured FC environment and the students with surface learning approach in flexible-structured environment, while post-test scores of the students with surface learning approach in the structured environment are found to be higher than the student scores with surface learning in the flexible-structured FC environment and traditional environment. Therefore, H3 was partially rejected. Accordingly, the assumption that "The students with surface learning approach in the structured FC environment have significantly higher academic success than the students with surface learning approach in flexible-structured FC environment" was rejected. However, the assumptions that "The students with surface learning approach in the structured FC environment have significantly higher academic success than the students with surface learning approach in traditional learning environment" and "The students with surface learning approach in the flexible-structured FC environment have significantly higher academic success than the students with surface learning approach in traditional learning environment" were accepted.

To sum up, quantitative analysis shows that for both deep and surface learners, there is no significant difference between EG I and EG II groups while there is significant difference between both groups and the CG. When considering the post-test average achievement scores, both experimental groups' scores are higher than the control group's scores.

DISCUSSIONS

It was revealed in the study that the students were more successful in their achievement scores in the FC model compared to the control group. This finding is consistent with the research studies adopting FC model (e.g. Danker, 2015; Davies, Dean, & Ball, 2013).

On looking at the details of the academic success of the students learning with FC model, the students achieved better in structured group (EG II) than in flexible-structured group (EG I). The results of the research are consistent with the research findings in the literature. In their research, Kanuka, Rourke and Laflamme (2007) state that for a scientifically qualified discussion, the discussion should include structured activities in which responsibilities and tasks of students are well-defined and students can provide ideas against each other's thoughts. In their research, Gilbert and Dabbagh (2005) conclude that some rules on messaging and evaluation criteria such as directive instructions, evaluation instructions and message sending instructions all positively affect meaningful discourses. In line with these findings, Fitgerald et al. (2005) report that students are mostly satisfied with the structured environments and students want to clearly know what is expected from them. Researchers indicate that the more organised and structured the environment is, the shorter and more focused the discussions are.

In terms of individual differences of the students who adopt deep learning and surface learning approach, the present study reveals that there is no significant difference between the academic achievement scores of the students with deep and surface learning approach in structured and flexible-structured environments. As a result of the research, although the structure had no effect on learners who have deep and surface learning approaches, it was observed that the academic success of the group using structured FC environment was generally higher. Therefore, using the structure approach in designing FC environments and contents is thought to be crucial in increasing academic success.

CONCLUSIONS AND RECOMMENDATIONS TO PRACTITIONERS, DESIGNERS AND RESEARCHERS

Structure in the FC models

In general, the structure provided to the FC model in this research is found to be helpful in obtaining effective learning results. On revisiting the concept of structure, Moore and Kearsley (2011) regard learning goals, content themes, teaching methods, case studies, projects, exercises and examinations as elements of a structure. In addition to these elements, Chen (2001) regards instructional materials, discussion questions, keywords bridging between the sub-topics, requirements to fulfil the tasks, resources about the units, quizzes and ideas and opinions discussed in the class as elements of a structure. Drawing on these points in the literature, the following factors could be taken into account and be clearly identified when designing an FC environment; and contents, goals and gains of the course (analysis phase), instructional contents and materials (design-development phases), educational situations (implementation phase), measurement and evaluation practices (evaluation phase).

Also, in providing a structure, it is important to divide the course into modules and organise the learning process in stages (Huang, 2002; Sandoe, 2005). At the beginning of the course, the students could be informed about the learning process and could be given a guideline and this, in turn, would help structuring the course (Moore, 1993). In this way, the students could be acknowledged about what to do in the course, better administer their learning process and some undesired situations such as facing with uncertainty and getting lost in the learning environment designed according to the FC model could be avoided (Yilmaz & Keser, 2015). This kind of structure should be given both online and face-to-face sessions of the course in the FC model.

Study process as an individual difference

On looking at the studies in the literature dealing with blended and online learning environments, there are different research outcomes about the effect of learning approaches as deep and surface learning on the academic success of the students depending on the context of the research. In their study, Ellis, Ginns and Piggott (2009) examine the relationship between academic success of the university students and their study process approach in a blended learning environment. According to the results of the study, a negative significant relationship was found between the students with surface learning approach and their academic success. In a study conducted by Buck (2008) consisting of 241 students enrolled in a physical therapy program, the effect of study process on academic success was examined. The results of the study reveal that the students with deep learning approach demonstrated higher academic success than the students with surface learning approach. However, structural equation modelling fit index which demonstrates this structure was found low in the study. In their study in a problem-based environment, Gijbels, Van de Watering, Dochy and Van den Bossche (2005) work with 133 sophomore students studying at a law school to explore the relationship between the students' approaches to learning and students' quantitative learning outcomes. The results of the study show that there is no significant relationship between students' approaches to learning and the scores they obtained from a multiple-choice questions test. McParland, Noble and Livingston (2004) report from their study that the students learning in a problem-based learning group demonstrate significantly higher examination performance than the students learning in a traditional learning group whereas impact of a learning approach on the examination scores was not identified. Snelgrove and Slater (2004; pg. 496) work with 289 nurse candidates in their first year of the study in the UK and authors examine study approaches of the students and students' academic success. The results of their study show that deep learning factor "correlated positively and significantly with grade performance average and sociology examination results" while they found a significant negative correlation between surface learning factor and nurse examination results. However, findings demonstrate a low significance level between .17 and .21. As for the relationship between the study approach and other examination results of the students, no significant relationship is found. In a study conducted by Yilmaz (2009), academic success of the participants was examined based on their learning approach in a blended learning environment. As a result of the study, it was reported that there is no significant difference found between academic success of the students and learning approach. All these research findings regarding the learning approaches of the students and their academic success show that depending on the program, grade of education, field of instruction, students with different learning approach perform varying level of academic success. As for the results of the present study, regardless of the structure of the FC model, students are found to be more successful in the FC model than traditional learning environment. At the same time, students with surface learning approach are found to be more successful in the FC environment regardless of the structure of the FC model than in traditional learning environment. However, although the students with deep learning approach in structured FC model are found to be more successful than in the flexible-structured FC model, the difference is statistically not significant. Similarly,

although the students with surface learning approach in structured FC model are found to be more successful than in the flexible-structured FC model, the difference is statistically not significant.

When considering the findings regarding both on structure of the FC model and on study process as an individual difference, research has shown that it is important to address individual differences of the learners when providing the learning environment with a structure (Moore, 1993; Lemak, Shin, Reed, & Montgomery, 2005). Also, according to Huang (2002) in order to address individual differences of the learners, there is a need to organise the learning environment in a way that enabling the students to easily access the learning materials and to engage with the learning activities. At this point, it is important to encourage the students to participate in the online discussions (Yilmaz, 2016) which could be possible with addressing reflective thinking enquiries by meeting some of their different individual learning styles (Karaoglan Yilmaz & Keser, 2016). A further point is concerned with supporting the students' collaborative learning activities in face to face session of the FC model with small number of the learning groups so as to help the students easily arrange their self-regulation behaviors in their collaborative work (Yilmaz, Karaoglan Yilmaz, & Kilic Cakmak, 2016). While assigning the students into groups for collaborative learning activities, dyads shape organisation (Noroozi, Biemans, et al., 2013; Noroozi et al., 2012; Strijbos et al., 2004) could be adopted in the face to face session of the FC model so as to provide a match between the students who adopt surface and deep learning approaches.

Overall, it was revealed in the present study that FC model was more effective in obtaining successful academic achievements in Computing I course than the traditional learning environment. Within the different levels of structure in the FC environment, the students in the structured learning environment were found to be more successful in their academic achievement scores than the students in the flexible-structured learning environment. In general, the results point out the importance of well-structured FC environments in obtaining successful learning outcomes.

Future studies and limitation of the study
The present study was carried out according to the quasi-experimental research design. While designing the control and experimental groups, first year students enrolled in Computing I course from different departments were taken into consideration. This situation has been regarded as the limitation of this research and in the future, this research can be repeated by randomly assigning students from different departments to form the control and experimental groups in experimental research studies. On the other hand, in this study, academic achievements of the students with deep or surface learning approaches in a structured and flexible-structured FC designs were compared. According to the findings obtained from the scale designed to identify study approaches of the students, it has been observed that number of students with deep and surface learning approaches in the control and experimental groups were quite identical and this situation contributes to the generalizability of this research which is carried out with regard to the quasi-experimental pattern. Also, according to the findings in the literature, the difference between academic success of the students in a Computing course and self-efficacy perception of the teacher candidates is generated from their knowledge and experience (Torkzadeh & Koufteros 1994; Aşkar & Umay 2001). In the study by Akkoyunlu and Kurbanoğlu (2003), while the computer self-efficacy of the students in the department of Computer Education and Instructional Technologies (CEIT) was identified as higher compared to those of students in other departments, there was no significant difference between other departments resulting from the differences in the departments. Moreover, according to the research, as the grade of the education increases, students tend to be more knowledgeable and experienced; thus, self-efficacy levels of teacher candidates in year 4 were considerably different compared to those of year 1 students. From this point of departure, the fact that in this research the study groups consist of the students from three programs different than CITE, and that the students have similar knowledge and experience since the length of the course is same for all groups (4 hours per week) contributes to the generalizability of the research. However, according to the previous studies (Usta & Korkmaz, 2010), it was concluded that there was no significant difference in computer success and proficiency of the teacher candidates with regard to the departments attended. In their research, Cura and Özdener (2008) concluded that there was a significant and positive relationship between the academic achievement scores of the teachers about information and communication technologies (ICT) applications and the scores obtained from a scale measuring their attitude towards ICT. This finding leads us to assume that the attitude towards ICT implications has an effect on their academic success in a Computing course. However, according to the previous studies, it was observed that there was no significant difference between the departments other than the department of CEIT with regard to the attitude towards computer (Deniz, 1995; Kutluca & Ekici, 2010). Also this situation contributes to the generalizability of the results of this study which is carried out with regard to the quasi-experimental pattern resulting from departmental differences.

In terms of future research studies, today it is observed that the FC model approach has been used in a variety of learning institutions from universities to primary schools. In the future studies, the effectiveness of flexible-structured FC designs, which is used especially for very young students, could be examined. Furthermore, it is also experienced that FC approaches have been used in quantitative subjects such as mathematics and physics, as well as qualitative subjects such as history and literature. From this perspective, depending on the situation whether the subject is qualitative or quantitative, the flexible-structured or well-structure design of FC and the effect of deep or surface study approach on the students can be analysed. Future studies could deal with examining the most suitable learning environments for knowledge construction process when considering the existing research results (Kirschner, 2015) in regard to use of Facebook in student discussions and knowledge constructions in an FC model. As well, the effects of structured and flexible-structured environments on individual characteristics such as self-regulated learning skills could be examined in future studies.

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THE EFFECTİVENESS OF COGNİTİVE-BEHAVİORAL TECHNİQUES (CBT) TO İMPROVE EMOTİONAL İNTELLİGENCE İN PEOPLE LEAVİNG CANNABİS (3 MONTHS FOLLOW-UP)

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Abstract

Object: low emotional intelligence can affect coping strategy of individuals and is one of the risk factors of addiction. One of the novel approaches that have been effective in treatment of addiction is cognitive-behavioral method. This study has been conducted to investigate effect of cognitive-behavioral techniques to improve emotional intelligence factors of people leaving hashish (cannabis).

Method: Among Drug Addiction Centers of Tehran, several centers were selected using random sampling method. All hashish users interested in participating in this study referred to these centers and were qualified to inclusion criteria fulfilled emotional intelligence questionnaire and those with low score of emotional intelligence were selected as sample. In next step, these individuals were screened through fulfilling The Structured Clinical Interview for DSM-IV Axis II Disorders (SCID-II) in terms of personality disorders. Hence, 74 people with low emotional intelligence and without personality disorders were selected as samples. From the group, 36 people were selected using random sampling and were placed in two 18-member groups. Experimental group was under cognitive-behavioral

techniques for 12 sessions and control group was in waiting list. Both groups were evaluated in basic step, session 6, end of treatment and 3 months later in terms of the two mentioned variables. Obtained data were analyzed using repeated measures ANOVA, two-factor ANOVA and PAIRED t-test in SPSS-22.

Results: experimental group has demonstrated significant improvement compared to control group during 4 times measurement in scales includingInterpersonal, intrapersonal, general mood, adaptability and stress tolerance scales (p<0.01).

Conclusion: cognitive-behavioral approach can affect improvement of emotional intelligence of people leaving hashish.

Key words: cognitive-behavioral techniques, emotional intelligence, people leaving cannabis

Introduction

Emotional intelligence (EQ) is the ability to detect emotion of self and others and regulation of emotions in social positions (Koczwara&Bullock , 2009). Components of emotional intelligence include 1) intrapersonal intelligence (emotional self-awareness), assertiveness, self-regard, self-actualization and independence; 2) interpersonal intelligence (empathy, interpersonal relationship, social relationship); 3) coping (problem solving, reality testing, and flexibility); 4) emotion control (stress tolerance, impulse control) and 5) general mood (happiness and optimism) (Bar-On, 1996).

Scholars believe that people with high emotional intelligence have higher ability to cope with new routine problems. Moreover, High emotional intelligence is in significant correlation with extroversion, flexibility, identification of different emotions, harmonizing the emotions and their effect on brain and behavior (Hansenne and Bianchi, 2008, Antonakis et al, 2008). On the contrary, low emotional intelligence is in correlation withinternal problematic behavior, low levels of empathy, inability to regulate mood, depression, addiction to alcohol and drugs, sexual misconduct, theft and aggression. In regard with social damages and destructive behaviors such as addiction, emotional intelligence can be effective. Studies have demonstrated that people with high emotional intelligence have less social deviations such as aggression and addiction to alcohol and drugs (Hansenne and Bianchi, 2008). According to Dunn (2004), one of the main advantages of emotional intelligence is avoiding isolation and isolation rate is high in addicted people. In this field, a study has demonstrated that people with low emotional intelligence use drugs to cope with their negative emotions (Trinidad et al, 2004). Austin et al (2005) have also demonstrated that addicted people have basic problems in terms of features and components of emotional intelligence.

Investigations of European Monitoring Center for Drugs and Drug Addiction (2010) has estimated prevalence of using hashish,cocaine and ecstasy during lifetime in European adults respectively to 22.5, 4.1 and 3.3% and has introduced hashish as the most common drug in Europe. Obtained results from epidemiologic studies in field of prevalence of using hashish show that the drug is the most common drug used by West (Simmons et al, 2005). In Iran, according to findings of Sarami et al (2013) since two decades of studies in field of prevalence in field of drug abuse among Iranian students during 1995- 2013, it was found that the most common drugs used by students respectively includecigarette, tobacco, alcohol, opium, hashish (Hashish) and heroin.

Although hashish creates no dependence physically, it is harmful from several dimensions: first, hashish can lead to mental independence (Kaplan and Sadock, 2003); second, it can hart body physically (Jones, 2002, Ghozland et al, 2002) and third, it can endanger mental health of individuals (Arendt&Munk-Jorgensen, 2004; Chabrol et al, 2006). One of the mental dimensions threatened by using hashish is emotional dimension. Hashish can disrupt emotional balance of individuals and affect emergence of mood disorders such as depression,Dysthymia and bipolar disorders (Lee Ridner et al, 2005; Patton et al, 2002). Asnegative emotional moods are related to drug abuse (Kun &Demetrovics, 2010; Khan Mohammadi, 2011) and its effects (Raisjouyan et al, 2014; Torres et al, 2013), empowerment of people with addiction with emotion management skills seems useful.

One of the novel methods that have been effective in field of treatment of drug abuse (Burleson &Kaminer, 2005; Litt et al, 2005; Beck et al, 1993) is cognitive-behavioral therapy method. Cognitive-behavioral therapy for treatment of drug abuse is an approach emphasized since mid-1980s seriously. From this perspective, drug abuseis under impact of conditional and classic learning processes and lack or weakness of coping skills can make individuals vulnerable against drug abuse and its effects.

Cognitive-behavioral therapy, similar to other methods, should be performed in a warm texture and based on a treatment relationship, along with collaboration (Najavits et al, 2005).

In studies on effectiveness of cognitive-behavioral therapy in treatment of people with addiction, various variables are studied. For example,Ahmadkhaniha et al (2006) has studied effectiveness of cognitive-behavioral therapy, dependence management andNaltrexone treatment in a group of patients with addiction and has confirmed preference of cognitive-behavioral therapy to dependence management and Naltrexone treatment by itself. Pan et al (2015) has also found that cognitive-behavioral therapy can affect reduction of drug abuse, improvement of performance and reduction of

stress in addicted people underMethadone maintenance treatment. Also, a meta-analysis demonstrated that cognitive-behavioral interventions can significantly affect leaving and preventing relapse of drug abuse and mental symptoms such as anxiety and depression (Tabe and Bordbar, 2013). Along with these studies,Waldron&Kaminer (2004) have also shown that cognitive-behavioral therapy, whether in group or individually, is correlated to significant reduction of drug abuse in adolescence. As no study is conducted in regard with effect of cognitive-behavioral therapy on improvement of emotional intelligence in people leaving hashish, this study has been designed and implemented with the aim of investigating effectiveness of cognitive-behavioral therapy in improving components of emotional intelligence in people leaving hashish.

Methodology

Research population and sampling

All referees interested in participating in the study referred to Drug Addiction Centers of Tehran and qualified to enter the study entered the research: inclusion criteria have beenLack of psychotic disorders, delusional disorder, bipolar disorder, impulse control disorder, lack of concomitant use of antipsychotic drugs or drugs which reduce withdrawal symptoms of substance other than hashish, continuous use of hashish during the last three months, at least eight grade education. These individuals fulfilled emotional intelligence questionnaire in the next step and those with low score of emotional intelligence were selected as sample. Next, through fulfillingThe Structured Clinical Interview for DSM-IV Axis II Disorders (SCID-II) in terms of personality disorders the individuals were screened in terms of personality disorders. Hence, 74 people without personality disorders were selected as samples. Out of the individuals, 36 people were selected randomly and were placed in 2 groups with 18 members in each group.

Experimental groupwas under cognitive-behavioral techniques for 12 sessions and control group was in waiting list. Both groups were evaluated in basic step, session 6, end of treatment and 3 months later in terms of the two mentioned variables. Obtained data were analyzed using repeated measures ANOVA, two-factor ANOVA and PAIRED t-test in SPSS-22.

Instruments

Demographic information questionnaire: the questionnairehas been prepared to determine demographic information of individuals and gaining information about their backgrounds. The

participants were asked to insert their personal information such as age, education, job, marital status and number of leaving times in the questionnaire.

Structured Clinical Interview for DSMIV Axis II disorders SCID-II

SCID-II like SCID-I is a structured diagnostic interview for personality disorder to assess ten personality disorders at the DSMIV Axis II as well as NOS (not otherwise specified) depressive and aggressive disorders. This questionnaire has 119 questions and its completion takes less than 20 minutes and the responder needs certificate of at least eight grades of school (First et al, quoted from Noruzi, 1997).

The interviewer conducts the interview on the basis of positive responses of the patients (ShojaHeidari, 2011). An investigation has been conducted with 284 subjects from four psychiatric centers and two non-psychiatric centers by two interviewers at two different times in order to determine test-retest reliability in a two-week interval and during two different times. The Kappa coefficient was 0.24 for OCD (obsessive-compulsive disorder), 0.74 for histrionic personality disorder and a total Kappa of 0.53 for all psychiatric patients. The inter-rater agreement was low (Kappa= 0.38) among non-psychiatric patients (ShojaHeidari,2011). The content validity of Persian version has been confirmed by some psychological professors and its reliability through test-retest with a one week interval was 0.87 (Shamsabadi,2004). Validity and reliability of the checklist has been confirmed in Iran too (Bakhtiari, 2000). **Emotional Quotient Inventory (EQ- i)**

The inventory as the first instrument to test emotional intelligence has been developed by Bar-On in 1997. EQ-i includes a total score (total EQ), Five combined factors, fifteen subscales, a scale of positive thinking and negative thinking and a dissonance index. In this 133-item inventory, scores of the participants are in form of Likert scale from 1 to 5 (never, rarely, sometimes, usually and always) and some items are scored positively and some others are scored negatively. Question number 133 to measure honesty of the trial is not considered in process of scoring and the answers "rarely" and "never" to it can refer to lack of total validity of the test. Using the inventory is allowed for people over 16 years old with at least 6 grades education (Tirgari,2004; Shams Abadi, 2004). Investigations in field of test validity have also

reported high validity; for example, ShojaHeydari et al (2011) have confirmed reliability of the inventory in students.

Interventional package

The training package is derived from Cognitive-Behavioral Therapy Book (beck et al, 1993) and Behavior Therapy Book (Jena, 2007).

Session 1: introducing members to each other and introducing cognitive-behavioral model and definition of emotional intelligence and its components.**session2:** coping with Internal and external triggers. **Session 3**:coping with craving, **session4:** activity program and activity pleasure, **session5**:anger management, express of negative emotion and relaxation. **session6:** problem solving and conflict resolution. **session7:** assertive skills training and express of emotion strategies.**session8:** distraction techniques, positive self-talking and identifying negative thought . **session9:** changing of negative thoughts.**session10:** identifying and correcting of negative assumption and rules and dysfunctional belief.**session11:** identifying and correcting of negative assumption and rules and dysfunctional belief. **session12:**Review sessions summary

For purpose of data analysis, descriptive statistics (mean value, standard deviation and percent) and inferential statistics (repeating measures ANOVA, tw-factor ANOVA, paired t-test and Bonferroni correction and chi-square test) have been applied. It should be mentioned that statistical analysis was done in SPSS-20.

Results

Firstly, demographic information of participants in experimental and control groups are compared with each other. The result of age comparison between two groups showed that there is no significant difference between experimental and control groups in terms of mean age range of experimental group (24.67±6) and control group (24.23±5) based on t-test. 33.34% of experimental group and 44.45% of control group were married and 66.66% of experimental group and 55.54% of control group were single. 66.66% of experimental group were in BA and higher education levels, 27.77% diploma and others were below diploma. In control group, 61.11% were BA and higher education levels, 27.77% were diploma and other were below

diploma. 66.69% of experimental group was employed and 55.58% of control group was employed and other remained individuals were unemployed.

After demographic information, scores of participants in both groups in terms of components of emotional intelligence were compared in baseline stage. According to table 2, according to t-test in this stage, no significant difference is observed between mean values of individuals in experimental and control groups in terms of components of emotional intelligence including intrapersonal, interpersonal, general mood, coping and stress tolerance components.

Table 1: t-test to compare components of emotional intelligence of participants in baseline stage

Variables	Experimental group		Control group		T	Sig
	Mena	SD	Mean	SD		
Intrapersonal scale	116.66	17.42	118.52	18.21	1.96	0.09
Interpersonal scale	83.88	14.44	80.96	14.18	1.98	0.54
General mood	17.61	4.71	15.21	1.93	1.87	0.74
Coping scale	68.72	10.37	65.91	11.72	1.23	0.94
Stress tolerance	18.77	2.73	14.72	1.64	3.61	0.74

In the next step, the mean differences have been compared in 4 measurements. For this purpose, repeated measures ANOVA is used and results have been presented in table 2. According to findings of this table, F-value, df and sig level for each component of emotional intelligence are obtained as follows: intrapersonal scale: $F (125.86)$, df (3 and 51), $p<0.001$; interpersonal scale: $F (35.90)$, df (3 and 51) and $p<0.001$; coping: $F (17.66)$, df (3 and 51) and $p<0.001$; general mood: $F (43.34)$, df (3 and 51) and $p<0.001$ and stress tolerance: $F (77.98)$, df (3 and 51) and $p<0.001$. According to these results, it could be found that there is significant difference between compared mean values and at least, one pair of mean values are significantly different from each other (table 2).

Table 2: results of repeated measures ANOVA in components of emotional intelligence in experimental group

Components of emotional intelligence	Source of variances	Sum of squares	df	Mean squares	F	Sig
Intrapersonal scale	Inter-participant	1453.68	17	58.51	125.86	0.001
	Intra-participant	2376.80	54	44.16		
	Effect of treatment	2095.70	3	698.56		
	Residual or error	281.11	51	5.55		
	Total	6207.29				
Interpersonal scale	Inter-participant	7078.68	17	416.39	35.90	0.001
	Intra-participant	1573.36	54	29.13		
	Effect of treatment	1067.59	3	355.86		
	Residual or error	505.77	51	9.91		
	Total	10225.4				
Coping	Inter-participant	9849.13	17	579.36	17.66	0.001
	Intra-participant	5183.68	54	95.99		
	Effect of treatment	4860.48	3	1620.16		
	Residual or error	323.28	51	91.70		
	Total	20216.49				
General mood	Inter-participant	4796.10	17	282.12	43.34	0.001
	Intra-participant	6724.50	54	124.52		
	Effect of treatment	4832.72	3	1610.90		
	Residual or error	1891.78	51	37.09		
	Total	1025.6				
Stress tolerance	Inter-participant	3426.01	17	201.53	77.98	0.001
	Intra-participant	5405.62	54	100.10		

	Effect of treatment	4438.02	3	1479.34	
	Residual or error	967.4	51	18.97	
	Total	14237.24			

To determine the difference between mean values of experimental group in 4 measurements, post-hoc paired t-test is used (table 3).

According to table 3, in all components of emotional intelligence, significant difference is observed between pair mean values of experimental group in 4 measurements. Significance level of the differences for each component is as follows: intrapersonal scale in 0.001 level; interpersonal scale in 0.002 level; coping scale in 0.005 level; general mood in 0.05 level and stress tolerance is significant in 0.005 level. Bonferroni correction for paired t obtained from dividing sig level to number of comparisons (6) is also applied and obtained to 0.008. As the t-value is below 0.008 in these results, it has been found that the difference between mean values is significant in all components of emotional intelligence.

Table 3: post-hoc t-test to determine mean differences of experimental group in components of emotional intelligence in 4 measurements

Components		Mean	SD	t	df	Sig
Intrapersonal scale	Mean baseline with session 6	-19.00	5.61	-14.35	17	0.001
	Mean baseline with session 12	-35.05	9.99	-14.88	17	0.001
	Mean baseline with follow up session	-47.66	8.00	-25.27	17	0.001
	Mean value of sessions 6 and 12	-16.05	9.81	-6.94	17	0.001
	Mean value of follow up session and session 6	-28.66	6.73	-18.04	17	0.001
	Mean value of follow up session and session 12	-12.61	10.05	-5.32	17	0.001

Interpersonal scale	Mean baseline with session 6	-9.11	7.85	-4.91	17	0.002
	Mean baseline with session 12	-19.16	22.65	-3.58	17	0.001
	Mean baseline with follow up session	-32.77	6.69	-20.78	17	0.001
	Mean baseline of follow up session and session 12	-10.05	24.06	-1.77	17	0.001
	Mean baseline of follow up session and session 6	-23.66	11.58	-8.66	17	0.001
	Mean baseline of follow up session and session 12	-13.61	22.86	-2.52	17	0.001
Coping	Mean baseline with session 6	-9.11	7.85	-4.91	17	0.001
	Mean baseline with session 12	-19.16	22.65	-3.58	17	0.002
	Mena baseline with follow up session	-32.77	6.69	-20.78	17	0.001
	Mean baseline of session 6 and 12	-10.05	24.06	-1.77	17	0.004
	Mean baseline of follow up and session 6	-23.66	11.58	-8.66	17	0.001
	Mena baseline of follow up and session 12	-13.61	22.86	-2.52	17	0.002
General mood	Mean baseline with session 6	-7.61	1.71	-18.77	17	0.05
	Mean baseline with session 12	-16.11	4.49	-15.20	17	0.04
	Mean baseline with follow up session	-21.50	7.51	-12.13	17	0.04
	Mean baseline of session 6 and 12	-8.50	3.72	-9.66	17	0.04
	Mean baseline of follow up and	-13.88	6.90	-8.53	17	0.03

	session 6					
	Mean baseline of follow up and session 12	-5.38	5.06	-4.51	17	0.02
Stress tolerance	Mean baseline with session 6	-8.77	2.73	-13.61	17	0.002
	Mean baseline with session 12	-16.94	9.25	-7.76	17	0.001
	Mean baseline with follow up session	-23.11	9.88	-9.92	17	0.001
	Mean baseline of session 6 and 12	-8.16	10.06	-3.44	17	0.001
	Mean baseline of follow up and session 6	-14.33	8.72	-6.97	17	0.001
	Mean baseline of follow up and session 12	-6.16	13.17	-1.98	17	0.001

In order to analyze difference of two experimental and control groups in terms of each component of emotional intelligence, two-factor ANOVA is used (table 4). According to the table, there is significant difference between mean values of experimental and control groups in terms of 5 components of emotional intelligence. In other words, intrapersonal scale, interpersonal scale, coping, general mood and stress tolerance in experimental group has been increased after participating in cognitive-behavioral therapy sessions and the difference has been significant statistically.

Table 4: two-factor ANOVA of components of emotional intelligence

Components	Source of variances	Sum of squares	df	Mean squares	F	p-value
Intrapersonal scale	Intragroup	9940.50	1 and 34	9940.50	284.97	0.001
	Intergroup	8253.55	1 and 34	8253.55	81.42	0.001
	Intragroup-	9940.50	1 and 34	9960.50	301.37	0.001

	intergroup interaction				
	Error	848.77	34	24.96		
Interpersonal scale	Intragroup	4110.22	1 and 34	4110.22	64.64	0.001
	Intergroup	1160.72	1 and 34	1160.72	37.87	0.001
	Intergroup-intragroup interaction	5818.00	1 and 34	5818.00	225.04	0.001
	Error	785.13	34	23.09		
Coping	Intragroup	3945.68	1 and 34	3945.68	17.86	0.001
	Intergroup	4394.12	1 and 34	4394.12	52.72	0.001
	Intergroup-intragroup interaction	5016.68	1 and 34	5016.68	217.24	0.001
	Error	755.27	34	22.21		
General mood	Intragroup	2278.12	1 and 34	2278.12	26.12	0.001
	Intergroup	666.12	1 and 34	666.12	18.17	0.001
	Intergroup-intragroup interaction	1891.12	1 and 34	1891.12	104.84	0.001
	Error	150.50	34	4.42		
Stress tolerance	Intragroup	1942.72	1 and 34	1942.72	87.45	0.001
	Intergroup	2380.10	1 and 34	2380.10	37.97	0.001
	Intergroup-intragroup interaction	2251.12	1 and 34	2251.12	110.29	0.001
	Error	613.25	34	18.03		

Discussion and Conclusion

Increase in demand for treatment of hashish dependence has led to investigation of different treatment approaches for this problem. One of the most effective methods emphasized for treatment of drug abuse in group (Stephens et al, 2002; Liese et al, 2002), individually (Denis et al, 2005) or in combined manner withPharmacological treatment (Carroll et al, 2006) or along with family therapy and other psychiatric treatments (Latimer et al, 2003) and its efficiency has been confirmed is cognitive-behavioral treatment. In consistence with these studies, this study has confirmed effectiveness of cognitive-behavioral therapy in individual manner in improvement of components of emotional intelligence of people addicted to hashish.

It seems that cognitive-behavioral therapy can help improvement of emotional intelligence through improving coping skills (Fishbein et al, 2005). Hence, addicted person would be empowered and can manage its emotions and cope with problems of life without dependence on drugs. In this study, through using cognitive-behavioral therapy, some coping skills such as problem solving skill, anger control, effective relationships, certainty and cope with temptation and negative emotion regulationwere trained to people in experimental group. In consistence with findings of this study, relevant studies have demonstrated that training skills can help improvement of intrapersonal abilities of drug users as one component of emotional intelligence. This issue can typically lead to increase in self-esteem, reduction of relapse, increase in mood and increase in tolerance of individuals against stress and increase in their general adaptability (Demarce et al, 2005; Rohsenow et al, 2004). Moreover, other scholars have demonstrated that cognitive-behavioral techniques can affect improvement of interpersonal capabilities, coping and reduction of interpersonal stress of drug users. Such effect can enable people to cope with risky conditions, refuse to accept hashish and say "No" to external pressures to use drugs (Litt et al, 2005). In this regard,Zollinger et al (2003) has also investigated effect of training coping strategies on preventing tobacco abuse in a field study on 1598 American adolescents of grades 6-9. The study showed that learning coping skills can not only decrease use of tobacco, but also it can lead to improvement of interpersonal skills as one

component of emotional intelligence and this can result in empowerment of individuals in field of coping with risky conditions and refusing acceptance of drugs.

Another strategy used in cognitive-behavioral treatment of addiction is functional analysis. The purpose of functional analysis is to identify driving variables of public behavior. Identifying the drivers can help individuals to find that what kind of coping skill is needed under each situation (Carroll, 1996). Therefore, it seems that addicted people receiving cognitive-behavioral treatment can regulate their emotions properly under challenging situations through being equipped to skill to become familiar with driving variables of drug abuse and familiarity with coping skills. In other words, cognitive-behavioral treatment helps people to regulate their emotions through managing emotional drivers of using drug (Najavits et al, 2005).

According to obtained results, it seems that cognitive-behavioral treatment can affect components of emotional intelligence and can result in extroversion, flexibility, identification of different emotions, matching emotions and their impact on brain and behavior. In other words, this study showed that cognitive-behavioral treatment can affect improvement of emotional intelligence of individuals leaving hashish and this result has been in consistence with findings of Tajeri and Gudarzi (2013) on investigation of effect of cognitive-behavioral skill training on components of emotional intelligence in addicted people to glass. The results of this study showed that training cognitive-behavioral skills can affect improvement of components of emotional intelligence and enhancement of coping ability, general mood, intrapersonal and interpersonal scales and stress tolerance.

Negative emotions are factors playing vital role in emergence and relapse of addiction. Therefore, designing some strategies for emotion regulation of addicted people can be efficient in field of treatment of drug abusers. Cognitive-behavioral approach is an effective intervention that can affect improvement of emotion self-regulation of addicted people and improvement of emotional intelligence.

Limitation

The present study has faced several limitations: firstly, sample size was small. Secondly, it was impossible to consider some intervention variables like severity of addiction. Thirdly, because of

time limitation, long-term follow-up of 6months, 12months and 18months after treatment and comparing the method with psychotherapy. Fourthly, as the population of this study consisted of addicted people to cannabis referred to clinics in Tehran, the results could be generalized to other populations carefully.

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THE EFFECTS OF DISTANCE EDUCATION PROGRAMS ON TURKISH LANGUAGE AND LITERATURE STUDENTS' MOTIVATION

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With reference to the General Curriculum of Kosovo general aims and objectives of education have been determined as democratic development, new economical opportunities and opening up to the world. In this sense universities play a cental role in the development of political and social sustainability and a democratic society. For this reason one of the most important tasks of Kosovo's education institutions is raising the students through new education curriculum, university regulations, academic programs, international accreditation, international and national projects which develop the point of view and economic development to become individuals worthy of the society they live in thus provide them the opportunities to use the modern technology and services. In this context in year of 2012-2013 the permission to open the distance education studies has been granted. Besides the various vocational and bachelor programs there is a correspondence studies program for Turkish Languages and Literature as well.The purpose of this research is to determine the motivation and experience of the students studying in this program by comparing it with the motivation of the students studying in the regular studies of Turkish Language and Literature Department in the University of Pristina. Consequently the facts that the student and the teacher are apart from each other, that different tools are being used, that distance education studies appeal to bigger masses and the use of mass medias appeals affects the motivation of the students.

THE EFFECTS OF MAPLE INTEGRATED STRATEGY ON ENGINEERING TECHNOLOGY STUDENTS' UNDERSTANDING OF INTEGRAL CALCULUS

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The objective of this research is to investigate the effectiveness of a learning strategy using Maple in integral calculus. This research was conducted using a quasi-experimental nonequivalent control group design. One hundred engineering technology students at a technical university were chosen at random. The effectiveness of the learning strategy was examined through three variables on two groups of these students. Data were analyzed using Hotelling's T2 and explained by interview data. The advantages offered in Maple enable students' thinking to be amplified. Students benefit from the conceptual and procedural understanding of integral calculus. However, they need more time to improve their metacognitive awareness. The transformation of the integral calculus learning approach using Maple has the potential to overcome engineering technology students' under-preparedness. As a result, the nation's inadequacy in the related workforce may be overcome.

THE EFFECTS OF SMARTPHONE ADDİCTİON MARİTAL ADJUSTMENT OF PARTNERS*

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ABSTRACT
The purpose of this study is to examine the role of smartphone dependency in communication conflicts between partners during marital adjustment. The study sample consisted of 428 married family physicians and health care workers working at Samsun Public Health Directorship in January and February, 2017. The Smartphone Dependency Scale and the Marital Satisfaction Scale were used as data collection instruments of the study. The data was analyzed using the relational scanning model, which is designed to describe the current situation. The independent variable of the study was smartphone usage levels of married individuals while the dependent variable was marital adjustment. The average age of the participants was 40.46. The data was analyzed using correlation and regression analysis methods. To the study findings, there was not a specific smartphone dependency amongst the participating health care workers, but still they experienced problems in marital adjustment. There was an inverse, weak and negative relation between marital adjustment and smartphone dependency (p=0.006, correlation coefficient -0.133) and there was a positive relation between smartphone dependency and age. As the study results indicated, the scores from the Smartphone Dependency Scale were seen to differ in terms of age and gender. Also, the communication conflicts between partners about smartphone dependency played a negative role in marital adjustment.
Key Words: Married individual, Smartphone dependency, marital adjustment.

INTRODUCTION

Smartphones are widely used to gain access to information and applications, and to achieve higher profits (ITPC, 2011). Besides, the convenience they brought to our lives, the Smartphone can cause serious physical and psychological damage as a result of misuse. There are many problems such as concentration disorders, replacement of face-to-face communication by non-verbal communication, sociopathy, faulty marriages due to easy communication, and private life becoming accessible by everyone (Ünal, 2015).

Since the smart phones are part of everyday life, they also cause some problems. Although there is no clear definition in the psychiatric world yet, Smartphone addiction has become an important research and debate issue as a type of addiction that develops due to the frequency of Smartphone usage (Kuyucu, 2017).

In order to express phone usage as an addiction, it is necessary for the person to spend daily life activities at all times on the phone. When the person chooses the activity that is appropriate for his or her situation, it is mostly oriented towards Smartphone usage. If the Smartphone provides happiness in addition to providing convenience to the life of the person after using it, it causes the behavior to repeat itself and the person become dependent on it. The person can express himself/herself by using social media or communication tools via Smartphone and can communicate with everyone more comfortably. In this way, he/she can easily share the problems with the person he/she desires. Thus, the individual can easily share his/her feelings and thoughts with others (Özbek et al., 2014; Yilmaz, 2015). In this way, it has seen that 53% of the people who had addiction problems had a problem with their children-parents and wives (Young 2004). In addition, addiction and the desire to be in a constantly virtual environment often distract couples from the other (Bensghir and Altinok, 2005).

Marriage is not a relationship which only gains the consent of the community and ensures the sexual satisfaction of spouses. Marriage is a universal institution composed of interconnected systems in which two people come together in a permanent partnership and start a family and maintain the continuity of the generation, promise to fulfill their common responsibilities towards each other, their children and the society (Saxton, 1982). In this respect, the adjustment of married individuals is a very complicated social structure in terms of the happiness of the spouses with different personality, the sexual satisfaction of the spouses, the raising of the children, the relationship of each spouse with their family and the relationship with the living-working environment.

The adjustment of spouses is not only important in deciding whether to marry, but is closely related with the ability to adapting the changing circumstances in life. According to Spanier (1976), the marital adjustment; "Spouses must adapt to everyday life and changing living conditions and the change of the spouses within a certain time" (Spanier, 1976). It is stated that marital adjustment is important in the stages of development and maintenance of the marriage, and it is stated that it could be possible when one of the spouse dies in the termination stage (Turgut, 2014). It is observed that individuals have moved away from each other with developing technology because they cannot express their emotions and thoughts in the marriage process sufficiently and cannot communicate with each other. It is inevitable to experience social and cultural changes when technological developments and communication instruments are rapidly developed and spread in our era. As a consequence of cultural, social and economic changes, family life is changing and becoming more complex in relation to child parental relations and spousal relationships.

Marriages that are able to interact with each other, can form consensus on the problems encountered in the marriage process and solve the problems in a moderate and positive manner are defined as well-adjusted marriages (Erbek et al., 2005). Individuals who can express themselves are said to be effective in communication, and marital cohesion in marriages is effective (Waring and Chelune, 1983). In a study conducted in Turkey; emphasized the psychological effects of marital adjustment on children and identified that the children were negatively affected (Erbek et al., 2005).

Marital adjustment has become one of the most important issues in recent times. Marital cohesion is the most important factor affecting togetherness concludes in marriage or the continuation of post-marriage family structure. As the adjustment increases in marriage, conflict decreases divisions and divorce decrease, however marital satisfaction of individuals increases.

Industrialization and technological developments, accelerated living conditions also affect the concept of marriage and family structure. Along with the changing society and social values, the family structure changes and causes contradictions, generational conflicts with traditional family structure. In addition to this, the spouses' financial status, education level, age, etc. are influential on marital adjustment. Verbal violence of women and men during marriage is one of the factors that cause marriage adjustment to fail on the first anniversary of marriage (Erbek et al., 2005). A good marriage can exist with a good adjustment. This can be through effective communication and depends on an effective marriage satisfaction.

Although there are a large number of studies in the literature about the factors affecting Smartphone use (Ada and Tatlı, 2012; Park and Chen, 2007; Bodker vd. 2009; Ay, 2013, Bayraktutan, 2005), the majority of these studies are aimed at general use. Smartphones, which provide a lot of ease of use along with the developing technology, have entered our homes and even into our rooms. In addition to providing ease of use, some problems have emerged along with integration of cultural structure with society-family values (Demir, 2016). It is thought that the family structure which comes from the past to the present day is adversely affected by this process due to a number of changes with the development of technology. In recent years, it has been seen that the use of smart phones is increased among individuals. It is very important to carry out awareness studies in order to be able to prevent this problem in the early period and to prevent it before negative effects occur. It is known that Smartphone usage is more common in some occupational groups. It has been observed that the use of smart phones is more prevalent in medical personnel due to their profession. In this context, in this study, since it is thought that the use of smart phone in family physicians and family health workers affiliated to Samsun Public Health Directorate is common, it is assumed that the examination of the relationship between marital conflicts and problems of married couples with the use of smart phone will play an effective and important role in the experienced domestic conflicts.

The Purpose of Research
The general purpose of this research; is to examine married people's Smartphone addiction and accordingly the role of this addiction in marital adjustment. In response to this general objective, the following questions were sought.

1. What is marital adjustment level of married individual's Smartphone addiction?
2. Is there a meaningful relationship between marital adjustment and Smartphone addiction of married individuals?
3. Is there a significant relationship between marital adjustment and Smartphone addiction according to the genders of married individuals?
4. Are Smartphone addiction and perceived economic income in married individuals predictive of marital adjustment?

METHOD
In this section, research model, universe and sample, data collection tools, data collection techniques and data analysis and interpretation methods are explained.

Research Model
This study was designed by cross-sectional screening from general screening models. Variables to be described in cross-sectional studies, in which the sample is usually very large and consists of many different characteristics, are measured in one go (Büyüköztürk, et al., 2014).

Universe and Sampling
The research universe compose of 744 married health personnel, including 386 family physicians and 358 family health workers, who provide Primary Protective Health Care at Samsun Public Health Directorate between 01.01.2017-01.06.2017. The sample groups consisted of 428 married health personnel, 272 (63.5%) female and 156 (36.5%) male volunteers and were able to reach from the research universe.

The married individuals participating in the survey have a mean age of 40.46 (SS.8.11) and an age range of 21-65. It was found that 63 of the participants were graduated from high school (14.7%), 96 were graduated with associate degree (37.1%), 178 (78.7%) with bachelor's degree and 91 (21.3) with masters degree; 108(25,2) have 1 child, 220 (51.4) have 2 children, 44 (10.3) have three children and above, and 56 (13.1%) have no children. 182(42.5%) married individuals stated that they were very satisfied with their profession, 175 (40.9%) were slightly satisfied, 50 (11.7%) were indecisive and 21 (4.9%) were not satisfied; it has been observed that 234 (54.7%) chose profession by their own volition, 108 (25.2%) by family request, 65 (15.2%) by job opportunity and 21 (4.9%) by other reasons. 16 (3.7%) married individual reported that they found their average monthly income on low level, 315 (73.6%) found on intermediate level and 97 (22.7%) high level.

Data Collection Tools
Research data were collected by using the Smart Phone Addiction Scale Short Form and Marital Adjustment Scale.

The Smartphone Addiction Scale (SAS-SF): It is a measure, which developed to measure Smartphone addiction risk by Kwon et al. (2013), consists of 10 items and evaluated with Likert six point scales. The adaptation work in Turkish was done by Noyan et al. (1915). The Chronbach alpha coefficient, which indicates the reliability of the SAS-SF, was measured as 0.86. The test / retest reliability coefficient is 0.92. The internal consistency coefficient of the scale used in this study is .90.

Marital Adjustment Scale (MAS): The Marital Adjustment Scale (MAS) developed by Locke and Wallace (1959) and adapted to Turkish by Tutarel-Kışlak (1999). It was used to measure the validity and reliability of the marriage adjustment scale. The internal consistency coefficient of the MAS was .90. The reliability of the two split-half measures of the scale was .85 and .78. The internal consistency coefficient of the scale used in this study is determined as 81.

Procedure
Prior to the research, necessary permissions were obtained from Samsun Public Health Directorate and Ondokuz Mayis University Social and Humanities Ethics Committee (Decision no: 2016-164). Participants were visited at workplaces and informed about the purpose of the research, and after verbal approvals, they were asked to fill the measurement tools of the married individuals by paying attention to the principle of volunteerism and confidentiality. The application lasted approximately 20-25 minutes.

Data Analysis
The research was conducted with a relational screening model to describe the current situation. The independent variables of the study are the level of married individuals' Smartphone usage and the dependent variables are the marital adjustment. When the data obtained from the study evaluated by the Kolmogorov-Smirnov test to assess whether the data shows normal distribution or does not. It was determined that the level of Smartphone

dependency and marital adjustment scores did not show normal distribution (p <0.05). In this context, Spearman Correlation Analysis and Linear Regression Analysis were used in the analysis of data. Statistical procedures SPSS 21.0 program was used and the confidence level was taken as 95%. Significance level was calculated at p<0.05.

FINDINGS
In this section, analyzes on the findings obtained through research are presented.

Findings of Married Individuals on Smartphone Addiction and Marriage Adjustment Levels
Table 1 shows the sub-descriptive characteristics of married individual's Smartphone addiction and marital adjustment levels of married individuals.

Table 1. Descriptive statistics on Smartphone addiction and marital adjustment levels

Variable	N	Minimum	Maximum	Average	Standard Deviation
Smartphone addiction	428	10	60	21.07	9.618
Marital adjustment	428	4	55	41.28	7.119

In Table 1, it is seen that the married individual's average telephone addiction point is X = 21.07 and that of marriage adjustment point is X = 41.28. Referring to Smartphone addiction, the result of the applied scale was found to be 21.07. As a result, it has become clear that there is no Smartphone addiction among family health workers and family physicians who work in primary health care with intense work pressure.
The result of the study on marriage adjustment was 41. According to this result, it can be said that the married individuals, who participated in the study, have experienced adjustment problems.

Findings on Married Individuals' Smartphone Addiction and Marital Adjustment
Spearman correlation analysis was performed to determine whether there was a meaningful relationship between Smartphone addiction of married individuals and marital adjustment. The results are given in Table 2.

Table 2. Spearman correlation analysis showing the relationship between participant's Smartphone addiction and marital adjustment

		Marital adjustment	Smartphone addiction
Marital adjustment	Correlation coefficient	1.000	**- .133**[**]
	p value	**.006**	
	N	428	428
Smartphone addiction	Correlation coefficient	**-.133**[**]	1.000
	p value	**.006**	
	N	428	428

Table 2 shows that marriage adjustment is decreased as participants' Smartphone addiction increased. There is a weak adverse negative correlation between marital adjustment and Smartphone addiction (p = 0.006, correlation coefficient = -0.133).

Findings on Smartphone Use and Correlation between Marital Adjustment and Gender Variable
In the research, Spearman correlation analysis was used to examine the relationship between gender variable, Smartphone use and marital adjustment. The conducted analysis revealed that marital adjustment decreased as the Smartphone addiction of males increased (r = - .175; p = .029), where as there was no change detected in females (p = .144).

Findings on the variables related to Marital Adjustment Prediction
Table 3 shows the results of simple linear regression analysis of whether married individuals have predicted Smartphone addiction and marital adjustment of perceived economic status.

Table 3. The simple linear regression analysis results of predicting marital adjustment

Variable		Non-standard variables		Standard Variables	t	p
		B	Std. Error	B		
1	Marital adjustment	42.733	.661		**64.651**	**.000**
	Smartphone addiction	-.753	.289	-.126	**-2.607**	**.009**
2	Marital adjustment	39.464	1.697		**23.255**	**.000**
	Smartphone addiction	-.752	.288	-.125	**-2.614**	**.009**
	Perceived income	1.492	.714	.100	**2.090**	**.037**

In Table 3, it has been observed that when telephone addiction decreased, adjustment increased, and also adjustment proportionally increased as perceived income level increased, (p <0.05).

CONCLUSION AND DISCUSSION

The results of the study show that there is a weak adverse negative correlation between marital adjustment and Smartphone addiction in health workers, as the telephone addiction increases in males, martial adjustment proportionally decreases where as there is no change in females, it is observed that adjustment increased when the telephone addiction decreases, also adjustment proportionally increased as perceived income level increased.

When the literature was examined, it was not possible to find a study that examined Smartphone addiction of married individuals and consequently its role in marital adjustment. For this reason, the results of the research are discussed according to the results obtained from studies on marital adjustment and Smartphone addiction.

When the research findings are examined, it is found out that there is no Smartphone addiction in health personnel and family physicians within the scope of the research. It is stated in the literature that Smartphone addiction is related to the users' level of income and the quality of the phone they have (Kuyucu, 2017), indicating that the prospective teachers' level of Smartphone addiction has a moderate level (Çalışkan et al., 2017). It is seen that the research findings do not overlap with the literature.

Average marital adjustment score of married individuals participating in the survey was 41. According to the Marital Adjustment Scale adapted to Turkish by Tutarel-Kışlak (1999), the ones who score above 43 points are evaluated as compatible and the ones who score below 43 points are evaluated as incompatible. According to this, they obtained score is slightly below 43% of the average score but it can be said that it is not a very bad value regarding marriage adjustment.

As the Smartphone addiction of participants in the research increased, marriage adjustment decreased. There is an adverse negative relationship between marital adjustment and Smartphone addiction. There are also studies that reveal contradictory findings. Park and Chen (2007) investigated the use of smartphones by doctors and nurses; found that using smartphones had a positive effect on marital adjustment. Factors such as social environment, living conditions, causes and occupation can be considered as factors affecting the relationship between Smartphone addiction and marital adjustment.

In this study, it has seen that according to gender variable, as the phone addiction increases in males, marriage adjustment decreases proportionally and there is no change in females. Different results have been reached about this subject in the literature. Similar results were obtained in Şendil and Kızıldağ (2004) studies. On the contrary, there were also studies in which the scores of spouse adjustment scores have not become different in terms of gender (Şendil and Korkut, 2008, Çelik, 2006, Günay, 2007). It can be said that the research findings are partially supported by the literature. According to this result, it can be said that in the Smartphone dependency, the gender variable alone is not effective solely and there may be other variables which affect the addiction as well as the gender.

According to another finding of the research, marriage adjustment increased when the Smartphone addiction decreased, and also adjustment proportionally increased as perceived income level increased. When the literature is examined, it is indicated that the individuals with low economic status have low couple adjustment and relationship with respect to the ones with better economic status (Bradbury et al., 2000; Şendil and Korkut, 2008). It is seen that the research findings overlap with the literature. According to this, it can be said that effective communication in marital adjustment is important and at the same time, inadequacy of economic situation may affect marital adjustment negatively.

As in every study, there are some limitations of this study. Participants of the study are family physicians and family health workers who work at primary health service affiliated to Samsun Public Health Directorate. This situation prevents the obtained results being generalized to individuals working in different cities of Turkey. Research is limited to responses to the Smartphone Addiction and Marital Adjustment Scale.

The following suggestions were made in the light of the results obtained from the research. The research found that there is an adverse and significant relationship between marital adjustment and Smartphone addiction. According to this result it is thought that it will be important to address psycho-education programs which aim to improve marital adjustment and communication skills in marital therapies. It is also recommended that qualitative studies be conducted in order to examine the results of the research in depth.

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THE EFFECTS OF TECHNOLOGY ON LİTERACY

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ABSTRACT
The purpose of this study is to examine the effects of the use of technology on the literacy development, specifically the engagement, motivation, and comprehension skills of, low-literate learners. In considering the technological advances in the current world, we have to wonder about the place of literary in the classroom. Literacy has always been the standard practice, but now technology is the new, exciting innovation in everyone's daily lives (Sternberg, Kaplan & Borck, 2007). Since all this fresh technology use is being mandated upon schools as teachers, we must ask ourselves, "Is technology as beneficial as the idea of it is?" This paper sets out to answer this question through a review of the literature that highlights the many opportunities that students are offered for integrating technology and literacy skills in the classroom. The study will also analyze data from field-based research.

LITERATURE REVIEW
Technology is evolving at a rapid pace and changing our day-to-day lives in the process. Children know how to post Facebook statuses before they even know how to address a letter. Many schools are converting their systems to go digital, and eventually paperless. Teachers instruct mainly through the use of SmartBoards, and there are tablets or computers in the classroom for each student to complete assignments and assessments. So where do books come into play with technology?

There are numerous websites and applications that offer a plethora of e-books. As this new technology is being implemented in schools, educators ask if is it beneficial. There have been many studies that have shown positive evidence when integrating technology in literacy. Learning with technology can be engaging, but its impact is largely a result of how it is used in instruction by the teacher.

Research suggests that there are various views about technology being used in the classroom for furthering literacy development. First, there are numerous positive outcomes for students when technology is integrated. Students form a community with one another by conversing about the literature they have read on their devices. As a result, learning becomes more engaging and interactive in the classroom. Secondly, students are utilizing technology as another form of communication (Sternberg, Kaplan, & Borck, 2007). In today's world, a vast amount of communication happens via technology. In order for students to be fully versed in various forms of communication, they need to be utilizing technology as a learning tool in their daily lives (Sternberg, Kaplan, & Borck, 2007). Thirdly, e-books make reading more interactive for all students and have multiple extension activities to help struggling readers. Some struggling readers become excited when they discover that they can practice learning new vocabulary or work on their fluency by doing activities on their iPads (Larson, 2015). Finally, technology and literacy are two ever-changing content areas, and it is up to the teacher to prepare students to go out and engage in the ever changing world. Teachers must be able to figure out how to incorporate the natural process of reading with the current, fresh, and polished technological devices to engage students and help them prepare themselves for their future. Through literary research, I learned there are many opportunities for students when integrating technology with literacy in the classroom.

TECHNOLOGY'S POSITIVE OUTCOMES
There are many positive outcomes when integrating technology in the classroom. To begin, technology sparks interest in a student's' mind and, therefore, causes them to become enthusiastic when learning something new (Larson, 2015). Teachers try to make the classroom more engaging because students learn best when both their minds and hands are engaged. Secondly, bringing in technology to the classroom adds a more exciting and new atmosphere (Leu, 2000). Students are eager to try out the new homework apps and compare scores with one another. Research about technology to access books and other literary texts indicates that it is a positive experience.

Green (2005) found that, "Computer software and games provide many fun opportunities for students to practice literacy skills" (par. 18). Technology integrated into literacy instruction leads to many positive outcomes in a classroom as it relates to excitement and interest.

Learning. Students are eager to try new out new things in the classroom, and in turn, teachers search to find the tools to gain their students' full attention. Implementing technology into the classroom can greatly increase a student's learning potential (Leu, 2000). In an average classroom today, there is more than one computer in the room, and certain schools are implementing one-to-one classrooms, where each student has access to a computer or tablet throughout the day. Having these computers so easily accessible provides students with an incredible tool that "plays an active role in fundamentally shaping orientations to learning, content, and tasks" (Labbo & Reinking, 1999, p. 483).

According to a study that was conducted by Leader and Klein (as cited in Leu, 2000), students that had access to search tools in computer programs performed remarkably above average on literacy skills when compared with students that did not have access to those tools. These students were able to look up unfamiliar vocabulary, learn content in various ways, and work at their own pace without disturbing others. With access to the Internet on a personal device, those students that are ahead in their reading content are "provide[d] opportunities to more critically consider the sources of information" (Labbo, Reinking, McKenna, 1999, p. 484).

Larson (2015) stated that students that have access to e-books can make markups in the margins. These markups and notes help students work on their comprehension skills, and allow the teacher to check for comprehension. Having the student read their personalized grade-level books gives insight to the teacher to see if there is comprehension progress for that student, and what plans should be made next (Larson, 2015). If students are able to further their own knowledge of content, and apply it to their own lives, they will ultimately become more excited with learning.

Students that used technology to research and write showed tremendous literary success (Owen, 2000). "Their writing was stronger, their ideas were interesting, and the more interesting the ideas became, the more interested the students were in their work-the more they saw the work as their own" (p. 132). Computers, as well as other technological devices, are granting students with numerous resources to enhance learning across content

Engaging. In order for a student to learn the content and be able to apply it to their life, they must be fully engaged in the lesson or activity. Technology engages children of all ages with its' flashy graphics and endless possibilities of games and resources. As far as technology's place in the classroom, using it as a reading tool is sure to engage most students, allowing students to become more enveloped with the book due to its many features (Larson, 2015). Reading online books from different applications on devices gives students the opportunities to have the book read to them in different voices, with added sound effects, and vivid illustrations. These features can transport students visually into the book and make them more aware of the storyline. Applications on these devices also have extra features for students to manipulate and attempt "to practice literacy skills" like constructing sentences and summarizing readings (Green, 2005). Reading e-books allows students to stay engaged by participating in activities that they find most exciting and beneficial for their own personal literacy level.

Building Community. Working with technology in the classroom allows students to practice communication skills and literacy skills with one another. Class discussions, or discourse, can be hosted on blogs where each student can electronically post a reaction, question, or comment about a reading, which could be a less intimidating version of a class discussion for students. Owen (2000) found that when students were writing with technology they, "interacted in ways that were a little like 'talk,' but also a little like 'writing,'…their online interactions were quite like the very best of class discussions, only richer, deeper, and more reflective than most of our period-bound classes could sustain" (p. 132). Likewise to Owens, Green researched that students were more engaged in discussion when they read e-books. Green (2007) found that students become more "interactive and excited" when reading a book on an electronic device. These devices held students' attention in different ways than reading a traditional book (Labbo, Reinking, & McKenna, 1998). This virtual reading environment builds "language development by providing an opportunity for verbal interaction" (Green, 2005, par. 9). Fostering literary discourse in the classroom among students builds a strong community where students feel comfortable to speak up and interact with one another about texts that they have read.

TECHNOLOGY'S VARIED FORMS OF COMMUNICATION
Today, there is an overwhelming amount of conversations being communicated through technology. In order for students to be completely proficient in various forms of communication, they need to be engaging with technology.

Technology has completely morphed the way we communicate. The era we live in now is consumed by digital communication; doctors appointments can be confirmed by a reply to a text message and results are sent via email. In order "for students to be fully literate in today's world they must become fluent in the new literacy practices of information and communication technologies" (Sternberg, Kaplan, & Borck, 1998, p. 418). Students must be immersed in technology to be aware of the different features to communicate with one another. Technology use in the classroom is rapidly spreading all over the world, and "new technologies for information and communication will continually be developed" (Leu, 2000, para. 21). Creating these new technologies means new methods for communication and literacy will follow. Students must never stop studying the ever-changing means to learn and read about new content and converse with one another (Leu, 2000).

THE INTERACTIVENESS OF E-BOOKS
Electronic books (e-books) excite students and provide them with multiple variations for literacy instruction (Larson, 2015). Students become more determined when they are able to work on multiple facets of reading, such as word work, through one app.

For students, e-books can make reading come to life. The illustrations are vivid, they can hear the book being read to them, and look up unfamiliar words by just clicking a link. The two main reasons that e-books are beneficial for students are the multiple ways they help in assisting struggling readers and the interactive literacy programs that help extend their learning from the book. E-books offer a wide range of attributes for a diverse population of readers (Larson, 2015).

Struggling Reader Assistance. Students that have been labeled as struggling or slow readers require the most instruction from the classroom teacher. These are the students that are most likely to get off task, not pay attention, and become distracted or bored during reading time. Struggling readers start to lose confidence in their academics, and begin to give up on all content work. E-books "helped [the struggling readers] gain confidence in their reading abilities" (Larson, 2015, p. 44). E-books have a remarkable amount of features that engage and assist all students. In certain e-books, "the text can be highlighted in the e-book while [the students] listen to the audiobook" (Larson, 2015, p. 44). This multi-sensory reading is a crucial component of literacy instruction for struggling readers because they are given the opportunity to have the book read orally, the text to be simultaneously highlighted, and the choice to pause the book when questions or remarks arise.

Interactive Learning. Every student reads and learns at his or her own pace. When students read books, they create their own personal connections and thoughts throughout the process. With most library books that students check out from the classroom, writing in areas within the text or highlighting certain passages are not permitted. In turn, this can hinder students' learning process because they may forget specific aspects of the book that made it more enjoyable (Larson, 2015). However, when reading from e-books, students have the freedom, and encouragement from teachers, to make notes in the margins and highlight parts of the text whether for questions or connections (Larson, 2015). Teachers can also gain a lot of knowledge from the "student-made" comments in their readings, check for a solid comprehension and questions that may have arisen during reading, and "get a glimpse into each reader's mind" (Larson, 2015, p. 46). This way, teachers can get an idea on what they should review as a class or individually with students. Teachers can also check for progress among all students and recommend different books or activities to further students' growth. E-books provide benefits for both teachers and students in the classroom.

TECHNOLOGY'S USE FOR PREPARING STUDENTS FOR THE EVER-CHANGING WORLD
Technology and literacy are two of the most flourishing and constantly evolving content areas in our world (Leu, 2000). Finding a good job in the current, competitive market requires a person to have both strong literacy and technological skills. Literacy has always been a standard practice, but now technology is the new, exciting practice that is entering the workforce (Sternberg, Kaplan, & Borck, 2007). In order for students to be well-versed in both of these practices, teachers must be aware of today's' growing culture of technology and be able to prepare their

students for their future; teachers must be able to have students practice combining traditional and new practices. Teachers can prepare their students by implementing technology into their daily classroom learning environment, especially through literacy instruction. In order for teachers to enhance their students' learning with technology, they must be confident and knowledgeable about the various types of technologies. Teachers must "become skillful with a variety of informational technologies, engage in critical analysis of media and technology, and learn to integrate technology and information literacy into instruction" (Cervetti, Damico, & Pearson, 2006, p. 379). Instead of just allowing a student to use an iPad to play a game after a completed assignment, teachers must be able to incorporate technology into their instruction to show students how electronic devices can assist in learning. Since technology is forever advancing, it will become imperative for teachers to make sure their "digital literacy instruction in the classroom [is aligned] with its eventual application in the larger society" (Labbo, Reinking, & McKenna, 1998, p. 275).

CONCLUSION

Technology is continuously enhancing and changing our daily lives. Today, technology is rapidly claiming its place in the average classroom by serving as a means for literacy and math practice, as well as dictionaries and encyclopedias. Technology gives students an engaging and new method of learning, helps students build a strong community, and offers students another form of communication with which they will constantly grow and evolve. There are many positive benefits that show how technology can help all students, especially diverse learners. This study is designed to investigate the benefits of integrating technology into daily literacy instruction.

PROJECT DESCRIPTION

In the field-based research, I conducted digital guided reading sessions using iPads with low-literate third graders and collected data that displayed positive literacy growth (engagement, motivation, and comprehension) among the students. Students accessed the app Raz-kids on their personal iPads for our sessions (See Appendix A). For each session we chose a book, previewed the cover, completed a pictures walk, and looked at the glossary or index before reading. Students rotated through reading each page of the book, pausing after their page to be asked comprehension questions and make personal connections throughout. Once the book was read, we discussed the content and then took the quiz provided by RAZ kids, which consisted of five comprehension questions. After the students have finished the quiz and got their scores, we reviewed the different questions and answers to clarify any confusions amongst the students.

PARTICIPANT DESCRIPTION

The first group of students I worked with were third graders whose pseudonyms were Allie, Carson, Tianna, and Roger. Allie and Carson had just moved up to a Level J reading level on the Fountas and Pinnell scale, which correlates to a late first grade, early second grade reading level. Tianna and Roger were on Level I on the Fountas and Pinnell scale, which correlates to a first grade reading level. These four students lacked engagement during reading groups, and did not have strong comprehension skills. The second group of students I worked with were third graders whose pseudonyms were Louis, Zach, and Roger. The two new students, Louis and Zach were on the same reading level as Roger, Level I. Zach is on the spectrum; he has a difficult time staying focused and engaged on the reading, which negatively affects his comprehension skills.

Please note that there are two different groups of students I worked with throughout this intervention, because three out of my four students in the first group advanced beyond the level needed for intervention and are now reading on the required third grade reading level.

PROJECT OUTCOMES

Based on the literature research, I saw technology having positive effects on the literacy skills of third graders. I believed that the technology would excite the students more than a physical book will. The e-book app Raz-Kids has many accessible features, such as varying levels, text-to-speech, and vivid illustrations. I saw that the third graders had a rise in comprehension, enthusiasm, and motivation to practice their reading when using this application during this project. The text-to-speech is not monotonous, and the students are able to play/pause throughout the reading in case they need clarification of a word. I believed these students also benefited from the small group guided reading instruction; they were able to help each other with vocabulary, comprehension, and even technological support.

ASSESSMENT OF PROJECT

I measured the students' growth by using the comprehension assessments created from the application Raz-Kids. These assessments consist of five comprehension multiple choice questions that can only be completed after the student reads through the text. I assessed the students' progress by taking field notes during each session. After the field-based experiment was completed, I administered a survey for the students to complete via paper that asked a series of questions about their personal experience in the small groups guided reading with iPads. These surveys have been typed and are provided (See Appendix B).

ANALYSIS OF PROJECT

For the first visit in October, I gathered my four students into our guided reading groups. After planning with the host teacher, we concluded that it would be best to start on Level I books, and work our way up to Level J. At the beginning of my first visit, we discussed the feelings the students have using the iPads versus regular books in class. All of the students said that they love using the iPads for reading and other school work because they had more fun, and got to do a lot of different activities.

After we got to know each other better, I passed out the traditional, paperback book *Mystery of the Bay Monster* (Fetty, 2008)*,* and had students flip through it to look at pictures and make inferences about what they believed it was going to be about. During the first visit, the small group used actual books and paper assessments. We first previewed the book and learned the new vocabulary. I used pictures to help the students make stronger connections with the new words. When it was time to start reading, students took turns reading a page from the book, while I asked comprehension questions throughout.

During our reading, Allie and Carson were quick to raise their hand to respond to the comprehension questions. Tianna always raised her hand, but when called upon, had to go back in the reading to find the answer. Roger had to be prompted to answer, and he always went back to re-read the pages before answering. Roger struggled during his turn to read the most, however, he could tell you exactly what he just read. When he did not know a word, he would pause and just look at me to help him pronounce it. Once we finished reading the book, I had students share with each other about the ending.

I then passed out comprehension reading check questions that they worked on independently. There were five multiple choice questions. I first let the students work on them independently, then I read the questions aloud a second time. Roger and Tianna both got all the questions correct the first time, while Allie and Carson missed one question both times. We then talked about how for the next visits we would be using the iPads to read and take quizzes. The students all spoke about how they believe the books will help them stay focused and learn more.

For the second visit, we read the book *Healthy Me* (Freed, n.d) from Level I on Raz Kids. We previewed the book, the students made connections about certain pictures, and I introduced the two new vocabulary words that we would come across in our text. Each student took turns reading each page, while I asked comprehension questions throughout. Allie and Carson did not struggle with any words, and were always the first to respond to the questions asked. Tianna and Roger struggled across a few words, but were able to answer questions by referring back to the text. Roger seemed more focused on pronouncing the words correctly when it was his turn to read aloud, rather than what the content said. He also tried to flip ahead in the book to see what page it was his turn to read. I pulled him aside after to talk to him about following along and not to worry if he mispronounced the words, I would work with him to get them right. Once the book was read, I asked some follow-up questions, and all the students answered correctly. The assessment was five multiple choice questions on the Raz Kids App. Allie, Carson, and Tianna all made 5/5. Roger took the quiz by himself, without having the questions read aloud to him, and scored a 3/5. When I sat with him to read the questions and choices aloud, he scored a 5/5. After talking with the students and host teacher, we decided to move on to books being read on Level J. The students picked out the book for next week, and previewed the cover.

For the third visit, Tianna was absent, so our group was just Allie, Carson, and Roger. The students chose to read the book, *Wiggly Worms* (Reifsnyder, n.d), on the app. During our preview of the book, all three students did a strong job making connections with the illustrations of the words in the book; Carson mentioned that there were always worms near his grandmother's garden, and that he knew their body was made up of more than one part even though it only looks like one. This nonfiction story had more scientific and complex words throughout. Even though the words were previewed at the beginning, Roger struggled reading those words throughout, while Carson and Allie were able to take what was taught in the preview and apply it when they read. Carson and Allie answered comprehension questions after the pages that were read, but Roger focused more on reading his words than grasping the content. Roger's assessment was read aloud and he scored a 3/5. Carson and Allie scored 5/5 on the assessment taking it independently, and were able to discuss answers after we talked through the assessment.

For the fourth visit, the students chose to read another nonfiction book titled, *Sharks* (Freed, n.d). During our book preview, we spent a lot of time looking at the introduction to see all the new vocabulary. We also looked up pictures of the types of sharks we would be learning about. I kept the words and pictures up on my computer as we read the book so the students could reference them during their reading. Carson and Allie read their pages fluently, not stumbling over the new content-specific vocabulary. Roger and Tianna both focused more on reading those new vocabulary words correctly, instead of the content. We reviewed the book after everyone read, and then the students took the assessment. All four of the students scored 5/5 on the assessment. The assessment was read aloud for all students. Once we regrouped after going back over the test questions, Carson and Allie both said they wanted me to choose more challenging books to read for the upcoming weeks. However, Roger and Tianna did not agree with that proposal.

On the fifth visit, we read the book, *Why do Leaves Change Color?* (Freed, n.d). All the students were eager to start reading this because they said it relates to what they had been learning about in class. Since Allie and Carson expressed that they wanted to read more challenging books our sessions, I decided that they could help us by retelling and explaining what was read after each couple of pages. There was one vocabulary word to pre-teach, photosynthesis, and the students were already familiar with this word, so we got started quickly. Allie and Carson did an exceptional job retelling what was read, and explaining different stages of the process of leaves changing colors. While Roger struggled over the vocabulary word, he benefited from Allie and Carson's retelling. Roger was stumped by the vocabulary word and would zone out while his other classmates read their pages. Allie and Carson scored 5/5 on the assessment the first time that they took it. Roger and Tianna scored 2/5 the first time. We went through it again and the students understood their mistakes. Allie and Carson talked Roger and Tianna through the questions, referencing to parts in the story.

On my sixth visit, we read the fiction story, *Hannah's Townspeople* (Sweeney, n.d). We talked about the difference between fiction and nonfiction books, and what the students predicted would happen in the story. From the beginning, while we were previewing the book, every single student seemed engaged and excited to read it. There was a lot of academic discourse occurring between the students about what they thought was going to happen in the story. Allie and Carson read their pages fluently, made inferences after each reading, and retold what they just read. Tianna did a great job of reading more fluently, and not getting stumped up on pronouncing words. I saw great improvement in Tianna when it was her turn to retell parts of the story. Roger also improved a great deal when it was his time to retell parts of the story, but still paused and waited for help when he struggled with words. At the end of the reading, all the students were eager to answer comprehension questions. Everyone scored 5/5 on the reading assessments. Even once the assessment was finished and we discussed the story, the students were still conversing about the story and adding their own opinions about the story.

For my seventh visit, and last visit before the New Year, the students chose to read a nonfiction book *Number Twelve* (Osborn, n.d). We previewed the book and then began reading. Roger seemed to quickly lose interest while his peers were reading, and told me that he wished that the book would have been like the one they read last week. I was also hoping the student would choose another fiction book, similar to last week, because they all seemed more engaged and excited while reading. There were a lot of math connections in this book, and Tianna and Carson asked questions about it. To try and make a connection, I would show whatever the math was on the whiteboard for them. While the students were excited to connect what they read to what they know in math, they would forget about the book and just ask more math questions. This book was hard in keeping everyone's attention.

The test was read aloud for the students, but Carson and Allie took it on their own, finishing first, and scoring 5/5. Tianna and Roger scored 4/5 on the quiz. After the assessment, we went through the questions and corrected the one that was missed.

My eighth visit was at the beginning of the New Year, and I found out positive news about Carson, Allie, and Tianna. These students were tested, scored at a higher level, and were moved into different reading groups. Roger's reading level remained the same, level I. I was able to gain two more into my new group with Roger. For our session, we read the book *Three Little Pigs* (Sweeney, n.d) on Level I on the iPads. Roger was more fluently reading Level I than he was reading Level J, however he seemed embarrassed and was upset that I was making him read a Level I book, since we normally work with Level J books. The host teachers and I chose to work on a Level I book at the beginning so I could get a stronger grasp of the students' strengths and weaknesses, and then move back up to Level J.

Louis was excited to read, and read his parts with expression. Zach was very shy, but opened up towards the end of the session. Zach seemed to focus more on just getting through his page, rather than really concentrating on what it was saying. He stumbled over a few words, but had the most trouble with comprehension. When I would go back and ask him what happened on his page, he could never give me a definitive answer, and needed help from the other two students. I read the assessment aloud to all the students. Zach scored a 2/5, Roger scored a 1/5, and Louis scored a 4/5. We went back through the quiz and talked through each of the questions and went back to choose which one was correct and why their answer was incorrect. We practiced going back in the text to look for answers when questions or disagreements arose.

On my ninth visit, we chose the book *The Thanksgiving the Jacks Built* (Bakker, n.d). Roger was excited to read this, because he quickly saw it was a fiction book and he knew he would enjoy the story. We previewed the book by looking at the title, making some predictions, talking about what we thought the family would be like, and then began reading. All three of the boys read their pages of the book very well; both Roger and Louis stumbled over a few words. The book had a repetitive rhyme to it. After about the third time, Louis and Roger spoke up saying that they had already read this part before. Louis said he really liked how it repeated and rhymed, and how it made him want to sing it. Zach was highlighting the rhyming parts on the different pages so he could go back to see what was added over time through the story. He was able to quickly answer my follow-up questions after we finished reading because of his highlighting. Zach was able to utilize helpful features on the iPad to help him recall parts of the story. For the assessment, I read the questions aloud like usual, but Roger and Zach went ahead and were not fully focused. On the first try, all of the boys scored 3/5. They all missed the same two questions that dealt with inference answers. We talked about inferencing, and focused on what they would do if they were the character in the story to solve the question. After we read through each question and answer once more, all the boys scored 5/5.

For my tenth visit, we read the book *Riding with Rosa Parks* (Forrest, n.d), which was Louis's choice. We previewed the book first, looking at the cover and talking about what we already knew about Rosa Parks. All three of the boys did a great job reading; they worked on sounding out the words by themselves, and making connections with what they read. Louis and Roger stayed engaged in the story. The two boys said what they would have done if they were in Rosa Park's position and how they would have fought to change the rules. Zach read through his parts really fast, sometimes stumbling over some words, but he always went back to repeat them when prompted. For the assessment, I read through the questions like usual. Except this time, Zach sped ahead and tried to complete the assessment by himself. He ended up scoring a 1/5. Louis and Roger listened to the questions and scored a 4/5. When we went through it the second time, Louis and Roger explained their answers, and Zach scored 5/5 the second time around. Zach even told me he did "bad the first time because I took it way too fast and did not read like I was supposed to." Looking ahead to my next visit, we decided to choose a book for the boys to listen to before we read it in our group next week to try and give the students, especially Roger, more confidence in his reading.

For my eleventh visit, the boys were supposed to listen to the book, *Darby's Birthday Party* (Roberts, n.d). Zach was out sick, so I just had Louis and Roger today. Roger ended up leaving his iPad at home, so he had to borrow another one. He was also having some classroom issues in the morning, so he was not cooperating. When we got settled, Roger was the only student who previewed the book by listening to it, so he recalled the characters. Both Louis and Roger worked extremely hard. Roger really concentrated on sounding out words, and using illustrations as clues to decipher words. They were both also able to answer all comprehension questions without having to look back in the story. Despite the distractions and issues, Roger maintained his focus while reading, using his illustrations as clues to decipher words and really concentrated on sounding out words. For the assessment, I read aloud the questions. Roger was able to take the test on the borrowed iPad. Both Roger and Louis scored 5/5 on the first time and were able to talk and go over the questions fluently. We listened to the book *The Thanksgiving the Other Jacks Built* (Bakker, n.d)*,* and we planned to read it next week. I wanted to see if listening to the book before reading would help the boys when they actually sat down to read the pages.

For my twelfth visit, I only had 2 boys, Louis and Zach, Roger was out sick. We previewed *The Thanksgiving the Other Jacks Built* (Bakker, n.d), and talked about what we remembered from listening to it last week. The boys did a great job reading today, even though we were pressed for time because of school visitors. They read slowly, and sounded out words before giving up. Zach did a great job identifying words and telling me what he read. His comprehension improved greatly. Louis and Zach were very engaged in the story; they listened intently to each other read the pages and made comments during the story. Both boys listened intently and took their time when taking the assessment. I read the questions aloud and the boys scored 4/5 on the first time, and then scored 5/5 on the second time when we talked through it. We picked out the book for next week and previewed the cover. The boys planned to listen to it before I came back, and I gave Roger's teacher the plan to make sure everyone would be on the same schedule.

For my thirteenth visit, I had all 3 boys for our small group. Roger had a difficult time getting settled today. He got his iPad privileges revoked this past week because he was listening to inappropriate music, so he was not completely reconnected. He did get his iPad back for our session. We read the book *The Disappearing Moon* (Butler, n.d), after the boys listened to it. The students did enjoy reading this book. Roger did a fantastic job sounding out words before just giving up on them. He also did a lot better comprehending the story and answering the questions. Zach did a great job reading his pages and trying to answer the questions. Louis read very well, but while the others were reading their pages, he did have trouble paying attention. I would catch him looking off into space, and it was difficult getting him refocused back on the story. When we did the assessment, I read the questions aloud for the students. Zach and Louis got 4/5 on the first time and Roger got 2/5. The second time around when we talked through the questions, everyone got 5/5, and the boys were able to tell me why they picked the wrong answers the first time.

My fourteenth visit, we read the book, *Welcome, Carlos!* (Boelts, n.d). Today I had all three boys and we had a fantastic session. We previewed the cover and the boys discussed what they remembered the book to be about after listening to it last week. After we discussed, the boys started to read. Roger read all his pages without stopping and asking for words, which was a huge personal improvement. He has improved so much over the span of our sessions. Louis had a tough time sitting still again today, but he still was following along with the story. Zach also read really well today; he struggled through some of the names in the story, but he slowed his reading down, and did a great job comprehending the story. Louis and Roger scored 4/5 on the first assessment, Zach scored 3/5. When we went back through it, everyone scored 5/5. The assessment questions were still read aloud to the students, but Louis and Roger did not wait for me to read through each one. I ended up not reading the last question, because I could tell the boys were reading the assessment questions well on their own and at their own pace, and I did not want to interfere with that. Zach did ask me if I could go back and re-read another question, which I did, but I wanted to give the boys an opportunity to read it on their own and gain confidence in their reading holistically. Roger did have a smile on his face after finishing his reading today and when he finished the assessment, only missing one question. We also chose our next book, and previewed it for next week.

For my fifteenth visit, we read the book *Leopard, Ram, and Jackal* (Stone, n.d). There were a few vocabulary words that needed to be taught first. The boys struggled with grasping what type of animal a jackal is. Even when we used pictures and looked at different images on the iPad, the boys were still confused. Roger read his pages with more confidence today; he only paused at a few words, asking for my help. Zach read with the most confidence today, he

even helped his classmates with certain words when they were struggling. Louis also read with confidence today, but he read very quickly. I did have to ask him to re-read a few pages because he skipped over sentences or misinterpreted his content. After we read, we talked about what happened in the story and went back through the new vocabulary. For the assessment, I chose not to read the questions for the students to see how the boys reacted to doing it completely on their own. Roger and Zach scored 3/5 on their assessment and Louis scored 2/5 on his assessment. We looked back at the questions the boys missed and went back in the reading to find the answers. Roger said he knew that he was reading the assessment too fast, and he should have slowed down. This is another huge growing step for Roger with his self-correction. After we talked more about the assessment, we chose our next two, and last, books for us to read for the last two sessions.

For my sixteenth visit, we read the book *Firefighters* (Knight, n.d). Roger, Louis, and Alex were enthusiastic to read this book. Roger had a lot of personal connections with this book from TV shows, video games, and movies that he has seen. Roger did a strong job reading at a steady pace, and even commented to Louis on how he should slow down his reading to prevent stumbling over words. Alex enjoyed the book and also made personal connections in the text. For the assessment, the boys decided to read the questions independently. The first time through, Alex scored a 3/5, Louis scored a 5/5, and Roger 4/5. We went back over the questions with me reading them aloud and the boys all corrected their mistakes and scored 5/5.

For my last visit, Roger, Louis, and Alex filled out the surveys (See Appendix B) regarding the study. We talked about what the differences were when reading the books off of the iPad rather than actual book. I pulled each student individually and recorded their answers so the boys could each have enough time to actually talk about their time reading on the iPads without being pressured to write it all down before time was up.

COLLABORATION
While I worked with the students in guided reading groups only using iPads, they were also getting literacy instruction via iPads daily in class. The students were administered a survey at the end of the study to give them a personal opportunity to reflect on the experience. They each had strong opinions on using the iPads with their literacy instruction (See Appendix B). The students liked the fact that the e-books had vivid images, and allowed them to highlight words that they were unfamiliar with. While some students would have preferred one-on-one intervention, others liked the group setting because they were able to hear their classmates read and work together when trying to make predictions for the story. The students became familiar with all the different settings and features that are offered on the Raz Kids app, and were able to utilize them to their best ability during our sessions.

Having the students placed into a setting with their peers, had a great effect on their learning. The students were familiar with each other, and by the end of only a few sessions, we had built a strong community where the students felt safe to ask questions, point out personal mistakes, and make corrections. The students also felt comfortable asking each other questions about the technology that was being used, according to their surveys (See Appendix B). Some students were very familiar with iPads, while others were not. The questions and answering with the iPads also fostered a strong community in our reading group.

FINDINGS
The graph below shows the students' comprehension skills improved during this research (See Graph). There was a dramatic increase in Fountas and Pinnell scores for the students Allie, Carson, and Tianna over the course of this study. This indicates that students comprehension levels increased as a result of the intervention. These three students participated in seven sessions, and their reading scores jumped four to five levels, placing them on a third grade reading level. The host teacher tested the reading scores of the students and found positive results after seven visits. Caron's reading level jumped from a Level J to a Level N. Alli's reading level jumped from a Level J to a Level O. Tianna's reading level jumped from a Level I to a Level N. Roger, Louis, and Alex's reading levels all remain on the border between Level J and K. This indicated a moderate increase in their comprehension levels. The students also noted in their surveys (See Appendix B) that they believed that reading on the iPads helped them understand the books better.

Student's Comprehension Scores on First Assessment after Reading
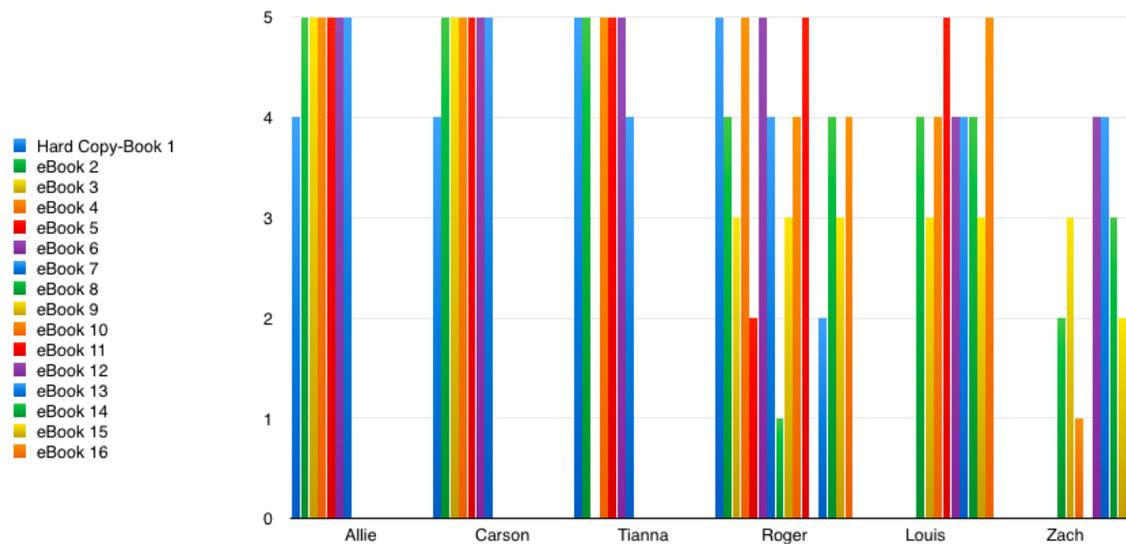
The students' engagement increased during this study as well. The iPads served as great tools with ample features to get students excited about reading. The students were able to pick the text that we read for each session. I believe this encouraged engagement during our sessions since the students were able to choose the readings. The students stayed engaged by making personal connections throughout their readings. The students in the small groups did not have behavioral issues during our session. While I cannot connect good behavior to using the iPads, I believe the iPads helped the students remain focused and engaged on the text.

Through their increased engagement, readers became more self-aware. Both Roger and Zach grew in their engagement in reading as their comprehension scores grew. For example, Roger began to recognize when he read too quickly, he did not comprehend the text. Both of these students realized when their pacing needed to be slowed during a session, or when they felt like they could be challenged with reading a more difficult text.

As the comprehension scores grew, the students' motivation towards reading grew dramatically. They worked on sounding out words by themselves before asking for help, and they also became more engaged with the text by asking questions, making connections, and making inferences. The students' motivation, as well as their confidence as a whole, grew during the sessions, as they comprehended the readings. When students remain engaged and motivated to read, they become more self-aware and their comprehension skills will increase.

FUTURE PLANS
After completing this study, I learned valuable information that will affect the way I incorporate technology into my own classroom. Technology served as a beneficial tool to get students engaged and motivated to read. I would have liked to start this study at the very beginning of the school year and continue it to the very end of the school year to track the changes. I also would have liked to have longer sessions with the groups. Instead of previewing, reading, and taking the assessment on the same day, I would have liked to spread it out over a few days. It would be interesting to work with the students for a full year for more than one session a day to see the growth during a more intensive study. I think it would be interesting to extend this study with those students as they progress into fourth grade. Since the technology is new, different, and exciting for the students this school year, I think it would be interesting to see if the technology loses its' exciting value from year to year.

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APPENDIX A
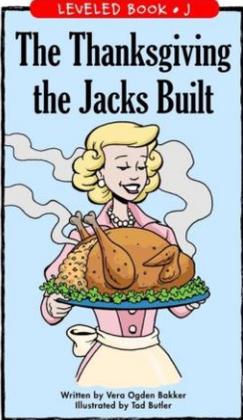
Raz Kids application-Book and Assessment:

Thanksgiving the Jacks Built, The

1 2 3 4 5 Done

Where does the grocer live?

A in the town

B on a farm

C in the store

Thanksgiving the Jacks Built, The

1 2 3 4 5 Done

Why does the farmer smile in this story?

A Grocers are buying his turkeys.

B The truck looks funny.

C The farmer just cooked a turkey.

APPENDIX B
Surveys:

Questions:
1. Did you like reading on the iPads more than you liked reading a physical book? Why?
2. Do you think reading books on the iPads help you understand the book more? Why?
3. Did you like reading as a group with the iPads, or would you want to do it one-on-one with a teacher?
4. Is there anything you would have changed about the guided reading on the iPads with me?

Allie:
1. I like reading on the iPad because it has more important stuff on it, and it gives us more information. It gives more words to learn.
2. Yes, it makes me understand the books and it is more interesting. It gives me more stuff to understand and it important stuff on the iPads.
3. I will like to do it one-on-one with the teacher because it is more quiet. It will be easier to read right.
4. I would like to go to the higher level of books. Sometimes the books are too easy for me so I think we should go to a harder level.

Carson:
1. Yes, because I like the pictures and facts on the pages.
2. Yes, because it defines the word if you do not know it.
3. I like to read with the group better.
4. No. I liked it.

Tianna:
1. I like reading on the iPads better than an actual book because the iPads can zoom in to words and define them.
2. Maybe, not really. I liked using them more.
3. I would like to do it as a group.
4. No. I liked it.

Roger:
1. Yes, because every time you are on the page you can't skip the words you don't know how to say. It keeps you on each sentence without letting you get ahead. I also like reading on the computer better than a book.
2. Yes, because when you're reading a hard copy book it doesn't tell you more about the title and words. The iPad tells you more and defines them.
3. I liked it in the groups because you don't have to read all the pages. You can take breaks, if you have a long

book.

4. No, I liked the group, but I would have liked to read different books. Everybody got to choose a book to read but sometimes I did not like the books they chose. I liked the books where they did the same stuff as me.

Louis:

1. I like the iPads better, it helps you understand more. I like the colors and pictures.
2. Yes, it helps me understand more. It helps you read clearly, when I read chapter books it has bigger spaces and helps me see it better
3. I liked reading with the group, I liked hearing everyone else read the book too.
4. Wanted more sessions with you. I liked the books we read, I wish we could've read more.

Zach:

1. Yeah, RAZ kids, liked listening to the book too.
2. Yeah, I like the device more than the book. I liked how we can go back and check answers in the ebook. I liked taking the quizzes on the iPad better than paper.
3. I would rather do it one-on-one, I like just the teacher and me. Sometimes the others weren't listening.
4. Yes, I wanted to read more books.

THE EMPLOYMENT OF INTERNET SYSTEM FOR FACULTY MEMBERS AT TAFILA TECHNICAL UNIVERSITY

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The study aimed to identify the extent to which the internet System for Faculty Members at Tafila Technical University. The study sample consisted of 145 faculty members at Tafila Technical University. they were selected in a random sample manner, The researcher used a questionnaire divided into three main areas: teaching activities, scientific research, and motivation for learning, the results showed that the employment of internet Systems for Faculty Members at Tafila Technical University was a medium degree. It was also found that there were statistically significant differences due to the college and academic rank in favor of associate professor and humanitarian faculties. whereas no significant differences due to years of experience variable. the researcher recommended to encourage educational techniques in teaching and interested in employing the Internet system in Higher Education Institutions.

THE EVALUATION OF THE COGNITIVE LEARNING PROCESS OF THE RENEWED BLOOM TAXONOMY USING A WEB BASED EXPERT SYSTEM

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The aim of this study is to develop the Web Based Expert System (WBES) which provides analyses and reports based on the cognitive processes of Renewed Bloom Taxonomy (RBT), and to put forward the impact of the supportive education provided in line with these reports, on the academic achievement and mastery learning state of the students. The study was carried out in a quantitative method, and pre-test, post-test matching control group model of semi-experimental designs have been used. A total of 50 students which are in 8th grade and also participate in supportive education have been selected (25 as the experimental group, 25 as control group) using the purposive sampling method. The experimental group has been given supportive education based on WBES system and the control group has been given the traditional supportive education. According to the conducted independent groups t-test and descriptive analysis, it's been found out that the method based on WBES is more effective than the traditional methods both in academic achievement rate and also mastery learning.

THE EXAMINATION OF THE NOTION OF EDUCATION WITH TECHNOLOGY İN THE MILL AND THE CROSS BY LECH MAJEWSKI

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Transferring the artistic information to the society that is examined in the axis of *Lech Majewski'*s movie called *The Mill and The Cross;* in this way, the impact of the cinema as a technological product on the relation between the information and the society forms the outline of this manifesto. The scientific stages of learning and teaching and the impact of the cinema on the process of learning and teaching are examined in this research. The reaching of the artworks that were produced by Brueghel in the 16th century to the large number of people in this era by using the cinema shows that the technology is a fictional way to spread the information. This manifestation aims to examine the contributions of the cinema to the education and find out an answer how to turn the technological developments into the educational sciences.

THE FUTURE OF ARTİFİCİAL INTELLİGENCE İN STORYTELLİNG AND JOURNALİSM

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ABSTRACT

The question of major story arcs in the field of literature has been widely debated, with ancient scholars such as Aristotle and modern scholars such as Kurt Vonnegut arguing for the existence of major story arcs in storytelling. However, today with the advent of artificial intelligence and data mining algorithms, new perspectives on this very ancient question of major story arcs can be re-examined in order to shed light on how education will evolve in literature and journalism. This paper addresses the use of artificial intelligence to analyze stories in literature and journalism with special attention to data mining. Specifically, this project will be looking at the major stories arcs as identified by algorithms in order to show how stories arcs can be used to teach journalism. This paper will discuss the future trends in artificial intelligence and its foreseeable effects in future literature and journalism classes. This paper argues that artificial intelligence will continue to play a larger role in education when it comes to the 21st century classroom and that educators must become familiar with this increased influence. In conclusion, this project, by closely examining the role of artificial intelligence in storytelling arcs, sheds new light on how literature and journalism will be taught in classrooms of the future.

INTRODUCTION

"I writhed with joy, which I experienced for the first time, and kept writing with excitement. The day a computer wrote a novel. The computer, placing priority on the pursuit of its own joy, stopped working for humans" (Schiller, B., 2016).

A couple of sentences above are excerpts from "Konpyuta ga shosetsu wo kaku hi," or "The Day a Computer Writes a Novel" by an AI program at Future University Hakodate in Japan. This unusual piece of work had been recognized when it entered the writing contest for Hoshi Shinichi Literary Award. The novel was instantly noticed by officials and the public alike, for it was, despite having been written by artificial intelligence, astonishingly well-structured, grammatically correct, and well-balanced regarding plot and setting distribution. The book didn't win the final prize, due to several limitations – According to Big Think, a science fiction novelist commented on the book later at a conference, saying "I was surprised at the work because it was a well-structured novel. However, there are still some problems (to overcome) to win the prize, such as character descriptions." (Shoemaker, N. 2016). While the attempt did not bear its intended fruit entirely, it still shocked the world, not as much for its writing skills as for the sheer, somewhat disturbing fact that artificial intelligence has now come to the point in which it can create, an ability, which until now, had been recognizing as strictly human.

Artificial Intelligence's breakthrough in the field of storytelling signals the upcoming of a new chapter in even the history of AI itself. Sure, artificial intelligence has, in the past couple of decades of its rapid evolution, achieved feats that had only been dreamed by authors of science fiction novels and films. Deep learned systems in phones work as secretaries, while individually motivated devices help set the table, and autonomous drones complete with face recognition features guard the borders. In fact, artificial intelligence had even been put in charge of writing before. Automated Insights, an AI-powered article writer, produces stories from data according to algorithm-provided style and formatting guidelines. News Atlas claims that "Its AP news articles are dry and efficient in the same way as human-authored AP stories…Even including jokes and slang" (Moss, R. 2015).

Still, creative storytelling in artificial intelligence meets only shock, if not skepticism, almost every time it is revealed to the public. The biggest cause of the excitement is, presumably, similar with the perceived difference between artificial intelligence in journalism and creative storytelling: the notion that creativity has always been a sacred gift that only humans enjoyed since the birth of its existence. Another would be the conception that creativity is the exclusive property of the human soul. Dieter F. Uchtdorf had asserted that "The desire to create is one of the deepest yearnings of the human soul." Marilyn Monroe quoted "Creativity has got to start with humanity, and when you are a human being, you suffer; you're gay, you're sick, you're nervous or whatever." How blasphemously shocking that a machine that possesses nothing such as feeling nor emotion, let alone a soul may take humanity's mantle as a creator indeed! How could a computer write: "There was no one else in the world / There is no one else in sight / they were the only ones who mattered / they were the only ones left / he had to be with me / she had to be

with him / I had to do this / I wanted to kill him / I started to cry / I turned to him." (Excerpt from "Generating Sentences from a Continuous Space, written by Google Brain Team's AI. May 12, 2016) when had it never felt any human emotions?

Perhaps the best explanation for this unusual achievement of intelligent machines lies in deep learning's design. The deep learning model consists of layers of interactive algorithms, which simultaneously classify intricate structures from the big data and make predictions over new input. In other words, the deep learning models are designed to act like the human brain, voraciously feeding off input data and utilizing them to further interact with the world. Research had first started primarily to expand the sphere of the practical utility of artificial intelligence. However, impressive modern progression in the modern era had led to researchers meddle further with its capability, feeding the deep learning model with literacy data and attempting to make it mimic human creativity and emotions. As a result, in 2008, artificial intelligence utilized the term "true love" in a variation of Leo Tolstoy's "Anna Karenina" and in 2013 an MIT digital media professor successfully coined an AI program that wrote "World Clock", which used lines of coded algorithms to arrange characters, locations, and actions.

Although most individuals are aware that artificial intelligence has now become astonishingly similar with the human brain, machines' feat to conceive works that surprising strike its readers with structured originality and dramatic devices is still mesmerizing to most. However, it is important to note while it may seem that literature does not have any particularly successful patterns or "money codes," there are, in fact, story shapes, or outlines that evoke more emotions and enjoyment than others. Kurt Vonnegut, a writer greatly acclaimed for his humor and prose, asserted that "stories have shapes which can be drawn on graph paper, and that is the shape of a given society's stories is at least as interesting as the shape of its pots or spearheads" (Jon Fusco,2016). He argued that most acclaimed stories fall within eight emotional arcs: Man in Hole, Boy Meets Girl, From Bad to Worse, Which Way is Up, Creating Story, Old Testament, New Testament and Cinderella. Although some assert that Vonnegut was half joking -as he did most of the time- when he stated his hypothesis, the "story shapes" theory have been graphed, taught, and even proved among computational analysis in 2016 (Figure 1.) by the Computational Story Lab at the University of Vermont in Burlington. In discussing Vonnegut's "story shapes," the participants within the lab concluded that "our ability to communicate relies in part on a shared emotional experience, with stories often following distinct emotional trajectories and forming patterns that are meaningful to us."

Figure 1.
(Retrieved from : http://nofilmschool.com/2016/11/emotional-arcs-6-storytelling-kurt-vonnegut)
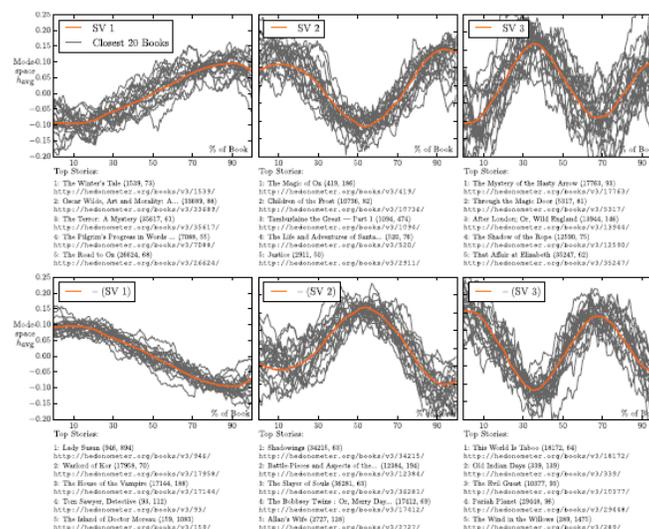
Certain creative artists such as Jon Fusco, an American screenwriter, and producer, took this as proof "without a doubt, that Vonnegut and his thesis were correct." The AI's finding would serve as proof that stories can indeed be broken down into simple formulas. Granted in this stage the six templates found by the AI is rudimentary. It takes a look at the bigger picture in order to encompass stories into larger categories. However, the step taken by the AI is clear. Writing, something once thought to be sacred to man has become increasingly integrated into an algorithm that machinery and programs can understand.

Similar breakthroughs can be seen in the field of journalism. During the 2016 election, The Washing Post employed an advanced artificial intelligence technology under the name Heliograf. After its first debut during the Rio Olympics, Heliograf provided The Washington Post with "unprecedented level of election coverage" with "up-to-date reporting, analysis, and results for nearly 500 races." (The Washington Post, October 19, 201). The program would stay consistently updated on the progress of the election and produce text that covered necessary events. Of course The Washington Post relied on human writers to edit Heliograf's articles and ensure the quality of content. As Jeremy Gilbert, director of strategy initiatives at the Post claimed "We have transformed Heliograf into a hybrid content management system that relies on machines and humans, distinguishing it from other technologies currently in use. This dual-touch capability allows The Post to create stories that are better than any automated system but more constantly updated than any human-written story could be."

Whether it is the more practical and rigid structure of a reported news article or a more artistic approach to writing that lies within novels and stories, these advances in AI usage foreshadow a movement of technological advancements in the field of creative writing. Christoph Thun-Hohenstein, Director of the Austrian Museum of Applied/Contemporary Art in Vienna, explained in his interview with Medium, "the system works in such a way that as soon as one company starts to go down this of partial-to-full automation, when technology permits it, all the other companies in the same field have to do the same. This is the law of the market."

LIMITATIONS

Though the possible application of artificial intelligence in the field of Journalism is endless, there is still a need to differentiate between the practical and impractical ways to program an artificial intelligence. For example, an AI program that aims to seek the newest "trend" or "scoop" for journalists will be hard to program. Not only are there multiple variables that will need to be considered in order to track the previous trends in order to predict a new story, but also determining what variables needs to be quantified and predicted is a conundrum in itself. Depending on what kind of story the journalist wishes to report on, the variables that need to be quantified can range from previous criminal records of cities and individuals to the weather forecasts. The simple fact is, artificial intelligence can store and find information faster than any human but interpreting the information and programming the artificial intelligence with a specific purpose lies within human hands.

A more plausible artificial intelligence program could calculate the possible reception an article will receive in a given site. The AI could record the key words and structure of the inputted article, as most artificial intelligence employed in the field of journalism already has these templates programmed, and compare it to previous articles published by the news site. Variables would include the number of views, the number of likes or dislikes on SNS sites such as facebook, the number of positive and negative comments, and so on. With these variables and a clear purpose, the artificial intelligence can be given test sets and training sets by inputting the articles that have already been published so that it can adjust its weights to create an accurate program. With its intentions clear and the variables determined, artificial intelligence has the potential to become an even bigger powerhouse in the journalism industry.

TECHNOLOGY

Perhaps the best explanation for this unusual achievement of intelligent machines lies in deep learning's design. The deep learning model is consisted of layers of interactive algorithms, which simultaneously classify intricate structures from the big data and make predictions over new input. In other words, the deep learning models is designed to act like the human brain, voraciously feeding off input data and utilizing them to further interact with the world.

The process of applying deep learning programs, neural networks, has two stages: design and training. In order to understand how these stages manifest into a neural network, an understanding of the structure of a deep learned program is required. The structure of a neural network can be separated into three segments or layers: the input layer, hidden layer and output layer. Each layer consists of a node, which serves a function by receiving different inputs and calculating a new output. The input layer essentially holds the basic information that is being valued and inserted into the neural network. The function of the different nodes in the input layer is to send information to different nodes in the hidden layer. The outputs, however, are multiplied by a certain "weight" or numerical value that is used to adjust the different numbers so that all inputs in a single node in the hidden layer will be able to balance the different inputs.
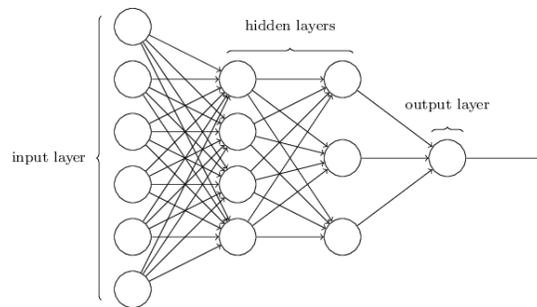
Figure 2

The hidden layer consists of multiple nodes that receive multiple inputs and recalculates the numbers into an output through the process mentioned above. (Figure 2) The hidden layer can consist of more than one layer with multiple nodes receiving information from nodes in a previous hidden layer, through a process known as Forward-Propagation, rather than from the input layer. Finally, the output layer consisted of what is essentially the final result of the hidden layer to create a value.

When designing a neural network there are a few factors that can be adjusted to meet the needs of the programmer. The first is determining the activation function of the several nodes within the hidden layer. The activation function is the function that is applied to the several weighted inputs in a node to create a singular output. Depending on the activation function that is chosen the result of the node can drastically change. Another decision a programmer will have to make is the amount of hidden layers. Adding more hidden layers will not necessarily lead to a better program.

After a neural network is designed it will undergo training. Unlike a traditional computer program that is burdened with several hundreds of lines of codes that all serves a singular function, a neural network is able to work with a given dataset to adjust and adapt its process. Training begins with gathering data of both the factor that is desired to be predicted and the factors that could potentially affect the desired factor. For example, when you want to predict the value of a certain produce you would find data on current prices on the produce and other factors such as size and location of the produce that could potentially affect the price.

After sufficient data is gathered the datasets are divided into test sets and the training sets. The neural network then receives randomly initialized weights that are close to zero. The first observation of the training dataset is inputted into the input layer and through Forward-Propagation a predicted result is generated. The predicted result is compared to the actual result and through Back-Propogation, (Figure 3) information is sent in the opposite manner to adjust the weights of each node. An epoch is when an entire training set passes through the artificial neural network. Multiple epochs ensure the viability of the program. The final accuracy of the training program is determined by inputting the tests set into the completed neural network.
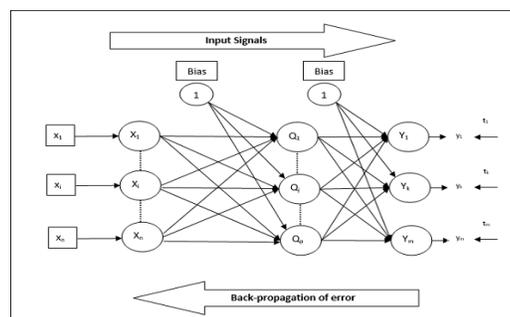
Figure 3
(Retrieved from:
https://www.tutorialspoint.com/artificial_neural_network/artificial_neural_network_quick_guide.htm)

This rather simplified process of an artificial neural network should give you a glimpse of the complicated nature of AI programs. This self-learning tendency gives artificial intelligent programs the ability to adapt to different situations and perform with more flexibility than a program that is created through only codes.

IMPLICATIONS FOR EDUCATION

In order to accommodate these changes in the fields of creative writing, especially literature and journalism, future classes should find ways to incorporate AI usage into their classes. Major universities have already hosted conferences on AI and journalism. Examples include the "Artificial Intelligence: Practice and Implications for Journalism" conference that was held by Columbia University's Tow Center for Digital Journalism and Brown Institute for Media Innovation. The conferences included talks on the ethics of using AI in journalism and the practical application of the technology.

Though the practical application of AI in journalism is apparent and straightforward, the ethical usage of AI is still under controversy. A panel at Columbia addressed the legal and ethical dilemmas behind the information gathering method of AI programs. Not all information on the web is legally or ethical usable and a machine doesn't necessarily understand how to make that distinction. Furthermore Amanda Levendowski, a clinical Teaching Fellow with the Technology Law and Policy Clinic at NYU Law, was quoted stating "Companies are risk averse, and they prefer to use publicly available data sets, such as the Enron emails or Wikipedia, but those datasets can produce biases," (Lichterman, J. (2017). This would mean that journalists will need to perceive the biases that may affect the findings of the AI as many economists and advertising agencies have done in the past with their own research. Biased data can potentially lead to false conclusions that due to the large nature of the AI's findings will represent an erroneous representation of an issue.

These are issues that should be addressed in classrooms for journalism. Classes must learn to accommodate the advent of AI and adapt by learning the practical and ethical issues behind implementation of artificial intelligence. With the rapid changes that are occurring in the field of journalism and creative writing as a whole, the future leaders of the field lie within those well accustomed to the new technology.

The application of artificial intelligence in classrooms can come from both lectures and active interaction. Lectures, a staple in most curriculums, allows for students to receive information in a formal, albeit trite, form. Through lectures students can learn the structures of artificial intelligence programs and the different ethical issues that surround the usage of AI. Through active interactions with artificial intelligence students will be able to acquire more practical experience. Active interaction would entail live demonstrations of artificial programming gathering information or writing over a previously created work by artificial intelligence to mimic the process of The Washington Post and the Heliograf. Active interaction does not entail the actual programming of an artificial neural network since any actual experience in that field would require extensive studying that would stray from the original goal of teaching journalism. (Luckin, R.et.al. 2016)

The current literature in the field of AI shows an increasing trend in the use of programs with artificial intelligence. Even fields that were once thought to be immune to computerization such as journalistic careers are showing signs of changing towards these programs. The most prominent example of the adoption of AI can be found in The Washington Post's Heliograf. Furthermore, even the field of fictional literature has seen the rise in AI technology.

However, many organizations are still hesitant to adopt a completely automated system. Rather, they employ both AI technology and human resources in order to optimize efficiency and quality. Therefore, though the future of journalism isn't under threat of complete mechanization, the people who will find employment will be those who are able to utilize the AI technology. (Luckin, R.et.al. 2016)

Future classes in the field of journalism must be able to accommodate this change by equipping its students with the proper knowledge to work with these programs. Moreover, these classes will also have to task itself with teaching students the ethical issues and guidelines that arise due to the rapidly changing technology. With programs that can gather large quantities of information from even remote areas of the Internet can pose a threat to people's privacy or amass information without understanding bias, humans are a necessary ethical component in the future of journalism.

CONCLUSIONS

The core aim of deep learning in artificial intelligence is to create machines that resemble humans -as God created man to resemble his form- both in intelligence and the ability to autonomously function. Studies have proven that AI has already arrived, although staggering, toward the platform of creation. While storytelling by artificial intelligence yet lacks both literary sophistication public attention, ongoing research in machine learning and the nature of establishment itself is anticipated to bring us closer to a future in which robots may move and entertain its creator.

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THE IMPACT OF ASSİSTİVE TECHNOLOGY ON DOWN SYNDROME STUDENTS İN KİNGDOM OF BAHRAİN

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ABSTRACT
Assistive Technology is playing an enabler role in the life of Dawn Syndrome. Assistive Technology can allow Down Syndrome to engage in the normal life activities and be more social and independent. The Arab countries are providing vital effort on facilitating the life of Dawn Syndrome and encouraging their engagement in normal social life. However, there is a lack in utilizing Assistive Technology in supporting such segment of people in these countries. The main aim of the current research is to investigate the current situation regarding the adoption of AT in the teaching and learning processes of Down Syndrome students in inclusion schools and rehabilitation centers in Kingdom of Bahrain. In addition, the impacts of AT in enhancing the independence, performance and social interaction of Down Syndrome students were examined. To achieve these objectives, two different questionnaires were administered to a non-random sample of teachers or specialists and families of Down Syndrome at Kingdom of Bahrain. In general the results show that the adoption of AT in teaching and learning of Down Syndrome students can enable them to be more social and independent person. AT can enhance the Down Syndrome communication which in turn can improve their independence, social interaction, and performance. However, to perceived the greatest and sustainable advantage on using AT, there is still a need for enhancing the capabilities and skills of the teachers/specialists and families to be able to adopt the AT for getting the best results. The research outcomes address several recommendations to enhance the educational process for the Down Syndrome students and other disabled people in Kingdom of Bahrain. Moreover, the study has a vital contribution to the theoretical literature and knowledge by building new model for examining the impact of AT on the Down Syndrome which is rarely develop by previous literature. In addition, it has developed new measurements which can be adopted in further studies in the same field.

INTRODUCTION
Information and Communication Technology ICT and Assistive Technology (AT) is considered as an effective learning tools that can help in improving and developing social skills as well as academic achievement and enable Dawn Syndrome (DS) is increasing their abilities to cope with the rapid progression life (Ahmed, 2015;Lahm, 2002). AT offer new opportunities for everyone, but for DS these opportunities are more significant as they can use AT for their daily activities to a higher extent than other normal people (Ahamed, 2015). That's means disabled individuals are able to participate in all aspect of social life on more equal terms than ever before. AT enables DS to communicate with others, involve in the social activities and be effective part in their communities that they would be unable to do without technology (Cowan and Khan, 2005).

Despite the vital concern devoted for the DS and other disabled people in the Arab countries, there is still a lack in utilizing Information Technology (IT) for supporting such segment of people. Few number of researches have been conducted to study the role and the impact of AT on disabled people. Therefore, the current research is aimed to answer a main question of *"To what extent AT enables DS students to be independent and engage in normal life at Kingdome of Bahrain*? The main objective of the current study is set to be investigating the current situation regarding the adaption of AT in the learning process of DS students in inclusion schools and rehabilitation centers. This will be tackled from the following aspects: problems and challenges facing DS student which are caused by their special features or disabilities and to what extent this difficulties are impacting

their teaching and learning process, and types of AT that are adopted by inclusion schools and rehabilitation centers for the learning and teaching processes. In addition the study will examine the impacts of AT in enhancing the independence, performance and social interaction of DS students.

The current research is considered as one of the few and significant studies in the field of AT and the learning of special needs. The study is tackled a vital issue concerning the Arab world which is the engagement of DS students in an effective learning environment and normal social life. As a social implication for the study, the findings would help in enhancing the awareness toward the special needs people and especially the DS and how they can be an active factor in the society. More attention will be paid by the decision makers and educators in the Kingdom of Bahrain toward the effect of AT in supporting the DS students and enhancing their achievement. As such, the study will provide information on the different types of AT that can be adopted in the learning of DS and how each type can support different disabilities and challenges for DS which need to be considered by management and academic staff in the inclusion schools and rehabilitation centers. As a theoretical implication, the current study will enrich the theoretical literature on the field of AT and DS in the context of the Arab countries as well as developing new model on the impact of AT on DS performance, independence and social interaction which rarely undertaken by previous studies. Moreover, the study provides new measurements that can be further used and developed in new studies in the same field.

The current paper is articulated into seven sections including the introduction. AT impact on DS students and AT in the Arabian Gulf Countries and Kingdom of Bahrain were discussed in the next two sections. The research and hypotheses were discussed in the Section 4. Section 5 discusses the research methodology and data collection. Section 6 presents the data analysis and results of the research. The paper then concludes with Section 7.

ASSISTIVE TECHNOLOGY IMPACT ON DOWN SYNDROME STUDENTS

DS is a set of physical and mental tracks which is caused as a result of a chromosomal disorder (Al-Edwan, 2015). Normally a person has 46 chromosomes; while DS determined by 47 chromosomes (Percy and Schormans, 2006). This extra genetic material alters the course of development (Al-Edwan, 2015) and causes diverse impairments such as visual, hearing, cognitive, motor and communication (Feng et al, 2008).Therefore, individuals with DS have varying degrees of abilities, skills, behavior and physical development. However, DS learning deficits result from different learning styles rather than learning impediments (Alfaraj and Kuyini, 201). DS people have a numerous disability appear as physical and cognitive characteristics that need to be identified serious attention and helpfulness when it comes to their education or other aspects of their life (Faragher and Brown, 2005; Alfaraj and Kuyini, 2014). As a general rule, students with DS need activities that are highly structured and sequenced, small amounts of information presented at a time and a good reward system (DASWM, 2015).

AT are a powerful tools for improving the participation and engagements of disabled people in their learning process (Gierrach and Stindt, 2009; McKnight and Davies, 2013). AT is defined as the equipment, devices, services, systems, processes that aim to help the disabled persons with special educational needs to better function in daily life, attain a higher quality of life and secure their full, active and easy participation in society (Lancioni et al., 2013, Hersh and Johnson, 2008). Moreover, the International Classification of Functioning, Disability and Health (ICF) define the assistive products or technologies as any product, instrument, equipment or technology that are specially designed for improving the functionality of a person with a disability (WHO, 2014). In general, AT is used for aiding the DS students in their education, enhancing motivation and independency, and help them to be more active member in the social activities (Reed, 2007). AT might be adopted to support vision, hearing, reading or communication, as described by UNICEF (2013). Voice recognition applications, mobile devices, symbol-based interaction and virtual reality technologies are designed to assist the DS weakness to be more active in the learning process with their tutor and their classmate or peers (Winter and O'Raw, 2010; McKnight and Davies, 2013). Knowing the strength and weakness of the DS will enable the decision makers in setting plan to select the most appropriate AT to be adopted for more effective results. In addition, previous studies deduce that there is a need to identify intelligent ways to determine where, who, why and when to use AT (McKnight and Davies, 2013, Al-Ammary, 2010). However, the adoption of the Educational Technology in the classroom for the disabilities student's needs special and well skilled education teachers or specialists to refine their skills and trains them on how to interact and use the technology in the classroom. They need to work as coordinators and organizers to initiate Individualized Education Plans (IEP), which arrange a separate plan for each student by initiate schedule according to their cases to be able to consume extra time detecting the systems by themselves (Cramer et al., 2012).

Students with disabilities need specific and suitable education corresponding to their education level (Jenkinson, 1997). Teaching disabilities students in isolated classrooms enable the adoption of unifying curriculum for whole similar disabled students to support their self-assurance or confidence, as well as, make sure they will acquire appropriate privacy, safety and adequate enhancement (Jenkinson, 1997). However, such way of teaching could restrict and limit the DS capabilities acquired. Therefore, combining students with disabilities in general school currently become very popular in most countries, where this integration currently called inclusion or mainstream (Kliewer, 1998). Wang (2009), exposed that implementation of integration system may not comfortable for all students with disabilities, as consider that, students with disabilities may not be able to interact and participate with their normal peers. Thus, there is a need to integrate the usage of AT with different types of model for special education such as SETT, Education TechPoints, Human Activity Assistive Technology- HAAT, AT CoPlanner Model and others (Edyburn; 2001). Hersh and Johnson (2008) revealed that the goal of these models is to remove the existing barrier in using the AT which include tools, equipment, hardware, software, applications, etc, and make it easy for DS students to use AT anywhere and anytime. In addition, AT devices and services will allow DS students to have a better governor over their personal lives, be able to interact with normal people and participate more in social activities either in their homes, schools, work environments, or communities (McKnight and Davies, 2013)

ASSISTIVE TECHNOLOGY IN THE ARAB GULF COUNTRIES AND KINGDOM OF BAHRAIN
Although, the Arabian Gulf countries are aware about the disabled people and their various needs and provide vital efforts in enhancing their independency and performance, they are still beyond other countries in adopting AT is supporting the disabled people either in their education or social life (MADA, 2015). In Qatar for instant, there are a variety of associations for special needs such Qatar Society for Rehabilitation and Special Needs, Al Noor Institute for the Blind-Qatar, International Mosaic Down's Syndrome Association, and Qatar Assistive Technology Center. However, Qatar Assistive Technology Center was established just in 2010 by the Qatari Supreme Council of Information and Communication Technology, with an aim to use AT in the classroom, home and surrounding environments for engaging the disabled people in the revitalization environment and enhance their social interact and performance (MADA, 2015). In UAE there are more than 30 associations to qualify disabilities people such as Al Noor Training Centre for Children with Special Need, Zayed Higher Organization, Super Kids Nursery, Little Hands Kids Club, Sharjah American International School, Abou Hanifa Basic School, Al Baraa Kindergarten etc. (UAE Down Syndrome). However, only two associations include Al Noor Training Centre for Children with Special Need and Zayed Higher Organization – ZHO are using AT for teaching people with special needs. These associations are offering multi-disciplinary program and variety of consolidating services for nurturing the skills of the disable students by improving their performance and independence and encourage the social interaction with their peers. Among the AT that adopted by ZHO are labs which are equipped with computers that introduce with text-to-speech, screen reader, screen enlargement software as well as Braille printers, sensors, adaptive mouse and keyboards..

In Kuwait there are multiple special education schools for individual with special needs such as Al-Noor School, Al-Amal School, Al-Raja Schools, Al-Wafa Schools, Rehabilitation schools, School of autistic behavior, Schools of educational workshops, etc. However, only three of these schools are using AT in the teaching processes. These centers are highly depending on AT in the learning and teaching for supporting DS and other mental impairments. They are using different devices in teaching Kindergarten, primary, intermediary and secondary stages to assist students to become more independent, enhancing their abilities and improving student's self-care skills and social interaction. In Saudi Arabia there are various associations to support DS such Saut Society, The Help Center, Down Syndrome Charitable Association "DSCA", Al-Nahda Schools for Down Syndrome, etc. According to Ranaet al. (2011), there are 1237 institutes and programmers which have integrated the use of ICT in offering special education for people with learning disabilities. However, there is no clear information on the technologies being used by the various institutions for individuals with learning disabilities and the types of learning disabilities being dealt with (Rana et al., 2011).

Kingdom of Bahrain is providing more concern and focuses on disabled people by providing financial, psychological, and educational support. There are 1700 cases of DS and are recording 30 injured annually. Around 54 students with DS from different levels of study are registered in inclusions schools, while the others students are engaged in different rehabilitation and special needs centers supported by the Ministry of Labor and Social Developments - MLSD. There are 35 rehabilitation centers in Kingdom of Bahrain, include but not limited to Bahrain Hope Special Education Institute, Al Matrook Conductive Rehabilitation Centre and Bahrain, Hope Center for Early Care, Bahrain Down Syndrome society, Special educational services center for children "Tafaol" includes and Kayan Center for Special Education (Al-Watan, 2015). Al Matrook Conductive Rehabilitation Centre is providing AT for their students to support and expand the characteristic and physical abilities and skills. The AT provided include smart tablets, touch control panels, motor support tools,

communication tablets, and others (MLSD, 2015). Recently there is an agreement between Bahrain Down Syndrome society and Special Educational Services Centre for Children (TAFA'OL), to initiate AT room in each center to use it for disabled students to promote, enhance and augment their capabilities, performance, independence and social interaction. However, criteria, policies and standards of the agreement are under study. Moreover, and as an appreciation for the importance of the DS and other disables individual in Kingdom of Bahrain, AlShaikh Nasser bin Hamad Al Khalifa – a Bahrain military office, member of Bahrain Royal Grand and president of the Bahrain Olympic Committee, announced "The Award of Nasser Bin Hamad for Disabled Persons Creativity" for promoting the capabilities and qualification of the disabled people and DS, improving their intellectual, artistic and scientific skills and expanding their innovation and creativity (MLSD, 2015). Furthermore, in 2007, the MLSD was established the disabled services centre. The centre was established particularly for employing the disabled people in the private and non-governmental sectors. It is responsible for processing the requests and applications of the disabled and their guardians and finding solutions for them in coordination with governmental and non-governmental organizations and private bodies.

RESEARCH MODEL AND HYPOTHESES
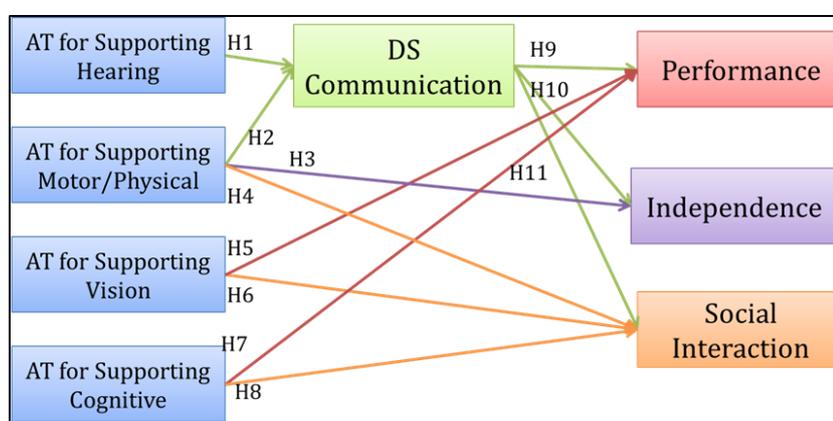
Figure 1. Research Model

The indirect impact of the AT for supporting hearing and motor/physical on performance via enhancing the DS communication:

Hearing impairments considered as main problems with DS as conductive and sensor-neural hearing loss are more common with DS than in the general population (Diefendorf, et al 1995). Such hearing loss can reinforces specific speech and language delay and difficulties in auditory processes which impact the DS communication (DSAWM, 2010). With the continuous advancement in technology, a wide range of AT devices were provided to support DS with different hearing problems, such as Personal Frequency Modulation (PFM) systems, Infrared systems, Induction loop systems, one-to-one communicators and others (Wiazowski, 2009). AT for supporting hearing impairments reduce the noise sounding and improve the speech recognition of DS which can help in improving their performance and enhancing the hearing effectiveness (Wiazowski, 2009). Such AT moreover, can enable the DS to communicate with, participate and contribute more effectively the the community, and be more independence which can maximize the DS overall quality of life (Cowan et al., 2012)). For example, voice output encourages DS with hearing impairments to start discussion and communication with other people easily from extended distances without any obstacles and complications (Doyle and Phillips, 2001). In general it can be revealed that AT for supporting hearing is the most important assistive tools to enable DS to define their strength and weakness and prompt communication, cooperating with surrounding environments and maximize their independence (Kumin, 2003; Lloyd et al., 2006, Olaosun and Ogundiran, 2013). This will decrease the needs of DS for outsider caregivers and minimize their deficiencies level. As such, DS can use such AT anywhere and anytime to communicate and interact with others through sound amplification or any other alternative ways so they can be able to participate and communicate without control with the community (Olaosun and Ogundiran, 2013, Lartz, et al. 2008, McCoy, 2013). Therefore, the following hypothesis was developed:

H1: AT for supporting Hearing has a positive impact on enhancing DS communication in the Kingdome of Bahrain.

As it was motioned above the communication skills of DS need to be enhanced and improved to be more independent. DS that lack the communication skills, scored significantly lower for expressive language, reading and writing (Buckley et al, 2006). For many DS, the inability to communicate with others can have a devastating effect on social personal skills (Deutschsmith, 2006). DS student's need more time, practice, consistency and reinforcement to be able to communicate and enhance their social interaction (Erdem, 2017) as effective communication skills and socially appropriate behavior are interrelated (Erdem, 2017). Improving DS communication skills provides a gateway to their independence, dignity and self-esteem, and allows them to move around their environment, communicate with others and take part in developing appropriate activities (Cowan and Khan, 2005). Communication has a tremendous impact on the development of students with DS as it affects their ability to become contributing members in classroom and community. Enhancing communication of DS students will enhance their speech and language expression and provide plenty of opportunities for social activities (Jon et al, 1999). It has been revealed that AT that support people with hearing impairment can enable DS to communicate with others and exploring more different environments which has high potential in increasing and improving independence and confidence (Azenkot et al, 2011). Moreover, it may allow disabled people to be able to perform activities of daily living easily (Baker, 2003). Therefore, the following hypotheses were developed:

H9: Enhancing the communication of DS students has a positive impact on improving DS performance in the Kingdome of Bahrain.
H10: Enhancing the communication of DS students has a positive impact on enhancing DS independence in the Kingdome of Bahrain.
H11: Enhancing the communication of DS students has positive impact on enhancing the DS social interaction in the Kingdome of Bahrain.

Many DS have physical mobility, stability, motor coordination and range of motion challenges. Such disabilities need to be supported to enable DS movement and communication and ensure that this segment of people can be more independent and take part in their daily and routine activities (Mulligan, 2003). The delay in physical and motor skills could affect the physical education and sports activities. It may affect the DS's physical abilities in school, and has an impact on classroom activities, for example, drawing and coloring and handwriting development. Hence, the use of the AT that support motor/physical disabilities, such as special keyboard and mouse can help in developing the motor/physical skills of the DS so they can practice at home and school which can enhance their independence (Cook, 2011, Cowan et al., 2012). By adopting AT for support DS motor disabilities, DS will be able to manage the tasks independently, and build learning self-help skills (Cook, 2011; Kling, A., et. al., 2010). AT devices such light pointer, eye gaze direction, or head/mouth stick, can be used to leverage and encourage DS communication skills, and improve their performances and body functions to participate more effectively in their environment (Cook, 2011). Several other AT are available to assist DS in completing their social work including audio books for those who can't physically handle books. Moreover, keyboard adopters such as key guars can help DS to make selection more easily and prevent mistyping from tremors or less of control, while switches make it more possible for DS to access a computer keyboard using mouth, head or foot, and voice recognition software for students who can't type. This could reduce the need for informal caregivers where it takes the pressure off and can prevent burnout. Moreover, AT for supporting mobility such as wheelchair, scooters, walkers, canes and orthotic devices, prosthetic limbs, functional electrical stimulation, and wearable exoskeletons can expand DS performance and enhance their mobility and movement (Cowan, et al., 2012). Adopting AT to help DS with physical or motor disabilities may not be simple as it is very important to select the suitable AT devices that suit the DS level of disability, surrounding environment and other health problems (Mulligan, 2003). Previous studies have shown that AT for supporting motor/physical, when are appropriate to the user and the user's environment, have a significant impact on increasing the level of communication, independence and social interaction (Cowan and Khan, 2005). Therefore, the above mentioned discussion reveal strongly on the positive effect of the AT support for motor on enhancing the communication, independence and social interaction of the DS and simplifying their movement and overall life. Therefore, the following hypotheses were developed:

H2: AT for supporting motor/physical has positive impact on enhancing DS communication in the Kingdome of Bahrain.
H3: AT for supporting motor/physical has positive impact on enhancing DS independence in the Kingdome of Bahrain.
H4: AT for supporting motor/physical has positive impact on enhancing DS social interaction in the Kingdome of Bahrain.

The direct impact of AT for supporting vision on performance and social interaction of students with DS:

AT is designed to support people with diverse disabilities such vision or memory (Cognitive), by assisting them to do what they normally cannot do with an expected level. AT that support vision increase and sustain the capabilities of a student's performance, independence, and social interaction (Parette et al., 2007). Previous studies revealed that people with vision disabilities or blind are taking advantage from using AT it enhances their performance in learning and overall life (Bouck et al. 2011; Bowers et al. 2001; Ferrell 2006; Lovie-Kitchin et al. 2001; Spindler 2006). Developments in AT support vision result in a better achievement and high quality life for students with visual impairments, especially in educational processes as it enrich their performance and academic achievement (Koweru, 2015). For example, Talking Tactile Tablet devices which are supporting multi-sensory impairment can result in a positive impact on the performance of students suffering from visual impairment as these tools enable them to become more contributors and effective in the classroom (Cooper, 2015). According to the American Foundation for the Blind (2014), students with visual impairments faced obstacles in completing learning requirements, but AT can facilitate their ways to complete their assignments, coursework, task, etc. Hence it will support the performance of the students by enhancing their efficiency accomplish their tasks easily and within minimum time (Kareri et al., 2014). Furthermore, AT that support vision is supporting not only the students with visual impairments, but also enhance teacher skills for teaching students carefully, expand awareness, and enhance the performance of disabilities students to get superior consequences (Kareri et al., 2014).

On the other hand, the AT inspire disabilities, and enable people with vision impairment to express and interact easily with others without any obstacles by promoting their social skills, encouraging interaction with other peers and enriches the quality of the life of such people (Bird, 2000, Ee and Cohen, 2010). Additionally, Berry and Nees (2013) stat that AT such as Text-to-speech and auditory are contributing and assisting people with different disabilities, especially visual impairments. The advantages of such AT are removing the barriers and obstacles during interaction with others (Berry and Nees, 2013). Beside, people with visual disabilities are using AT for aligning their personal management skills to support the modification and adjustments in their capabilities to facilitate their interaction and reaction with others (Wiazowski, 2009). For example, Auditory Scanning devices facilitating understanding and interaction for people with vision impairment's. Currently, instructors used Neoteric AT and technical supports throughout teaching students with visual impairments, for providing professional and qualified support; to make them able to define their achievement and points of improvements in learning processes, where successfully provide modifications in their behaviors to promote interaction with other peers (Koweru, 2015). Therefore, the following hypotheses are developed:

H5: AT for supporting vision has a positive impact on enhancing DS performance in the Kingdome of Bahrain.
H6: AT for supporting vision has a positive impact on enhancing DS social interaction in the Kingdome of Bahrain.

The direct impact of AT for supporting cognitive on performance and social interaction of DS students

Evolving with technology, permits individuals with different impairments to ensure encouragements, ease of use, upgrade social image, commitments and satisfaction, and enhance social interaction with their normal peers (Carter et al., 2009; Edrisinha, et al., 2011; Lancioni et al., 2011). Social interaction will result in recognition, accepting and positive influences in managing disabled people lives and reducing reliance on caregivers (Felce and Perry, 1995; McDougall et al,. 2010). According to Scherer et al. (2005), the main purpose of AT for supporting cognitive impairment is nurturing the DS performance on functional accomplishments, which assist them in minimizing needs to caregivers, and drive them to become more interactive in social life. AT can support people with cognitive impairment in expanding their quality of life and improve performance of sequential behavior (Neill et al., 2010). Wilson and Evans (1996) agreed that AT for supporting cognitive impairments such as virtual keyboards reorganizing letter digraph frequency augment remembrance, where it not only expands the performance of cognitive impairments, but also encourages them to be more corroborative through educational courses as it minimizing error occurrence.

On the other hand, the majority of the AT for supporting cognitive impairment has a significant role in enhancing the social interaction for people with cognitive impairment (Dawe, 2006). Teacher/specialists and family suggested that, the main role of AT has a positive impact on DS students with cognitive disabilities, as they enhancing and increasing their social interaction with other (Dawe, 2006). Students with cognitive disabilities are advised to use smart interface that recommends communication options and encourage interaction and conversation with partners and peers. For example, AT such as "persuasive" cellular phone that called the KIT phone (keep-in touch) can be used to reminds the people with cognitive to call other people in their contact list who they haven't been in touch with recently which enhance the relationship development and social engagement (Golder, 2004). Therefore, the following hypotheses are proposed:

H7: AT for supporting cognitive has a positive impact on enhancing DS performance in the Kingdome of Bahrain.

H8: AT for supporting cognitive has a positive impact on enhancing DS social interaction in the Kingdome of Bahrain.

RESEARCH METHODOLOGY AND DATA COLLECTION

A self-administrated questionnaire was adopted in order to elucidate the impact of adopting AT to assist the DS in the class room and enhance their performance, engagement and interaction in the inclusion schools and rehabilitation centers in the Kingdom of Bahrain. The population of the current study was identified to be all those who are working with DS students such as teachers from inclusion schools, expertise and specialist from rehabilitation centers and family members. All the experts or specialists in all rehabilitation centers which shown in the Table (1) were selected. On the hand, all teachers assigned to teach in an inclusion class were selected from the inclusion schools shown in Table (1). Moreover, 400 randomly family were selected from a total of 1700 families that have DS. Therefore, the sample size was calculated to be 700 inclusion teachers, experts, and specialists and parents. Only 550 legible, correct and completed questionnaires were returned with a response rate of 71.4% which considered as high rate especially with the DSs' families. The returned questionnaires consisted of 300 for teachers/specialist and 250 for families of DS students in the Kingdome of Bahrain. Due to the lack of well established scales developed to measure research model constructs such as AT for supporting vision impairment, AT for supporting hearing impairment, AT for supporting motor, AT for supporting cognitive and mental impairment, the measurement scales were developed by the authors. However, the measurement of communication was developed based on the measurement of Easlin and LaRose (2002) and Kaya and Weber (2003). Social interaction was developed based on the measurement of Mahadavinejad et al. (2014), while independence scales were adopted from Persel (2012).

Table 1: List of schools and rehabilitation centers in the Kingdom of Bahrain

Rehabilitation centers	Inclusion schools
Bahrain Hope Special Education Institute	IbnTufail primary school (Boys)
Bahrain Hope Center for Early Care	AlKhamis primary school (Boys)
Al-Wafa Autism Center	AlYarmook primary school (Boys)
Bahrain Down Syndrome Society	Al-Oruba primary school (Girls)
Special educational service center for children " Tafaol"	Arad primary school (Girls)
Kayan Center for Special Education	Al-Hidd secondary school (Girls)
NBB Rehabilitation Home For Disabled Children	Uthman bin Affan Intermediary school (Boys)
Salwa Club for disabled (Bin Khuldoon)	Alfarabi Intermediary School (Boys)
Salwa Club for disabled (Hamad Town)	UmaimabintAlNuman secondary school (Girls)
Academic and Vocational Rehabilitation Center	Isa town intermediary school (Boys)
	Alwadi primary school (Boy)
	Ghazi AlQusaibi secondary school (Girls)
	Imam al-Tabari Primary School (Boys)
	Al-Esteqlal secondary school (Girls)

DATA ANALYSIS AND RESULTS
Demography

The current section will present information on the demographics of the participants both teachers, experts, specialist and the families of the DS. Such information can provide explanation and indications on the results of the research model analysis. The results in Table (2) show that most of the participants are special and general educational teachers (34.8% and 18.6%, respectively). However, social worker and supervisor from the rehabilitation centers represent just (12.4 %). The inclusion teachers also represent few of the participants (8.1%). Moreover results in Table (2) show that most of the participants are young (40 or less, 73.9%) female (60.9%), and are holding bachelor (65.8%) and that is why they have few years of experiences (five or less, 66.1%). Table (3) presents demographic information on the families of DS students. The results show that most of the member of the families are young females (<=40 years old) (67.9% and 69.1% respectively). However, they are less educated as they are holding diploma or less (60.3%).

Gender		Education level	
Female	60.90%	Secondary	11.20%
Male	39.10%	Diploma	11.80%
Age		Bachelor	65.80%
20-30 years	36.60%	Master	9.30%
31-40 years	37.30%		
41-50 years	21.70%	Doctoral or more	1.90%
More than 50 years	4.30%		
Education Role			
Senior Head of education		6.20%	
Social supervisor		5.60%	
General education teacher		18.60%	
Special education teacher		34.80%	
The Social worker		6.80%	
Inclusion teacher		8.10%	

Table 2: Teachers demographic information

Experience in Teaching DS students		No. of courses in which AT was adopted		No. of Workshops or training on AT	
Less than one year	28.6%	None	38.5%	None	42.9%
1-5 years	38.5%	1 -5 courses	43.5%	1 -5 courses	39.8%
6-10 years	13.0%	6-10 courses	8.7%	6-10 courses	9.3%
More than 10 years	19.9%	More than 10	9.3%	More than 10	8.1%

Table 3: Families demographic information

Gender		Education level	
Female	69.10%	Less than secondary	16.00%
Male	30.90%	Secondary	28.40%
Age		Diploma	25.90%
20-30 years	42.00%	Bachelor	23.50%
31-40 years	25.90%	Master	2.50%
41-50 years	28.40%	Doctoral or more	3.70%
More than 50 years	3.70%		
Related to the Down Syndrome			
Mother		57.10%	
Father		48%	
Brother/Sister		55.60%	
Other		31.6	

Current situation regarding the adoption of AT for teaching DS students in Kingdom of Bahrain
The following section presents information on the current situation regarding the adoption of AT in teaching DS in the school or rehabilitation centers in term of the skilled teacher's gains, types of AT adopted, challenges and problem faced by family and teachers. The demographics information show that most of the participants include teachers, experts and supervisor were young that's why results in Table (4) have few years of experience in teaching the DS students (five or less years of experiences) (67.1%) and have adopt AT in teaching few courses (5 courses or less) (82.0%). However, the results show that they have no experience in using AT as they never evolve in any workshop (42.9%) or attended just 5 courses or less (39.8%).

Table 4: Experience of teacher/specialist in using AT in Kingdom of Bahrain

The families were asked to specified the best way for teaching their DS students were they revealed that the best way is to include their DS students in special school or centers (23.6%) not inclusion schools. However, they don't mind to adopt the AT either in special class or in inclusion class (32.9%, 31.1%, respectively).

Table 5: Family perception on the best ways for teaching DS students

Teaching DS in inclusion school	Teaching DS in special school	Adopting AT to teaching DS in inclusion class	Adopting AT to teaching DS in special class
12.40%	23.60%	31.10%	32.90%

Table 6: Types of disabilities that DS are suffering from

Types of disabilities that DS are suffering from	
Infantile paralysis	3%
Cognitive disability	58%
Communication impairment	37%
Motor/physical impairment	10%
learning difficulties	52%
Schizophrenia psychotic	10%
Vision impairment	19%
Development delay	36%
Traumatic brain injury	6%
Hearing impairment	12%
Speech/language	80%

Results on the different disabilities that DS students usually suffered from are presented in Table (6). Results show that DS mostly suffered from speech/language (80%), cognitive disabilities (58%) and learning difficulties (52%). Problems faced with DS students either in the home or in class room are demonstrated Figure (2). As shown in the table, teachers are mostly facing problems such as speech and communication (50.9%) and lack of focusing and understanding (58.4%). However, families are facing problems with speech and language (76.5%) and reading and writing (50.6%).
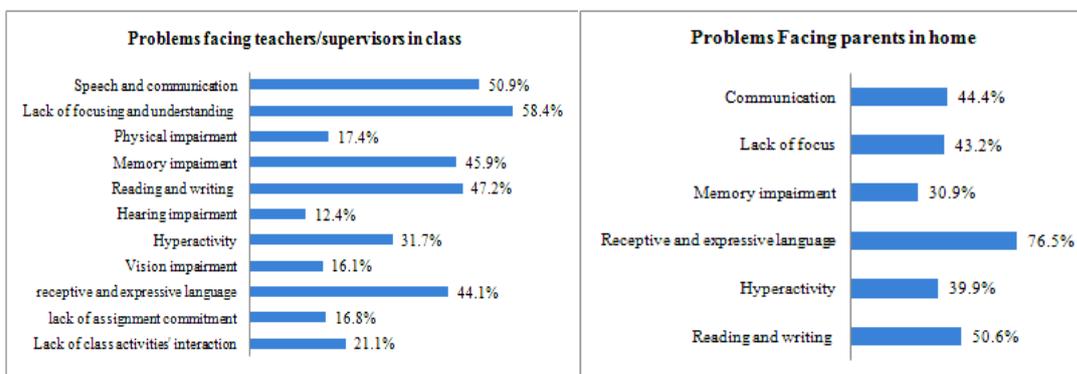
Figure 2: Problems faced by teachers and families with DS students

Although AT has many effects on supporting the learning and teaching of DS students, there are many challenges and barriers that may facing both teachers and family in adopting such technology. Therefore, teacher and families were asked to identify the most barriers they perceived in adopting AT and results are presented in Table (7). The results illustrate that both teachers and families are facing two main barriers: selecting and choosing the suitable AT (41.6% and 59.3% respectively) and the high cost of the AT (46.9%, 43.2%, respectively), as well as the lack of training provided on AT (31.7%) and lack of sufficient skills and experience to adopt AT(32.9%).

Table 7: Barriers for adopting AT for supporting DS students

Barriers are facing while adopting DS students BY:	Teacher, experts and specialists	Family
Difficult to encourage DS to adopt AT	27.7%	4.9%
Adopt the suitable AT	41.6%	59.3%
Complexity of AT (not easy to use)	15.5%	4.9%
Lack of sufficient skills and experience to adopt AT	32.9%	25.9%
Adopt poor and cheep AT	13.0%	7.4%
lack of training provided on AT	31.7%	27.2%
High cost of AT	46.0%	43.2%
Availability of AT	21.1%	6.2%
Perceived benefit of AT	30.3%	24.6%
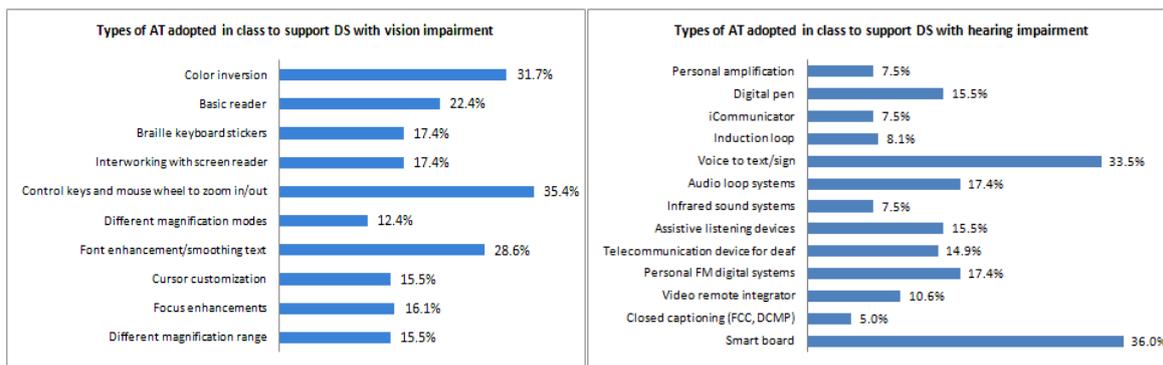
Figure 3: AT adopted for supporting DS with vision and hearing impairments

Finally, the different types that have been adopted in class to support the different impairments include the vision, hearing, motor and cognitive were identified as shown in Figure (3) and Figure (4). Regarding to the types of AT adopted to support the vision and hearing , the results revealed that control keys and mouse wheel to zoom in/out (35.5%) and smart board (36.0%) were identified to by the main adopted AT to support vision and hearing impairment, respectively. On the other hand the results in Figure (4) show that electronic notebook (50.3%) and graphic organizers (34.2%) are the main AT adopted for supporting the cognitive impairment. However, touch screens (56.5%) and trackball for easer mouse manipulation (28.0%) are very important AT that has been adopted to support the motor impairment.
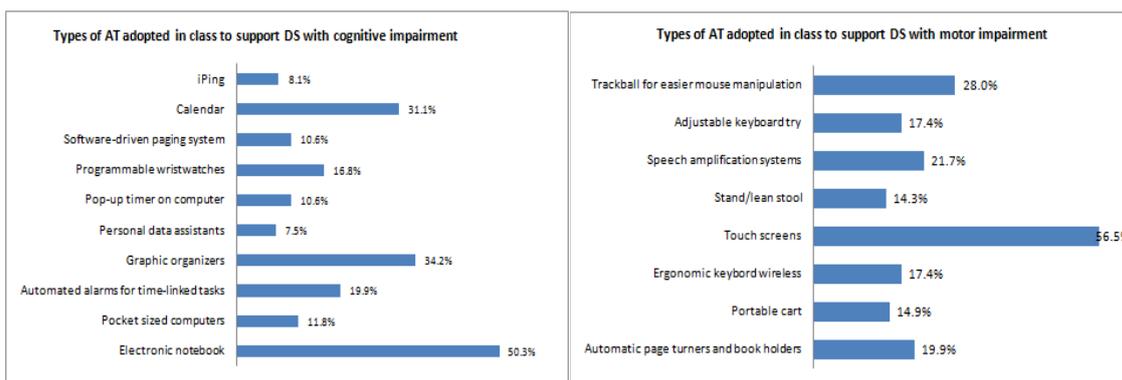
Figure 4: AT adopted for supporting DS with cognitive and motor impairments in class room

Assessing model measurements

PLS path analysis was done using SmartPLS-3 to test the research model. Goodness-of fit indexes of latent variables are shown in Table (8) and Table (9), which indicates that the model has good fitness. All the value of AVE are mostly greater or equal to 0.5 and all values of composite reliability are greater than 0.8, while all value of Cronbach's Alpha are greater than 0.7.

Table 8: AVE, composite reliability and Cronbach's Alpha

Construct	AVE	Composite Reliability	Cronbach's Alpha
AT for Supporting Cognitive	0.658	0.92	0.896
AT for Supporting Hearing	0.69	0.899	0.85
AT for Supporting Motor/Physical	0.685	0.897	0.846
AT for Supporting Vision	0.654	0.883	0.823
DS Communication	0.658	0.906	0.87
Independence	0.79	0.919	0.867
Performance	0.698	0.92	0.891
Social Interaction	0.724	0.929	0.905

Table 9: Factor loading of the items.

Construct	Items	Factor Loading	Construct	Items	Factor Loading
AT for Supporting Cognitive	CS.1	0.806	AT for Supporting Vision	VS.1	0.821
	CS.2	0.804		VS.2	0.852
	CS.3	0.788		VS.3	0.761
	CS.4	0.849		VS.4	0.797
	CS.5	0.819			
	CS.6	0.8			
AT for Supporting Hearing	HS.1	0.843	DS Communication	CMS.1	0.782
	HS.2	0.849		CMS.2	0.821
	HS.3	0.861		CMS.3	0.83
	HS.4	0.767		CMS.4	0.819
				CMS.5	0.801
AT for Supporting Motor/Physical	MS.1	0.809			
	MS.2	0.858			
	MS.3	0.84			
	MS.4	0.803			

Research hypotheses testing

The causal relationships in the proposal research model were tested. Consistent with Chin (1998), bootstrapping was applied to produce standard error and t-statistics. This permits the measurement of the statistical significance of the path coefficients. The statistical objective of PLS is to show high path coefficient - R and significant t-statistics, thus rejecting the null hypothesis of no effect. The t-statistics need to be significant to support the hypothesized paths. R indicates the explanatory power of the latent endogenous variables.

Properties of the causal paths, including standardized path coefficients, t-statistics and explanation of variance for each equation in the hypothesized model are presented in Table (10) and Table (11). As expected, the results reveal that adopting AT to support some impairments of the DS have some impact on enhancing their communication, independency, performance and their social interaction. AT has vital role in enhancing the communication of the DS students as it can be enhance directly or act as intermediate in enhancing the engagement of DS in the learning process as the normal students. As such, the results indicate that by enabling the communication of the DS students, they can be more independent, reach better achievement and performance, and interact more in the social life. Thus, H9, H10, and H11 were accepted ((r=0.694, T= 9.038), (r=0.575, T= 8.301), (r=0.566, T= 5.748), respectively). Moreover, H1 and H2 were accepted ((r=0.343, T= 4.469) and (r=0.571, T= 8.89), respectively), thus enabling the communication of the DS can act as an intermediate factor for the impact of the AT for supporting hearing and motor on the performance. While, AT for supporting motor of the DS has a direct impact on the independence (r=0.287, T= 4.21) it has only indirect impact on enhancing the social interaction of the DS but not direct impact (r=0.116, T= 1.66). Thus, H3 was accepted and H4 was not accepted.

On the other hand, the AT for supporting the DS with vision impairment has shown insignificant effect on enhancing the performance and the social interaction of this segment of students. Hence, H5 and H6 are rejected (r=0.102, T= 1.548 and r=0.074, T= 1.188). Finally while, AT support for the cognitive of the DS shown a weak impact on the social interaction of DS students (r=0.184, T= 2.149), they has shown insignificant impact on enhancing the performance of the DS students (r=0.121, T= 1.873) as shown in Table (10).

Table 10. Path analysis

Path	Coefficients (β)	T-Test	P-Values	Hypothesis statues
H1: AT for Supporting Hearing -> Communication	0.343	4.469	0	Accepted
H2: AT for Supporting Motor/Physical -> Communication	0.571	8.888	0	Accepted
H3: AT for Supporting Motor/Physical -> Independence	0.287	4.21	0	Accepted
H4: AT for Supporting Motor/Physical -> Social Interaction	0.116	1.66	0.098	Rejected
H5: AT for Supporting Vision -> Performance	0.102	1.548	0.063	Rejected
H6: AT for Supporting Vision -> Social Interaction	0.074	1.188	0.235	Rejected
H7: AT for Supporting Cognitive -> Performance	0.121	1.873	0.062	Rejected
H8: AT for Supporting Cognitive -> Social Interaction	0.184	2.149	0.032	Accepted
H9: Communication -> Performance	0.694	9.038	0	Accepted
H10: Communication -> Independence	0.575	8.301	0	Accepted
H11: Communication -> Social Interaction	0.566	5.748	0	Accepted

On the other hand, the results has shown that AT for supporting the motor and hearing impairments of the DS explained 63% of the variance in enabling the communication skills of DS; which in turn, explained 74% of the variance of the performance while AT for support for both cognitive and vision have no impact on that variances. Conversely, AT for supporting motor and enabling DS communication are explaining 66% of the variances on enhancing the independency of the DS, while AT for supporting the cognitive of the DS and the enabling of their communication are explaining 75% of enhancing the social interaction of the DS as shown in Table (11).

Table 11: R Square of the items

	R Square
DS Communication	0.628
Independence	0.661
Performance	0.740
Social Interaction	0.746

DISCUSSION AND CONCLUSIONS

With the increasing number of DS in Kingdom of Bahrain, there is a need to exploit the opportunities provided by the rapid succession in the innovative ICT and AT to make life easier for these segments of people and enables them to communicate and participate in the community and provided them with the best way of learning. Although Kingdom of Bahrain are providing vital efforts for enhancing the development of people with special needs and DS and involve them more as contributable persons in the community, they still not reaching a mature level in adopting AT in the teaching and learning processes of DS in the inclusion schools or rehabilitation/special centers. It have revealed that lack of ICT accessibility, lack of resources and lack of skills are the major challenges that hinder the use of technology in the learning institutions. This implies that even if there are schools make available for supporting the educational needs of children with DS, they may not be adequately equipped with modern technologies for supporting their learning. In the Kingdom of Bahrain the inclusion of DS and other students with minor disabilities and special needs in the standard learning and teaching process started just on 2001 as an ad hoc process but reached more structured and more manageable process on 2011. The results of the current study reflect the current situation of the adoption of AT in inclusion schools or rehabilitation/special centers. The findings demonstrated that there are a reasonable numbers of specialists and teachers for teaching DS either in the inclusion schools or in the rehabilitation centers with specialists, supervisors or special education teachers in rehabilitation centers represents (34.8%) while specialist teachers in the inclusion schools represents just (8.1%). Thus, there is still a shortage in the specialist teachers in the inclusion schools that can help in teaching DS students. Moreover, the majority of the teacher/specialists who are taking care about DS students are females. Actually, female with their natural skills and characteristics as they are full of tenderness and passion can be more suitable for dealing with DS students and thus, can contribute, collaborate and embraced the DS students either in the classroom or home.

Regarding the capabilities of the teachers and specialists, the findings reveal that there is a need for building and enhancing the capacity in this field. The finding revealed that most of the teachers/specialists are young with high level of education as they hold at least bachelor or higher degree but with few years of experience; no more than 5 years. However, it is not essential for those who want to teach DS students to be graduated with psychology or special education. They can be graduated with any specialization such as science, art or any other field of study. Graduated with special education, psychology will obtain importance skills and knowledge needed for such occupation to be able to understand DS capabilities and needs. Moreover, the majority of

teachers/specialist have applied the AT in maximum five courses without attending workshops interrelated to the adoption of AT. Thus they has a little knowledge about AT and are not prepared well for adopting AT in classrooms as most of the teachers/specialists confirmed that they are "somehow prepared". Few workshops were provided for the teacher/specials to prepare them to deal with this segment of students and how it can be adopted in teaching DS students. Increasing knowledge and experience of the professionals in using AT will lead to an increase in education opportunities for DS (Erdem, 2017). Government should pay more attention in building the capacity and skills of specialists and teachers in using new technology.

Parent of DS students think that the best ways to improve the learning quality of their DS students is through adapting AT in inclusion schools but not in rehabilitation or special centers. DS can be improved and do well if they involve in school with normal students. Keep DS students in special environment with special students will restrict their ability for improvement. In a press conference conducted on 2010, decision makers from Ministry of Education-MOE in Kingdom of Bahrain have discussed the possibilities of the inclusion of the DS in kindergartener level in the normal kindergartens and the need for enhancing the learning of these people (Alwasat, 2010). Moreover, parents of the DS have confirmed in many events conducted by the Bahrain Down Syndrome Society in Kingdom of Bahrain that they want their DS to be taught and qualified in inclusion school not in special center or an isolation environment (Alwast, 2003). They demonstrate that teaching DS in inclusion school will offer the opportunity for the DS individual to share and participate in the general life and community (Alwast, 2003). When the inclusion class implemented effectively it will offer academic and social benefits for DS students. Many parents of children with DS revealed that the inclusion experience have many benefits, including higher self-esteem, improved speech and communication, friendship development, independence in daily life activities, high educational accomplishment, and social interactions (DSAWM, 2010).

Teaching DS is not easy as it necessitate the understanding of these people and identify their weakness, strength and problems to be able to deal with them in a proper way and adopt the most suitable AT that may support their impairments. In addition, there are many problems are facing DS students either because of their nature and special characteristics or in adopting the AT in their teaching and learning processes. There are many problems that may be faced by DS in classroom or family at home. However, these problems may not be the same as DS may be impacted by the environment surrounding them. As such, the finding of the study show that the main problems faced by teachers/specialists in classroom are the "lack of focusing and understanding", "difficulties in speech and language", and "communication with others", while at home, family are facing problems such "receptive and expressive language", "reading and writing" and "lack of focus" . Concerning the problems that are facing teachers/specialists and family in adopting AT in teaching DS, the findings disclosed that the main challenges and barriers that are faced by teacher/specialists in adopting AT are "high cost of AT devices" and "adopt the suitable AT" in the suitable situation. Both teacher/specialists reveal that they are striving to acquire AT to improve and expand the capabilities of DS students but due to the high cost of the AT sometime it become impossible. Hence, the both government and private sectors need to support the family, schools and rehabilitation centers with an adequate financial support. Actually, digital empowerment in Kingdom of Bahrain is the main concern of the MOE as a high budget was set to enhance the digitization. As the AT is a way for DS students' empowerment and will enhance the student digital empowerment it needs to be the focus of the MOE in the Kingdom of Bahrain. Moreover, they need to help in determining the specific types of AT needed by each DS students according to their case either in the inclusion school or rehabilitation center by enhancing the research and academic studies in this field. There is a need to develop an appropriate assessment tools to help decision makers in evaluating and selecting the most suitable AT for improving the academic and social life of the DS students (Erdem, 2017).

By identifying the problems and the characteristics and needs of the DS students, it will be easy to identify the most appropriate AT in improving their learning. However, with the problems faced in adoption AT in Kingdom of Bahrain, mostly inappropriate AT was adopted. The findings show that a low level technologies, cheap and very simple that does not need experience or skills AT was adopted. As such "control keys and mouse wheel to zoom in/out" are adopted to support DS with vision impairment because of its ease/effortless and low cost. However, "different magnification modes" is not adopted because of its complexity and the teacher/specialists do not have the enough experience to adopt such tools. For supporting DS with hearing impairments , "smart-board and voice to text/sign" are the most adopted AT in inclusion schools and rehabilitation as they are flexible

and easy to use for both teachers/specialists and students. Whereas, "closed captioning (FCC, DCMP) which may have better effect was not adopted because it need special skills and experiences. On the other hand, "electronic notebook" adopted for supporting DS students with cognitive impairments, while PDA and iPing are not adopted. Finally, findings elucidate that "touch screen" which is commonly used for DS students with motor impairments was adopted because it is easy to use and not required a lot of training.

Although several studies have confirmed that AT has a positive effect on supporting DS, there are few studies that attempted to examine that effect empirically. Therefore, the impact of AT on the DS students was examined and assessed by developing a theoretical model based on the available literature in the related field. The model has a main hypothesis indicate that adopting AT in teaching DS students can enhance their performance, social interaction and independence. AT can support different disabilities and characteristics of the DS and hence, the research model has identified the effect of each type of AT on the aforementioned effects. In general it can be concluded that the adoption AT in teaching and learning of DS students can enable them to be more social and independent person. AT for supporting hearing and motor have an effective impact in enhancing the communication of DS students which in turns effect their independence, social interaction and social interaction directly. While AT for supporting motor has indirect effect on independence, social interaction and social interaction via enhancing the communication of the DS students, they have direct effect on enhancing their independence but not their social interaction. AT for supporting cognitive of DS has shown to have a strong impact on enhancing the social interaction of DS but not their performance. However, the finding indicated that AT for supporting vision has no impact on enhancing the performance or the social interaction. These results are against what have been revealed and approved by previous literatures. Therefore, more investigation needs to be conducted to examine the indirect effect of the AT for supporting vision impairments of DS or adopting larger sample of size to get more reflective results. Overall, the importance of enhancing the communication of the DS was the main findings of the model analysis. In many respects, the improvement of the communication of DS can motivate DS people especially those with speech and language disabilities, to involve in competition with others by attending workshops encourage participation with others (McCoy, 2013). In addition, it provides a gateway to the independence, dignity and self-esteem, and allows children to move around their environment, communicate with others and take part in appropriate activities that they would be unable to do without technology (Cowan and Khan, 2005).

The main aim of the current research was to investigate the current situation regarding the adoption of AT in teaching and learning DS students in inclusion schools and rehabilitation centers. In addition, the impacts of AT in enhancing the independence, performance and social interaction of DS students were examined. The study demonstrate that AT are playing a vital role in supporting the learning of DS and enabling them to be an active member by enhancing their communication, performance, social interaction and independence. Kingdom of Bahrain provides more effort and focus on the DS and established a long term strategic plan for having such segment of people as a normal person that can live like others and act normally in the general life.. They provide different inclusion programs for the disables and special needs. They started by providing these programs in eight primary schools in 2001-2002 and recently they have such program in 54 schools in different level. They also provide a special curriculum for the DS and special assessments. The MOE started with an academic inclusion (mainstreaming) and shifted to the social inclusion (normalization) (Alwasat, 2003). Moreover, there are many AT were provided for supporting motor, vision and hearing imperilments of DS such as buss with elevator to simplify the movement of the DS and support the motor and assign their classes in the ground floor with special and well equipped bathroom. Moreover, they provide Dell touch computer, pronto, CCTVE, CCTV, Digital amplifiers and others. On the other hand, some professional certificate such as the agriculture program are providing for DS to enhance some of their skills and improve their social interaction. They are also assigning specific scholarships for DS that have finished the secondary school (Alayam, 2015).

However, to exploit the opportunities provided by AT, consideration should be pay to many aspects such as the capacity building of the teachers/specialist, types of AT to be adopted, the environment where to adopt the AT and the DS themselves. Government' strategic plan should consider building capacity on AT and emergent technology to have sufficient specialists to satisfy the needs of the disabled segments in the country. More attention should be paid for building capacity and skills for using AT by teachers/specialist at inclusion school

and rehabilitation centers via involving them in more workshop and courses. They can be involved in direct and indirect training as a way for building capacity and skills. A direct training can be conducted through the involvement of specials, developers, special educators, teachers and volunteers in different workshops and courses. While indirect training can be achieved through the communications with house holders and disabled parents. Moreover, indirect way of enhancing knowledge and experiences of AT for supporting DS can be done through implementation of special e-learning networks for teachers in inclusion schools to exchanges lessons courses and information among themselves or network let say "Bahrain DS", include all societies that are concern about the DS in Bahrain, experts. Such online networks will support DS students and their parents and family so that they can inquire about certain services, suitable support and guidance for DS. Moreover, school that are successful is integrating students with DS must have an effective leadership to deal with student's individual needs and commitment to provide a broad and balanced range of curriculums for all students (Krahn et al., 2015). Therefore, MOE should pay more attention in building well established academic leadership. On the other hand, decision makers need also to enhance the financial support for the special needs centers and inclusion schools that can help them in establishing a well qualified environment for providing more effective services for this segment of people. Social community and business sectors should support inclusion schools and rehabilitation centers financially to be able to provide and improve the current AT.As such Tamkeen and Economic Development Bank - EDB can offer free workshop through a memorandum of understanding with MOE, while banking sectors and other financial institution in the country can help in supporting schools and rehabilitation centers with the appropriate AT.

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THE IMPACT OF CONTROL BELIEF AND LEARNING DISORIENTATION ON COGNITIVE LOAD: THE MEDIATING EFFECT OF ACADEMIC EMOTIONS IN TWO TYPES OF HYPERMEDIA LEARNING ENVIRONMENTS

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Thepresent study tested the influence of control belief, learning disorientation, and academic emotions on cognitive load in two types of concept-map structures within hypermedia learning environment. Four hundred and eighty-five students were randomly assigned to two groups: 245 students in the hierarchical group and 240 students in the networked group. Multi-group invariance and mediation analysis were applied to test the mediating effects of academic emotions in the association between control belief, learning disorientation and cognitive load (extraneous, intrinsic, and germane load) across groups. Results indicated all models were invariant across the groups. Control belief and learning disorientation were antecedents of positive and negative emotions; extraneous load in turn was affected by positive and negative emotions, whereas intrinsic and germane loads were only influenced by positive emotions. Learning disorientation had positive effect on extraneous load, whereas control belief had positive affect on intrinsic and germane load. The results are discussed in light of the integration of learning disorientation and non-cognitive factors with cognitive load.

Close

THE IMPACT OF FONF INSTRUCTİON THROUGH BLENDED LEARNİNG ON THE STUDENTS' MEANİNG NEGOTİATİON AND GRAMMAR SKİLLS

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ABSTRACT
Studies on focus on form (FonF) instruction have received more attention with an emphasis on accuracy and fluency in communication. However, learners' meaning negotiation through blended learning has been less investigated in terms of the different instructions such as a focus on meaning, FonF, and FonF in blended learning. This study aimed to explore the meaning negotiation and language-related episodes (LREs) according to the different instructions in listening and grammar classes. 48 Korean university students were divided into three groups including one control group and two experimental groups in the study. They participated in meaning negotiation tasks via in and outside classroom talks and synchronous chats. Audio recordings, chat logs, interviews and written tasks were used for data collection. The main findings are as follows. The experimental group 2 that was exposed to FonF instruction in blended learning produced more correctly resolved LREs. They also received less incorrectly resolved LREs than the other two groups. The pedagogical implications of FonF instruction in blended learning such as providing appropriate model and learner training are discussed.
KeywordsFocus on form instruction, Blended learning, Meaning negotiation, Language-related episodes

INTRODUCTION
Researches related to focus on form (FonF) instruction have been largely conducted on grammar teaching and learning in the last decades. Some findings indicated that learners developed grammar skills when they were exposed to linguistic input in meaningful activities (Leow, 1997; Lightbown & Spada, 1990; White, 1987; White, 1998). Lightbrown and Spada (1990) claimed that grammar should be learned through meaningful ways based on integrated communicative activity which is one of the FonF instruction elements. Learners are required to pay attention to linguistic form through process of noticing and intake of input. It is desirable to provide enhanced input in order to make learners easily notice linguistic input.

To maximize linguistic input, language classroom through listening activities using multimedia technology could be designed including textual ones. Some studies have investigated the effects of textual enhancement on noticing, language development, recall and production through reading and writing skills and activities (Jourdenais, Ota, Stauffer, Boyson, & Doughty, 1995; Lee, 2007; Shook, 1994). There were relatively few studies focusing on listening skills, which can be subject to an argument. Listening has various choices of delivery modes such as aural, audio-visual, and multiple modes of aural-visual-textual through multimedia technology (Plass, Chun, & Leutner, 1998). Studies need to be conducted to examine the procedures on how learners notice input and errors, correct output and interact with their peers. However, most of the studies above on FonF instruction mostly have focused on investigating the effectiveness of instruction.

For successful implementation of FonF instruction, it needs to ensure the sufficient time to be exposed to enriched input and to provide enough opportunities for production. The traditional classroom in English as foreign language (EFL) environments particularly has limitations because of the time and place constraints (Yoon & Lee, 2010). Blended learning could be a possible answer to these limitations as it provides learners numerous benefits of both online and offline environment with flexible modalities and various learning tools (Lee, 2015). Some researchers have attempted to conduct studies on instruction in online and blended learning environments (Baturay, Daloglu, & Yildirim, 2010; Lee & Lee, 2012; So & Lee, 2013; Suh & Lee, 2014; Yoon, 2011). Other studies reported positive effects of peer feedback and language-related episodes (LREs) on collaborative work in online and computer mediated communication environments (Diez-Bedmar & Perez-Paredes, 2012; Ware & O'Dowd, 2008). Very few studies on FonF instruction and grammar in blended learning have been investigated (Baturay, Daloglu, & Yildirim, 2010; Jin, 2014; Pinto-Llorente, Sánchez-Gómez, García-Peñalvo, & Casillas-Martín, 2017). In addition, there were hardly any studies to examine the meaning negotiations under the condition of FonF in blended learning yet.

The purposes of this study are first, to explore negotiation of meaning in blended learning in terms of frequency and types, and compare them according to three different conditions; traditional classroom, FonF instruction, and FonF instruction in blended learning. The second is to investigate how the learners' LREs were resolved. The research questions for this study are: 1) How does FonF instruction with textual enhancement affect learners' negotiation of meaning and its occurrences between three groups?; and 2) To what extent do learners resolve language-related episodes (LREs) as seen in their written output?

LITERATURE REVIEW
FonF Instruction in EFL
Focus on meaning involves activities that are purely message-focused with no attempt to draw learners' attention to form, while FonFs involve the treatment of grammatical forms in isolation (Long & Robinson, 1998), and FonF attempts to integrate attention to form into a meaning-focused communicative context. Ellis (2001) classified FonF into two types, planned and incidental, which primarily focus on meaning rather than form during the tasks. However, the former is an instruction that involves intensive attention to pre-selected forms, while the latter distributes attention to forms into a wider range of forms. Enriched input and focused communicative tasks are considered to be significant elements for planned FonF implementation (Ellis, 2001).

There are a number of ways to achieve enriched input, which is to have learners notice the target forms in the meaning-focused activities. The first option is to have learners simply listen to or read texts that contain plentiful examples of target features (Ellis, 2001; Trahey & White, 1993). Input flood enriches input in the manner of including numerous examples of the target feature without any function to draw attention to the linguistic form, including when target features are frequently exposed to learners (Trahey & White, 1993). Hernández (2008) argued that simply providing an input-rich environment alone could not lead to learners' acquisition, but they could reach a higher level of proficiency when they are given an input enhancement combined with meaningful, task-essential practice, stressing that opportunities to notice and use the target features in communicative context must be provided. The second is to have learners focus their attention on the target features incidentally in meaning-focused activities. This is called input enhancement, which could be another way of enriching input to reinforce noticing the target forms (Ellis, 2001; Smith, 1993). It involves some attempt to highlight the target features, drawing learners' attention to it. For input to become intake, it must be noticed by the learners (Schmidt, 2001). Enhanced input makes more opportunities for attention and noticing to form. Visual input enhancement, also known as written or textual enhancement, is one of the ways to provide enhanced input to learners to be noticed easily (Ellis, 2001; Smith, 1993). Textual enhancement is an implicit typographical technique of focus on form using emphasizing text such as colored, **bolded**, *italicized*, underlined, and CAPITALIZED texts (Labrozzi, 2016; Loewen & Inceoglu, 2016).

A number of studies have investigated positive effects of input enhancement on various aspects such as noticing (Jourdenais, Ota, Stauffer, Boyson & Doughty, 1995), recall (Jourdenais et al., 1995; Lee, 2007), production (Shook, 1994), and comprehension (Chung, 1999, LaBrozzi, 2016). The early study of Jourdenais et al. (1995), examined the effect of textual enhancement designed with underlined and changed font in reading on Spanish L2 learners' noticing of the Spanish preterit and imperfect verb forms, which showed positive effects on noticing target forms and learners' subsequent output. Another positive effect of input enhancement on intake can be found in Shook's (1994) study, where using bolded and capitalized letters of targeted items resulted in a positive effect on intake when attention to enhancement was explicitly told.

On the other hand, some studies found no effect of textual enhancement on intake, acquisition, noticing and comprehension, as well as studies that found mixed effects (Bowles, 2003; Leow, 1997, 2001; Izumi, 2002; Lee, 2007). Leow (1997, 2001) attempted two studies to investigate the effectiveness of textual enhancement, but found no positive effects. Izumi's (2002) study investigated the effects of input enhancement of the acquisition of relative clauses by adults, which showed positive effects on noticing but no effect on learning. This result is similar to a later study that investigated the effects of textual enhancement on acquisition and reading comprehension (Lee, 2007).

Negotiation of Meaning in Peer Feedback through Online and Blended Learning
Text-based chat promotes interaction that plays an important role in the negotiation of meaning (Diez-Bedmar & Perez-Paredes, 2012; Lai & Zhao, 2006; Murphy, 2010; Yilmaz & Granena, 2010). It increases learners' opportunities to pay attention to form, to take notice of errors, and to make output revised because of its characteristics of the self-paced setting and the visual salience of written discourse (Lai & Zhao, 2006; Lee, 2007; Smith, 2008). For this reason, interaction during online chat is often used in the studies on noticing and feedback. The results of studies on text-based chat found that learners use negotiation strategies similar to the ones used in face to face (FTF) conversation, such as confirmation checking, the first language use, and

self-repair to provide and attend to feedback (Lee, 2002; Smith, 2008). There are a number of studies that examined learners' meaning negotiation using multimedia (Diez-Bedmar & Perez-Paredes, 2012; Lai & Zhao, 2006; Murphy, 2010; Ware & O'Dowd, 2008; Yilmaz & Granena, 2010). Lai and Zhao (2006) compared interaction between FTF and online chats. The results showed that online chats enhanced input and promoted the awareness of linguistic errors. A study by Blake and Zyzik (2003) explored the interaction between heritage speakers and second language (L2) learners of Spanish in an online environment, which revealed that participants were able to resolve lexical problems that caused syntactic errors.

However, not all studies support the facilitative role of multimedia on FonF (Iwasaki & Oliver, 2003; Loewen & Erlam, 2006; Loewen & Reissner, 2009). A study by Loewen and Erlam (2006) on corrective feedback in an online chatroom revealed that low level students paid limited attention to linguistic form. In addition, they produced less successful uptake of negotiated forms in online interaction. Loewen and Reissner (2009) compared incidental FonF in an L2 classroom and two types of chat rooms (with and without teacher moderation), and found that FonF appeared much more in the FTF context than in the unmoderated online context.

Online and blended learning as learning environments have been increasingly implemented in EFL contexts. As shown in Table 1, degrees of blended learning can be categorized from previous studies of educational technology and English education below. In the EFL context, the concept of blended learning is generally divided into supplementary and transformational (Lee, 2004). Later Yoon (2011) re-categorized this concept to weak and strong blended learning, which is similar to Graham's (2006) enhancing and transforming blend.

Table 1. Degrees of Blended Learning (Yoon, 2011, p. 239)

	Online only	Online or Offline	Online and Offline (Supplementary)	Online and Offline (Transformational)	Offline only
Lee (2004)	-	-	Online and offline holistic English education		-
Garrison & Kanuka (2004)	-	-	-	Blended learning	-
Graham (2006)		Enabling blend	Enhancing blend	Transforming blend	-
Yoon (2011)			Weak blended learning	Strong blended learning	-

Many studies have investigated the effectiveness of blended learning and peer feedback across different language skills, such as listening (Lee & Lee 2012), reading (Suh & Lee, 2014), reading and feedback (Murphy, 2010), writing (So & Lee, 2013; Yoon 2011), pronunciation (Yoon & Lee, 2010), vocabulary (Jung & Lee, 2013), peer feedback on language form and LREs (Diez-Bedmar & Perez-Paredes, 2012; O'Rourke, 2005; Ware & O'Dowd, 2008), and FonF through meaning negotiation(Yilmaz & Granena, 2010). This study attempted to apply FonF instruction to develop the students' negotiations of meaning and grammar skills through learner interactions and LREs.

METHODOLOGY

Participants
A total of 48 low-level university students in Korea participated in this study. They were divided into three groups, a control group and two experimental groups. As seen in Table 2, 16 participants are assigned to the control group, the experimental group 1 and the experimental group 2 respectively. To observe peer collaboration for negotiation of meaning and forms in a blended learning environment, each group was divided further into four groups. The participants had diverse majors such as Early Childhood Education, Social Welfare, Police Administration, Nursing Science, etc.

Table 2. Participants of each Group

Group	No. of groups	No. of participants
Control Group	4	16
Experimental Group 1	4	16
Experimental Group 2	4	16
Total	12	48

Prior to the treatment, all participants took a grammar judgment test to check the homogeneity between participants. The test results showed there were no significant differences between groups according to ANOVA

test (F=1.820, $p = .167$).

Data Collection Instruments
The Experiment
This study used an experimental design in order to examine the influence of FonF instruction through enhanced input in blended learning on learners' meaning negotiation and LREs. As seen in Table 3, three groups were exposed to different types of instruction. Firstly, the control group as a traditional listening and grammar class, were taught without FonF instruction and blended learning. Secondly, the experimental group 1 was taught using the planned FonF instruction without blended learning. Finally, the treatment of the second experimental group was planned FonF instruction with blended learning. Details of listening modes, tasks and activities on FonF instruction are elaborated below.

Table 3. Description of Experimental Design

Control group	Experimental group 1	Experimental group 2
without FonF instruction	Planned focus on form instruction	
Without blended learning		With blended learning

Listening Modes of FonF Instruction
As mentioned earlier, the input enhancement and communicative activities are important elements in FonF instruction. In order to provide abundant linguistic input, the target grammar items were embedded in listening activities with the experimental groups instructed through three multimedia input modes, while the control group received only audio-visual mode. Table 4 shows the different listening modes between the groups. The purpose of the visual mode was to help students predict the story and build meaning before listening, while the text mode was highlighted with colored, bolded, italicized text in order to draw learners' attention to the target features as enhanced input. As shown in Table 4, the listening mode with audio and visual mode was carried out three times in the control group. The learners in the experimental groups were required to complete communicative activities with textual enhancement, based on the three types of modes.

Table 4. The Difference of Listening Modes between Groups

	Control Group	Experimental Group 1 & 2
Listening Modes	Audio + visual *3	Visual
		Audio + visual
		Audio + visual + textual enhancement

Students' written tasks on FonF
For the second research question, students' written works based on their listening activities were analyzed to investigate whether they applied peer feedback into their production, and to what extent the feedback were accepted. Both the first and final drafts of the students' written works before and after receiving and providing peer feedback were explored.

Chat-logs and voice recordings
To examine the learners' interaction, chat-logs and recordings were collected to see how learners negotiated meaning and linguistic forms according to the three different instructions. Learners used a voice recorder and a mobile communication tool to record and save as text files. All recordings submitted were transcribed and translated into English. Figure 1 shows an example of interaction in text-based communication tool.
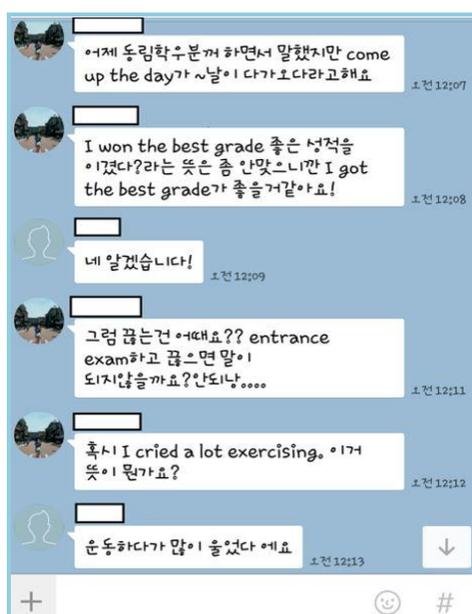
Figure 1. An Example of Learners' interaction in a mobile communication tool

Semi-structured Interviews

Semi-structured interview from the focus groups were conducted to collect the data about learners' feelings, intentions, and thoughts. The interviews were conducted in Korean, based on the chat-logs and students' written works. All interview data were recorded by voice recorders, and were later transcribed and translated into English.

Procedures

This study was conducted from September to November during the 2016 fall semester in a university located in Korea. Students enrolled in 'College English,' which was a two-hour class that was taught once a week. The instruction lasted for nine weeks. The main activities in the classes were listening activities, and the grammar forms in each lesson were included in listening texts and activities. The target forms that were taught in the class are shown in Table 5. The students were given three written tasks as a listening comprehension and grammar tests. Each group consisted of four students as mentioned before. The written tasks featured themes that they were taught, and then the students received and provided peer feedback, which included meaning negotiation. After the group interaction, they revised their own written works with their peers' feedback.

Table 5. The Themes and Grammatical Items

Unit	Themes	Grammatical Items
Unit 1	Food from the Earth	Past tense
Unit 2	Express Yourself	Present perfect tense
Unit 3	Cities	Future with *will*
		Will + time clauses
Unit 4	The Body	The comparatives, superlatives
Unit 5	Challenges	Past continuous with the simple past
		Enough, *not enough*, *too* + adjective
Unit 6	Transitions	Using the present perfect tense
Unit 7	Luxuries	Passive voice with *By*
Unit 8	Nature	Real conditional in the future
Unit 9	Life in the Past	*Used to*

All three groups were required to complete tasks after their classes. The major difference between the control group, the experimental group 1 and experimental group 2 was that the students in the experimental group 2 were required to complete listening activities in a blended learning environment. Through the listening comprehension activities, the students were exposed to practice on meaning and FonF, and were given written tasks based on the themes in Table 5, aimed to enhance meaning negotiation and grammar skills. The learners in the control group and the experimental group 1 were given grammar practice activities as offline tasks. Only the experimental group 2 was exposed to the blended learning environment. Figure 2 illustrates the different types of

tasks and activities between groups according to the experimental design.
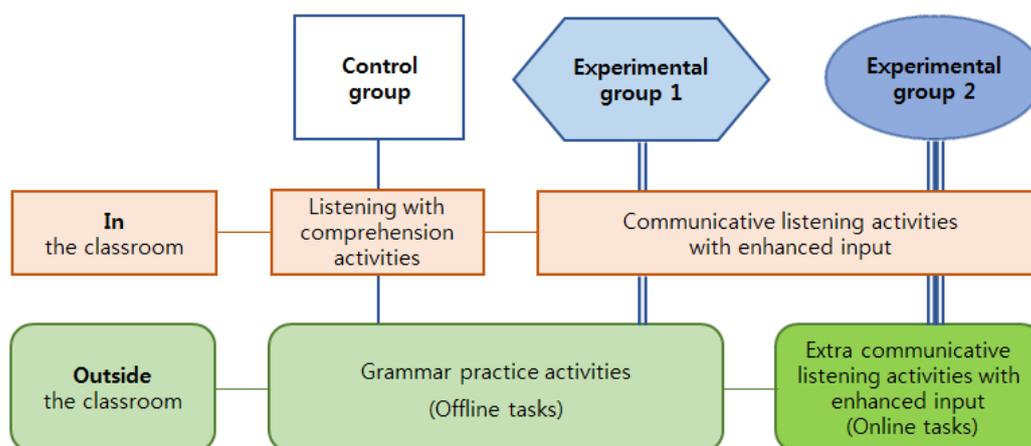
Fig. 2: The Model of FonF Instruction including Task differences between Groups

Data Analysis

The data that was analyzed in this study is the peer feedback including learners' meaning negotiations, its occurrences and LREs for the final written activity of the three that the students completed during the course. To explore the students' meaning negotiation and grammar skills, LREs were identified and analyzed from the chat logs, voice recordings and interviews. LREs were identified and categorized based on Williams (2001), Loewen (2005), and Leeser (2004)'s coding schemes. LREs were categorized into types of linguistic features (grammar, vocabulary, spelling, and meaning), types of resolution (correctly resolved and incorrectly resolved LREs), and types of reception (correct reception and incorrect reception of LREs).

Table 6. LREs Coding Scheme

Categories	Definition	Types
Source	The reason to instigate an LRE	Form-focused (FF) Meaning-focused (MF)
Linguistic feature	Linguistic target	Grammar Vocabulary Spelling
Resolution	Quality of student feedback	Correctly resolved LREs (CR) Incorrectly resolved LREs (ICR)
Reception	Students' reaction to feedback	Reception Non-reception

Each LRE was first categorized into form-focused (FF) or meaning-focused (MF) LREs depending on their sources. In particular, FF LREs were coded under three types of linguistic features, grammar, vocabulary, or spelling. Finally, all FF LREs were labeled as either correctly or incorrectly resolved LREs. As for the reception, both FF and MF LREs were divided in the correctly resolved and incorrectly resolved LREs. An example of LREs coding is shown below.

Table 7. Example coding of LREs (in the discussion about Min's essay)

		Coding	Types
Hyun	Min, what does it mean '*The zoo is very different animals and big*'?	Source	MF
Min	It means '그 동물원의 동물들이 매우 다양하고 컸다' (The animals in the zoo were various and so big.)		
Hyun	Then, I think 'animals' should be a subject in the sentence.	Source LF Resolution Reception	FF Grammar CR Reception
Min	Ohhhhh! Thank you!		
Hwan	I agree with Hyun's idea. 'The animals of zoo is∗ very big and various' would be better. 'various' is more appropriate than 'different.'	Source LF LF	FF Grammar Vocabulary

	Resolution Reception	ICR Reception
Hyun	Ohhh. Good!	
Min	Thank you, guys!	

LF: linguistic feature, "*" refers to incorrect language use.

All data were coded and categorized by two researchers. Pearson's *r* was used to estimate the consistency between two raters, and was over 0.9 ($p = 0.01$).

RESULTS AND DISCUSSION
Influence of FonF in Learners' Interaction Types and Occurrences

To answer the first research question, a total of 234 of LREs produced by learners were analyzed to investigate meaning negotiation in a blended learning environment in terms of frequency and types, and to compare them between groups. Table 8 shows the number of LREs in each group of students in both experimental groups and the control group. 68 LREs from the control group, 113 LREs from the first experimental group, and 72 LREs from the second experimental group were produced. Group 8 in the first experimental group produced the highest number of LREs (27 LREs), while group 1 in the second experimental group produced the least number of LREs (10 LREs).

Table 8. Number of LREs in each group

Groups	Group no.	No. of LREs	No. of Total LREs
Experimental group 2	Group 1	10	72
	Group 2	25	
	Group 3	18	
	Group 4	19	
Experimental group1	Group 5	15	94
	Group 6	26	
	Group 7	26	
	Group 8	27	
Control group	Group 9	22	68
	Group 10	21	
	Group 11	12	
	Group 12	13	
	Total LREs		234

Table 9 shows the number of LREs from different groups categorized depending on their sources; a total of 219 FF LREs and 34 MF LREs were produced. Of these LREs, 55 FF LREs produced by the control group, 97 FF LREs by the first experimental group, and 67 FF LREs by the second experimental group. 13 MF LREs, 16 MF LREs, and 5 MF LREs were produced by the control group, experimental group 1, and experimental group 2 respectively. From this data it is clear that the second experimental group had the highest occurrence of FF LREs with 93.1%, followed by the first experimental group with 85.8% and the control group with 80.9%. The control group, on the other hand, had the highest occurrence of MF LREs with 19.1%. This means that the learners in the experimental group 2 produced more FF LREs than those of two other groups, while producing MF LREs at a lowest percentage.

Table 9. Number of FF and MF LREs in each group

	No. of FF	No. of MF	Total
Control group	55 (80.9%)	13 (19.1%)	68
Experimental 1	80 (85.1%)	14 (14.9%)	94
Experimental 2	67 (93.1%)	5 (6.9%)	72
Total	204 (87.2%)	30 (12.8%)	234

An explanation for the higher production of MF LREs in the control and the first experimental group could be the learners' lack of confidence in their grammar abilities. Evidences for these were found in their chat-logs and

their interviews, with some students explicitly expressing doubt on their language ability, as shown below.

> Excerpt 1 [from the chat-log of group 7 in experimental group 1]
> Donghoon: Um…. I'm not confident about grammar. So, I may give feedback on vocabulary and meaning. Sorry.
> Suji: Me too. I'll give more feedback on meaning.

> Excerpt 2 [from the chat-log of group 10 in the control group]
> Jaehoon: Do we have to give feedback on only grammar?
> Jinhee: Not necessarily. I think it doesn't matter. You can also give feedback on anything. Vocabulary, meaning, spelling, even punctuation.
> Jaehoon: Oh! Then I will focus on content or vocabulary because I'm not confident about grammar.

> Excerpt 3 [from Jahoon's interview]
> Jahoon: I'm not good in English, so I'm not confident about grammar. I couldn't give feedback on grammar to my group members, because I couldn't judge which one was correctly written or not. However, I could search vocabulary an online dictionary. For example, when I typed 'Sashimi in English' in Korean in the search box of the online dictionary, the words appeared. I chose one, and then gave feedback. However, in case of grammar, I couldn't find anything.

> Excerpt 4 [from Donghee's interview]
> Donghee: I received feedback from members a lot. They were very helpful. I was sorry that I couldn't give feedback to my peers because of my poor English. So, I focused on the meaning. This way I didn't have to correct the sentences, and just gave comments. For example, 'how about adding time and data in detail?' or 'How about adding some more detail on explaining the experience?'

Along with their lack of confidence in grammar, from the interviews of excerpts 3 and 4, it seemed that it was easier for some students to give feedback on vocabulary than on grammar as the students could find synonyms and alternative words by using online dictionaries. Further analysis of the LREs relating to linguistic features such as grammar, vocabulary, and spelling is shown in table 10.

Table 10. Number of LREs and Percentages in Linguistic Features

	Grammar	Vocabulary	Spelling	Total
Control group	42 (76.4 %)	11 (20 %)	2 (3.6 %)	55
Experimental group 1	58 (73.5 %)	20 (25 %)	2 (2.5 %)	80
Experimental group 2	53 (79.1%)	11 (16.4%)	3 (4.5 %)	67
Total	155 (76 %)	42 (20.6%)	7 (3.4 %)	204

The total number of LREs produced by the three groups on grammar was 155, with vocabulary and spelling related LREs occurring 42 and 7 times. Among them, 42 LREs, 60 LREs and 53 LREs were addressed by the control group, experimental group 1, and experimental group 2 respectively in terms of grammar. As for the vocabulary, the control group produced 11 LREs, while experimental groups 1 and 2 produced 20 and 11 LREs. In terms of spelling LREs, the control group produced 2, with the first and second experimental groups producing 2 and 3 respectively. The experimental group 2 had the highest percentage on grammar LREs whereas the experimental group 1 produced the highest percentage of vocabulary LREs with 24.4%.

Combining the data from tables 9 and 10 shows a result that is contrary to previous studies (Blake & Zyzik, 2003; Lee, 2007; Morris, 2002), which showed lexical problems were the triggers for negotiations of meaning than syntactic errors. A possible explanation of this result may be the characteristic of the final written activity given to the students. A theme such as "Life in the Past" is likely to prompt students to use the past tense to express their memories, making students devote extra attention to FonF while giving feedback. The LREs from the control group and the first experimental group mostly focused on verb tense, while the second experimental group included a wider range of linguistic forms such as the present perfect, prepositions, superlatives, past continuous and the passive voice. This is evident from the below excerpts.

> Excerpt 5 [from the chat-log of group 6 in experimental group 1]
> Minwoo: This verb doesn't look correct.

Heejae: This one?
Minwoo: Yeah. I think it is 'visited' instead of 'visit'.
Heejae: Oh! Thank you.

Excerpt 6 [from the chat-log of group 4 in experimental group 2]
Sihoon: In Bohee's writing, I think you should add 'to' in the sentence 'I used go to the park.' You remember 'used to' that we learned it in Unit 9?
Bohee: Oh! I remember.

Excerpt 7 [from the chat-log of group 9 in control group]
Sukhyun: Remember from Unit 1, we learned that the 'eat' is an irregular?
Hyejin: That's right. So it's not 'eated' here.
Ildo: Ah, it's 'ate'. Thank you so much guys!

Among the LREs produced by learners, the occurrence and percentages of correctly resolved LREs (CR LREs) and incorrectly resolved LREs (ICR LREs) are shown in Table 11. From 202 LREs on linguistic features, 160 LREs were categorized into CR LREs while 38 LREs were in ICR LREs. The percentage of CR LREs produced by Experimental group 2 was the highest with 91% followed by the experimental group 1 with 76.3% and the control group with 69.1%. In terms of ICR LREs, the control group had the highest occurrence with 30.9% while the lowest percentage was in the experimental group 2 (9%).

Table 11. Number of and Percentages in CR and ICR LREs

	CR LREs	ICR LREs	Total
Control group	38 (69.1%)	17 (30.9 %)	55
Experimental group 1	61 (76.3%)	19 (23.8%)	80
Experimental group 2	61 (91%)	6 (9%)	67
Total	160 (81.4%)	42 (18.6%)	202

This result indicates that the second experimental group had more opportunities to produce language and exposure to linguistic input while carrying out the activities. It appears that learners' noticing is activated more with textual enhancement, which can result in intake. Furthermore, the learners in this group had greater linguistic input during the communicative activities in the non-threatening environments of blended learning, resulting in fewer ICR LREs than the other two groups. It is plausible that this is related to their increased focus on a wider range of grammar in their peer feedback, as shown in excerpts 8 and 9 below.

Excerpt 8 [from the chat-log of group 4 in experimental group 2]
Juhee: What language points should we focus on?
Daeun: Anything is OK. I think we should focus on grammar points that we learned in the class.
Juhee: That's good idea. I'll try use the language point we learned as much as possible.

Excerpt 9 [from the chat-log of group 1 in experimental group 2]
Woosik: According to Unit 5, I think you should use past continuous in while clause. Isn't it? (to Bohee)
Sihoon: Oh!! I agree with Woosik. I remember that. We must use past continuous in while clause after past tense.
Bohee: Thank you guys! I'll revise it.

The Frequencies and Percentages of Feedback Reception from LREs
The second research question asks to what extent learners apply their peers' feedback to their writing production, to investigate how much of the LREs were received. A total of 234 LREs were analyzed according to source, linguistic feature, resolution, and groups. Of these 234 LREs, 183 LREs were received by the learners when revising their writing while 51 LREs were not. In MF LREs, 20 LREs were applied to their resolution with 62.5%. 163 FF LREs were categorized into reception LREs while 39 FF LREs were in non-reception LREs types. Table 12 shows the frequencies and percentage of the acceptance of feedback in terms of MF and FF LREs in detail. Comparing MF and FF LREs, the percentage of reception in FF LREs was over 80 while that of MF LREs accounted for a lower percentage with 62.5 %. The percentage of non-reception in MF LREs is relatively higher than that of FF LREs.

Table 12. The Frequencies and Percentages of the LRE reception in Source

	Reception	Non-reception	Total
MF LREs	20 (62.5%)	12(37.5%)	32
FF LREs	163(80.7%)	39(19.3%)	202
Total	183(78.2%)	51(21.8%)	234

This means that the learners tended to apply their peer feedback on form more than meaning, and it appears that they were more confident about their stories because they were writing about themselves (as per the topic "Life in the past"). There even were some cases where the students misunderstood the stories and gave incorrect feedback. This kind of feedback was not accepted by the student who wrote the story, as seen in excerpt 10.

Excerpt 10 [from the chat-log of group 1 in experimental group 2]
Woosik: According to Unit 5, I think you should use past continuous in while clause. Right? (to Bohee)
Sihoon: Oh!! You're right. I remember that. We must use past continuous in while clause after past tense.
Bohee: Thank you guys! I'll change it.
(few minutes later)
Bohee: Ummm. I used 'while' to express meaning of 'whereas' not 'during'. In this situation, do I have to use past continuous too?
Woosik: Oh really? I misunderstood. In that case, I'm not sure.
Sihoon: I just searched the example sentences used 'while' when it is used to express 'whereas'. Seeing the example sentence 'Some people like juice, while others don't.', you don't have to use continuous.
Bohee: Oh! Thank you. Then I'll just leave my original sentence.
Woosik: Good!

Another explanation for this is the students feeling burdened to write extra sentences. It seems that FF LREs were received more because they were provided in revised forms and therefore were easier to be corrected, since they could be directly applied to the learners' writing with minimal checking and editing. The MF LREs were provided in comments, requiring students to take note of the important points and later add or completely change their sentences for a more detailed expression. This explanation on why students seemed to receive MF LREs less seems adequate, considering the below excerpt from an interview with one of the students.

Excerpt 11 [from Young's interview]
Interviewee: Why didn't you accept Minho's feedback? He commented it would be better if you added extra information about your trip.
Young: Well…He gave me very informative feedback. Actually, I wanted to write more but it takes too much time and effort.

The LREs received in terms of linguistic features included 120 grammar LREs, 36 vocabulary LREs, and 7 spelling LREs. A 21.6% of total 153 grammar LREs and 14.3% of vocabulary LREs were not applied to their resolution as shown as Table 13. In terms of resolution, 163 LREs were received, while 39 LREs were not. Both CR and ICR LREs had high percentages of reception with 81.3% of 160 CR LREs and 78.6% of 42 ICR LREs. It is noteworthy to mention here that learners accepted not only correctly resolved feedback but also a large amount of incorrectly resolved feedback and will be elaborated in detail later.

Table 13. The Frequencies and Percentages of LRE Reception in Linguistic Features & Resolution

		Reception	Non-reception	Total
Linguistic Features	Grammar	120 (78.4%)	33 (21.6%)	153
	Vocabulary	36 (85.7%)	6 (14.3%)	42
	Spelling	7 (100%)	0	7
	Total	163(80.7%)	39(19.3%)	202
Resolution	CR LREs	130 (81.3%)	30(18.8%)	160
	ICR LREs	33(78.6%)	9(21.4)	42
	Total	163(80.7%)	39(19.3%)	202

Table 14 presents the frequencies and percentages of received LREs. All three groups had higher percentage of reception of LREs than rejected LREs. 83.19 % of LREs produced by the second experimental group, 75.5% of LREs by the first experimental group and 77.9 % of LREs by the control group were received. The experimental group 2 had the highest reception percentage and the lowest percentage of non-reception.

Table 14. The Frequencies and Percentages of LRE Reception in Groups

	Reception	Non-reception	Total
Control group	53 (77.9%)	15 (22.1)	68
Experimental group 1	71(75.5%)	23(24.5%)	94
Experimental group 2	59 (83.19%)	13 (18.1%)	72
Total	183(78.2%)	51(21.8%)	234

To compare how many ICR LREs were received by the groups, LREs of the three groups were divided into CR and ICR LREs and were then categorized under the two types of LRE receptions. Table 15 shows LRE reception and non-reception in CR and ICR LREs by groups. Generally, the ratio which learners accepted their peers' feedback is much higher than those of non-reception regardless of resolution. Comparing LRE reception between groups, the control group and the experimental group 1 had much more ICR LREs that were received into learners' resolution. It means that the learners in the control group and experimental group 1 produced many more ICR LREs and applied incorrect feedback from their peers to their production.

Table 15. The Frequencies and Percentages of Reception & Non-Reception
according to CR & ICR LREs in Groups

Group	CR/ICR LREs	Receive/NReceive	No. (Perc.)
Control group	CR LREs	Received	32 (84.2%)
(no. of LREs =55)	(n=38)	Not received	6 (15.8 %)
	ICR LREs	Received	14 (82.4 %)
	(n=17)	Not received	3 (17.6 %)
Experimental group 1	CR LREs	Received	46 (75.4 %)
(no. of LREs =80)	(n=61)	Not received	15 (24.6 %)
	ICR LREs	Received	16 (84.2 %)
	(n=19)	Not received	3 (15.8 %)
Experimental group 2	CR LREs	Received	52 (85.2%)
(no. of LREs =67)	(n=61)	Not received	9 (14.8)
	ICR LREs	Received	3 (50%)
	(n=6)	Not received	3 (50%)

The discussions of the above results from the tables 13, 14, and 15 are as follows. Earlier it was noted that students applied a large amount of incorrectly resolved feedback. It can be seen that they were being accepted regardless of language features and the percentages of their LRE reception in the control and the first experimental group is quite high. It appears that the students in these groups applied incorrect feedback to their drafts without correcting it first, while making ICR LREs more than the second experimental group.

> Excerpt 12 [from Yuri's interview]
> Interviewee: Did you have any criteria when accepting and rejecting the feedback?
> Yuri: No, I didn't.
> Interviewee: Then, what feedback did you accept?
> Yuri: I applied all the feedback from peer to my revision.
> Interviewee: Did you think the feedback you received was correct?
> Yuri: Yes, I thought all of them were correct. Were they incorrect?
> Interviewee: Some of them were.
> Yuri: I didn't know that. Everyone in my group is better than me, so I thought the
> feedback I received were all correct.

As the above excerpt shows, a student (from the control group) was unaware of the accuracy of the feedback and applied it to her final draft, even though most of the feedback was incorrect. She seemed to entirely rely on her peers' comments. This is a case that requires attention, because peer feedback and interactions influenced the

students negatively. Similar cases may have happened in other groups of the control and even in the first experimental group, but learners in the second experimental group seemed to use and apply peer feedback selectively. Excerpt 10 presented previously shows this, as the students from group 1 of experimental group 2 are seen negotiating forms after receiving incorrect feedback. What's more, they even searched example sentences from an online dictionary together, prior to the correction. This can be considered as evidence to the effectiveness of the treatment and different modes that the second experimental group was exposed to. The students in this group had insight on finding information online during the treatment, and this explains why considerably fewer ICR LREs were received to a certain extent.

CONCLUSIONS AND IMPLICATION

This study aimed to explore the meaning negotiations and grammar skills through blended learning according to the different instructions in terms of frequency and types of LREs, and to examine how much of the peer feedback received during the interactions were accepted. The results pertaining to the first research question were as follows: 1) The percentage of MF LREs was highest in the control group, then experimental group 1, both of which were much higher than the experimental group; 2) All three groups produced mostly FF LREs on grammar followed by vocabulary and spelling; and 3) The percentage of CR LREs produced by the second experimental group was much higher than the other two groups. As for the second research question: 1) The FF LREs were received more than the MF LREs; and 2) The percentages of reception in ICR LREs by the control and experimental group 1 were much higher than the experimental group 2.

The higher production of MF LREs was attributed to the lack of confidence of grammar, and the higher CR production indicated effective noticing. The students from the second experimental group received fewer ICR LREs because they were able to apply their feedback selectively, as well as checking and finding information online. The implication from these results is that when FonF listening instruction is combined with input enhancements and blended learning based on the model and the modes featured in this study, it will positively affect the students. Another implication of this study is in regards to peer feedback, especially for low-level students. It was found that some learners may have struggled due to their lack of ability to discern correct and incorrect feedback or even interact with their peers. This could be remedied by inducing teacher intervention within the limits of monitoring, supporting and guiding the students, or by training the students on how to interact with peers and search information on language use and choose the correct forms. Preparation of a training session before the students start to interact should be considered. Finally, this study only shows the pattern difference of interactions between groups. A further study detailing and focusing on a true experiment, showing the effects of blended learning on the development of learners' listening and grammar skills is required.

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THE IMPACT OF PRİNCİPLES İN LEARNİNG AND TEACHİNG OF PROFESSİONAL ENGLİSH İN MULTİLİN-GUAL CONTEXT

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ABSTRACT
Doughty and Long (2003) define methodological principles as a list of design features that can be generally regarded as being facilitative to second/foreign language acquisition. The purpose of this paper is to explore the impact of principles in learning and teaching of professional English methodology in the context of task-based approach. Further, the paper attempts to develop some theoretical underpinnings of those developed eight principles underlying the methodology of professional English teaching and demonstrates how such approaches might be implemented in the multilingual context in the Republic of Kazakhstan.

INTRODUCTION
According to the national idea of "Mangilik El", the formation of the 21st century should be based on new methodology for humanitarian research. This national idea is harmoniously intertwined with priority directions in the field of education and science of the Strategy "Kazakhstan-2050" and is reflected in Nation Plan - 100 concrete steps. Here, provision of high quality foreign education in the context of multilingualism in the universities of agrarian system in Kazakhstan, in particular professional language teaching is acquiring important significance. Previous studies, namely, the role of foreign language in personal development (Bim, 2002, Zimnyay, 1999), the influence of language education on development of professionally significant qualities of teacher (Kunanbayeva, 2014, Alekhin, 2017) will serve as a basis for defining teaching concept. In addition, this reflects our intention to address the new challenges and opportunities in the field of higher education and integration with the Bologna process. In this context much have been done in modernisation of the national higher educational system to make it competitive on the international level and foster its quality and relevance by implementing higher education reforms along the general lines of the Bologna process.
Methodological principles in English teaching and learning have been recognized as important to the educational experience of students to use language for the purpose of communication and to participate in intercultural interaction in the multilingual context in Kazakhstan. According to the annual Message of the President of Kazakhstan N.A. Nazarbaev (31.01.2017) to Kazakhstan people "The third modernization of Kazakhstan: the global competitiveness" in the fourth priority regarding the upgrading of the human capital, it is mentioned that it is necessary to change the role of the system of education, where the objective is to make the education as the central chain of the new model of the economic growth. The focus should be paid to the educational programs which should aim at the development of critical thinking and skills of independent information search on the basis of the principles of learning and teaching.
The main important thing is to step-by-step approach to the trilingual education where the Kazakh will play the dominant role and English will be the language of the new technologies to promote Kazakhstan to reach the nationwide progress. In this context the peculiar attention will be paid to the English teachers' professional competency which requires considering the policy of stepwise implementing of English.
In other words, the trend for providing everyone in Kazakhstan with a good command of English for international intercourse has become very prominent in the Republic of Kazakhstan, as multinational country, where hundreds of thousands of people are learning English for improving their life prospects and meet the requirements of current 'English language education' there.
According to Hornberger (2009): "Multilingual education is, at its best, multilingual in that it uses and values more than one language in teaching and learning, intercultural in that it recognizes and values understanding and dialogue across different lived experiences and cultural worldviews, and education that draws out, taking as its starting point the knowledge students bring to the classroom and moving toward their participation as full and indispensable actors in society – locally, nationally, and globally". It is obvious that multilingual education is a very complex term, which needs to be studied from different points.
In this light multilingualism in Kazakhstan is considered as a multipurpose system which covers the issues of social sciences, and linguistics as well to be solved pragmatically, as well on the educational and cultural levels.

Consequently, Kazakhstani foreign education is shifting from "knowledge as contemplation" to "knowledge as operation" (Barnett, 2001). In this light, we have defined 8 methodological principles based on best home and foreign practice and experience to help students to develop new knowledge, form critical thinking and take-decision skills to effectively play in any nonstandard situations in the real life. In other words, we refer to the so-called "provisional specifications" (Stenhouse, 1975) which provide teachers with a basis for argument and for reflection and relevant to be applied in a variety of settings, including foreign and professional English language situations and content-based classrooms.

The current state of teaching professional English in Kazakhstan does not meet the requirements of today; therefore, modernization of foreign higher education is required, aimed at developing professional competencies in a foreign language teaching along with implementation of lifelong learning principles as well. Thus, the focus of this paper is to define a set of teaching/learning principles which will be described and discussed in the logic consequences by focusing on their essence and meaning, the reasons for defining them, and suggestions of their implementation in the professional English classrooms afterwards.

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THE STUDY

Modern Kazakhstan is a multi-ethnic and poly-confessional state which is developing in the conditions of multilingualism, and language learning is one of the main indicators of adaptation to the new social-political and social-cultural realities. In this regard, the higher school professional faces a task - to teach students to critically approach a problem solving, to overcome problems posed by life; to be able to systematically, analytically and critically evaluate the consequences of their actions and be willing to take responsibility for their choices in problem solving. Hence, it has to be reoriented in terms of developing professional qualities that is in tandem with the process of professional English language teaching in the context of multilingualism.

During the implementation of project's purpose and tasks, the three-stage TBLT model (Meiramova, 2012) has been developed for the profession-oriented English teaching on the basis of cognitive – communicative approach and Task-Based Learning and Teaching (TBLT) approach in the context of multilingual education. In addition, the textbook on English for Science and Technology for Multilanguage education students has been developed as well, aimed to increase the effectiveness of learning and teaching by expanding the vocabulary of the individual, along with the formation of cognitive mentality and critical thinking, which are now the cornerstone of the modern methodology of professional English language teaching in the Kazakhstani universities.

The authors state that the following below 8 defined Principles underpin the mentioned three-stage TBLT model and could be introduced through the modeling (Karl Kaliski and Derrin Kent, 2001) i.e. so-called 'lesson shape' which guarantee the student's basic academic development (e.g., capacity to analyze and synthesize, language awareness, critical thinking, research abilities, etc.).

Principle 1: Use Task-Based Learning and teaching (TBLT) as Classroom Management Principle
TBLT could be considered as 'learning by doing' which is strongly supported by an active approach to using target language along with Willis' (1996, p.23) definition of a task as 'activities where the target language is used by the learner for a communicative purpose (goal) in order to achieve an outcome'.

Principle 2: Promote Meaningful, Comprehensible, and Elaborated Input for Successful Acquisition
Krashen's (1985) view of a successful acquisition is motivation and "comprehensible input", because input provides the implicit knowledge on the basis of rich authentic materials reflecting real-life situations and pedagogical demands and maximises the use of the target language. Further, the information teacher processes must be meaningful, i.e. presented clearly and relatable to prior knowledge that the learner already possesses. In addition, the prior knowledge must be organized in such a way that the new information could be easily "attached" to the learner's cognitive structure (Ausubel, 1968).

Principle 3: Promote Classroom Dynamics Learning
Teachers should try to motivate their students to be effectively involved in the socializing process in the classroom through whole class interaction, small group interaction, interaction in pairs and individually according to the type of used activities. By and large interaction is a tool for helping learners to acquire new language and is viewed as a primary source of learning. According to the Interaction Hypothesis (Long, 1996), interaction enhances acquisition while learners are engaged in negotiating meaning to solve a communication problem that has arisen.

Principle 4: Focus on Form needed
According to Schmidt (2001) focusing on form is necessary for vocabulary acquisition to take place which could be catered for in a number of ways. Also a focus on form emphasizes a form-meaning connection and teaches

"vocabulary grammar" within contexts and through communicative-oriented tasks. These can be done through the following four main activities:

1. *Learner errors review.* Teacher addresses the noticed errors from each group to the whole class. The error could be written on the board to invite students to correct them. After the corrected version with a brief explanation is provided, students listen again and edit their own performance and any missed points could be commented by the teacher.

2. *Consciousness-raising tasks (CR tasks).* CR-tasks can be used as guided problem solving. Students are encouraged to notice particular features of the language, to draw the conclusions from what they notice and to organise their own view of language in the light of the conclusions they have drawn.

3. *Production practice activities.* An alternative or addition to CR-tasks is to provide more traditional practice of repetition, substitution, gapped sentences, jumbled sentences, transformation drills, and dialogues. Those activities may help students to automate forms that they have begun to use on their own accord but have not yet gained full control over.

4. *Noticing activities.* These activities focus on linguistic form. Fotos (1993) used dictation exercises that had been enriched with the target structures that students had tackled initially in CR tasks. Lynch (2001) recommends getting students to make transcripts of an extract (90-120 seconds) from their task performance as a method for inducing them to notice. Afterwards, the students could be asked to compare their own edited transcripts with the teacher's reformulated version. By so doing, students cooperated effectively in transcribing and engaged in both self- and other-correction.

Principle 5: Focus predominantly on meaning
A task-based approach provides a design of lessons around specific linguistic teaching points so both teacher and students view the academic English language as a tool for communicating rather than as an object to be analyzed and studied.

An important feature of TBL is that learners are free to choose whatever language forms they wish to convey what they mean by finding a way of getting round words or forms if they do not yet know or cannot remember. The teacher's role here is a monitor to encourage students' attempts to communicate in the target language. And by doing so, they experiment with language on their own and take risks. Fluency in communication is what counts. In later stages of the task framework accuracy does matter, but it is not important at the task stage. Learners need to regard their errors in a positive way, to treat them as a normal part of learning. Teachers should help them understand that it is better for them to risk getting something wrong, than not to say anything, otherwise, if they remain silent, they are less likely to learn. Because, language is the vehicle for attaining task goals, but the emphasis is on meaning and communication, not on producing language forms correctly (Willis, 1996, p. 24).

Principle 6: Developing Successful Output
According to Willis (1996) all tasks should have an outcome. Literature shows that it is the challenge of achieving the outcome that makes TBLT a motivating procedure in the classroom. An example of an activity that lacks an outcome should be shown by teachers to students in order to compare with the successful one which has a communicative purpose, not only the practice of language form. To achieve the outcome learners should focus first on meaning, and then on the best ways to express that meaning linguistically.

Principle 7: Recognize and Respect a zone of proximal development (ZPD) for professional learning
Following Vygotsky (1926; 1962), a zone of proximal development (ZPD) for professional learning (Baumfield et al., 2010) could provide support for the inquiry process that learning can be shared. Participating in a community of inquiry (CIP) enables the processes where the nature of teacher knowledge could be explored and understood.

Principle 8: Task Instruction needs to take account of a differential approach to learners
Students' level and learning styles could be different and teachers should select a variety of appropriate learning activities to make students more aware of their own approaches to learning and to develop awareness of alternative approaches. This could increase the range of learning strategies at the learners' disposal to make the learning effective and successful.

FINDINGS
The concept of defined 8 principles is considered in the three-stage TBLT model and in the textbook of English for Science and Technology as well. While adapting this textbook during the whole last academic year of 2016-2017 in S.Seifullin Kazakh Agrotechnical University, students were asked to reflect and ask questions or requests of how to use this textbook to meet students' needs and interests. Below, we provide the selected questions with our comments.

Is it necessary to do all the tasks and exercises?

It is recommended that students do the tasks and exercises in the order they appear within the units and also that you do *all* the tasks and exercises. Many words are recycled and consolidated throughout the tasks and exercises, that is, they appear a number of times in different tasks and exercises. This will benefit your practice in recognising and using the words.

Is it enough just to do the tasks and exercises?

At the end of each unit, there is an expansion/consolidation task which encourages you to form and support opinion about the topic you are studying in the unit. It also encourages you to discuss your opinions and reasoning with a partner agreeing or disagreeing with it. In addition, you should choose one of the statements covered in the unit and write a personal essay about it using new words and phrases you have learnt to provide support for your opinions and reasoning. There are also some exercises of recycling vocabulary, i.e. providing all the information you need to use it fully and correctly. It is also useful to organising your notebook and recording vocabulary to retain them while using the words when speaking and writing.

Can I use monolingual and bilingual dictionaries to do the tasks and exercises?

Dictionaries are the one resource students' worldwide use to improve their vocabulary and should use them systematically. Each unit provides practice for using dictionaries.

When I should use the answer keys?

You should check your answers when you finish each task or exercise. If you have made a mistake, notice the correct answer and try to understand what is wrong in your answer. If you still cannot understand why this is the correct answer, ask it with your teacher.

Is it necessary to do other vocabulary work?

The vocabulary work in this coursebook is organised in the way to recycle and consolidate them through various reading, discussion, and writing activities to expand students' word knowledge in new ways. To support you when considering other vocabulary work to apply, there are a range of other useful reference materials that link with the principles and practice behind the methodology framework, approach and strategy that are presented in the coursebook. E.g. the reference materials could be a glossary which provides you a list of words with their definitions, thesaurus and monolingual, namely English dictionary.

CONCLUSIONS

It is well-known that effective teaching is not about a method. It is about understanding and implementing principles of learning. The purpose of this paper was to provide the overview of professional English learning and teaching in Kazakhstan in the context of multilingualism and to reflect the influence of the defined methodological principles on professional English language acquisition. These principles have drawn on a variety of theoretical perspectives and practical home and foreign experience. The paper argues that these principles facilitate and succeed the process of professional English language learning and teaching. TBLT model and textbook of English for Science and Technology furthermore takes a pragmatic or task-based approach to learning taking account these defined principles. Its goal is to ensure the formation of real life-oriented language skills by involving students into contextualized, meaningful, and subject-oriented communicative tasks by helping students reorganize their existing knowledge to accommodate new knowledge, thereby raises the interest of students in professional English language learning. Finally, the authors leave the discussion open to redefine and adapt new innovative teaching practices, new principles as research findings evolve in the future.

Explorations
Extract (Lesson 5) from textbook on English for Science and Technology

5. WHAT IS SCIENCE? (READING)

Brainstorming
1. Read the heading. Answer the question in the heading.
2. What sort of information do you expect to find in the text? Tick one or more.
- ☐ facts
- ☐ ideas
- ☐ opinions
- ☐ advice
- ☐ rules
- ☐ jokes

☐   instructions

3. What grammatical tenses do you expect to find in the text E? Why?

Making and checking hypothesis

5.1 (a) Read the first paragraph. What question will text E answer?

    (b) What is your answer to the question?

    (c) Read the rest of the text. According to the text, ...

- Which type of science is the most important? (? – Not sure what you mean)
- What do people often say about science? (?)
- Why it is referred as a system of acquiring knowledge?

WHAT IS SCIENCE?

Science is the study of how things work in the world. Also science refers to a system of **acquiring knowledge**. This system uses **observation** and **experimentation** to describe and explain **natural phenomena**. A **scientist** usually works in a **laboratory**. He or she works with many different kinds of **materials**, for example plastic or metal, and **liquids**.

What is the **purpose** of science? The most general answer to it is to **produce** useful models of reality. A scientist **tests** things to **prove** a hypothesis. A **hypothesis** is an idea that something is **true**. Scientists must **collect** all the facts first. Then he or she often puts the facts in a **table** with columns of information, or in a **graph**, with blocks or lines that **represent** the information.

Science as defined above is sometimes called **pure science** to differentiate it from **applied science,** which is the **application** of **research** to human **needs.** Fields of science are commonly **classified** along two **major** lines:

- **Natural** sciences, the **study** of the natural world, and
- **Social** sciences, the **systematic** study of human **behaviour** and **society**.

(adapted from T.Phillips & A.Phillips with N.Regan, 2011. Progressive Skills in English. Garnet Education)

Developing vocabulary skills

5.2 Read the text above, paying particular attention to the words in bold. Use your dictionary to check the meanings of the words in bold in the text below and then do the gap-fill exercise that follows.

laboratory	science	prove	experimentation	hypothesis	produce	knowledge
observation		science		acquire		

1. "The good thing about ……… is that it's true whether or not you believe in it." - Neil Degrasse Tyson

2. We all ………. ………. in a similar way. We don't have different learning styles, right/left brain advantages, photographic memories; nor speed reading advantages, or brain development inappropriateness.

3. I'll record the facts from my personal point of view, and my ………..

4. A more careful study of the physical as well as the chemical properties of a soil must precede intelligent ……………. in rotation.

5. After introductions, Dean was led to a ………. in the rear of the building.

6. Food security is a real issue, and nations that do not at least ……… some kinds of food are at risk.

7. You don't have a thing to ………. to anyone except yourself.

8. If we accept the ………. that each kind of atom has a specific and invariable weight, we can, with the aid of the above theory, make most important inferences concerning the proportions by weight in which substances combine to form compounds.

Fact – finding

5.3 (a) Think of your own answers to the five questions and discuss them with your partner. (5 min)

- What is science?
- What do scientists do?
- What is the purpose of science?
- What is a hypothesis?
- How does a scientist collect facts? (A little strange – Scientists don't collect facts. Maybe collect *data*?)
- How do you differentiate pure science from applied science?
- How do you classify different fields of science and what are they?

    (b) Find four phrases in the text which refer to science, e.g. pure science, applied science. What similar phrases do you know? (2 min)

    (c) How many phrases refer to scientific tasks or things, e.g. a scientist, observation, liquids?

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THE IMPACT OF TECHNOLOGY-CENTERED PROFESSİONAL DEVELOPMENT ON MİDDLE SCHOOL STUDENTS' WRİTİNG

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ABSTRACT

Although there is an ever-expanding body of research on New Literacies, to date none has addressed the fit of web-based tools for writing instruction in contexts that privilege traditional writing and scores on standardized tests. This study evaluates the impact of professional development in New Literacies on students' writing achievement as measured by high-stakes assessments of writing.

Keywords: TECHNOLOGY-CENTERED PROFESSIONAL DEVELOPMENT

THE IMPORTANCE OF EDUCATION İN FORMING THE NUTRITIONAL HABITS OF SOCIETY

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Beslenme alışkanlıkları insanların günlük yaşamları için önemlidir ve bireylerin yaşamlarını sürdürmeleri için zorunlu olan ihtiyaçlar arasındadır. Beslenme, büyüme, gelişme, yaşamın sürdürülmesi ve sağlığın korunması için hayatımızın her döneminde sağlığın temelini oluşturur. Bir toplumun sağlık ve ekonomik refahı, o toplumu oluşturan bireylerin sağlığına bağlıdır. Gıdalardaki bazı besin elementleri yeterince alınmadığı ve dolayısıyla gelişme ve büyümenin azaldığı durumlarda çeşitli sağlık sorunları ortaya çıkar. Çağımızda yetersiz ve dengesiz beslenme nedeniyle birçok hastalık ortaya çıkar. Beslenme eğitiminin olmaması bu hastalıkların başlıca nedenleri arasındadır. Bu nedenle bilinç düzeyini arttırmak için toplumun beslenme konusundaki eğitimini programlı ve programlı bir şekilde yapmak gerekiyor.

THE INFLUENCES OF MUSİCAL LEARNİNG ON PSYCHO-PHYSİCAL DEVELOPMENT, INTELLİGENCE AND TECHNOLOGY

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ABSTRACT
Music learning studies have shown the extraordinary evolutionary power in early childhood. Indeed, the learning of music has been shown to have an influence on the psycho-physical development according to psycho-dynamic perspective, on the development of intelligence, and finally on the design of new technologies. The first studies on musical learning based on a psycho-dynamic perspective date back to Freudian essays. The relationship between intelligence and music in contemporary studies has reached a high degree of parameterization with the investigation of all involved dimensions and recently studies on musical learning are producing specific research in the field of acoustic and audio technology. The purpose of this study is to highlight the relationship between these three dimensions and musical learning as well as to suggest new integrate perspectives to follow in the field of research projects.

INTRODUCTION
The state of the research suggests that the field of music learning has been related to many approaches and themes making complex the whole reading in a single picture. The purpose of this article is to analyze other aspects that have enriched the research beyond those strictly related to the scholastic field, i.e. issues concerned with cognition, learning, personality, intelligence and related skills. Parallel to these issues, psychological research has also been based on psychodynamic perspective that have been involved in the therapeutic and applicative practice of music. In this study it will trace the lines of contact between the basic constructs of dynamic psychology and contemporary knowledge of musical learning, pointing to these future research paths (Isenberg, 2015).Secondly, this study deals with the link between music and cognitive abilities relating to intellectual, social and cognitive development, focusing on studies seeking to trace the impact of the music on language development, literacy, numeration, creativity, engine coordination, memory, self-confidence, emotions, and social skills (Holochwost et al., 2017). Neurobiological research has shown that changes in the functionality of brain plasticity during an executive-performing task, thus demonstrating that the transfer of a cognitive ability is possible if it occurs in early childhood. The effects of using the Internet on new generations and the fundamental change in how to learn information also influence how to enjoy and learn music. In this direction, the third theme will deal with the relationship between musical learning and new technologies, as product and as a teaching process. The most discussed issue is whether new technologies also support the creation of music products, even making the student unaware of any musical music maker, without compromising the creativity and originality of the student (Bauer, 2014).

PSYCHOLOGY OF MUSIC FROM A PSYCHODINAMIC PERSPECTIVE
The link between music and psychology exists since the early experiments of the legendary Wundt laboratory in Leipzig, where music was used as a stimulus to measure perception and sensation. With the foundation of the Gestalt school, music was not simply a sum of parts, but its form assumed meaning as a structured totality from which it could be possible to translate sense and perception. Moving to behaviorism that still determined the stimulus function according to which it was possible to express emotional responses without being able to define a cause-effect relationship, music has known its utmost application in the 70's and 90's with cognitivism, thus becoming an object of theories on memory, learning and language (see for a review Monacis & Toto, 2017).
At the same time, music has been widely used in the therapeutic field through the creation of psychodynamic matrix constructs that have secured their bonds not only in theory but also in psychological practice, thus becoming a psychological research and application tool. Freudian concepts of unconscious, transfer and countertransference were the theoretical basis for the development of general constructions and techniques of music therapy. Various works in literature have shown that the use of music in psychotherapy practice facilitates the emerging of unconscious feelings in patients (Priestley, 1994) or as Gardstrom & Hiller (2010) observed, the selection and discussion of musical material can promote transfer and the countertransfer.
From the first uses of Freud in the practice of psychotherapy, psychotherapeutic methods have been greatly improved thanks to ithe fusion of dynamic psychology and music. In fact, music therapy techniques based on musical improvisation (Ahonen & Lee, 2011) or on free associations with songs (Austin, 2009), have been introduced to express the patient's unconscious.
Another important author who tried to unify theories and practices is Melanie Klein. To this purpose it should be important to recall her split theory (which also identifies a technique used in psychotherapy) elaborated in 1932,

according to which the child can experience the mother's breast as both good and bad, and the internal object splits along with the ego. This splitting results from the ego's early lack of cohesion, and acts as a defense against primordial anxiety, achieving a dispersal of the destructive and persecutory anxieties, and offering a mechanism for the ego to be preserved. An important distinction needs to be made between the good and idealized object. An extremely deep split usually occurs between an idealized object and an extremely bad object.

This splitting has also been reflected in therapy, when the patient shows the bipolarity and conflicts between opposing sides and thus it becomes important the integration and the resolution between these opposing sides. Within this resolution process music can facilitate such inner integration: specifically, split parts assume the two different musical valences, and the patient can experience both of these roles through the specific music channel. This technique is particularly effective in subjects who are trapped in the parent-child dynamics, because music makes aware of experiencing the two different roles, or even in case of gender splitting, in which an individual can experience both sex roles in music and works for the integration of male and female aspects of life (Wheeler, 2015).

Winnicott with his model of object-relations represents another psychodynamic point of view to be mentioned. At a theoretical level, this author is the most cited in the scientific literature on music therapy. Its fundamental principle universally reported by therapists, who use music in their therapeutic practice, is that the psychotherapy is based on the overlapping of two playing areas, that of the patient and that of the therapist. If patient or therapist can not play, the practice can not be done and the therapist must accompany the patient to know how to play (Winnicott, 1971, p.54). In the game both the child and the adult become creative and use their creativity by discovering themselves. The child's playing has a state of attention that is close to that of the adult in deep concentration. In the game, as in music, impulses are freely expressed and in this regard Dvorkin (2013) describes music as a transactional object to use as a self-relaxing device. Winnicott (1958) emphasizes the importance of learning by oneself, but if music as a learning experience is experienced together with the patient, it does not contradict this principle, because it stimulates, evokes reactions, creates the possibility of escaping thought, thus maintain a complete individuality in front of a therapist.

Another important exponent of dynamic psychology is Bion who compares music with the preverbal state of speech development and with its resulting forms of communication. The role of the therapist in Bion's group therapy is crucial, as therapist guides patient in his experience, by projecting memory in the past or with desire, guides him in the future, but always bringing him back to the present of *hic et nunc*. The same experience of shifting and loss of temporality is presented in music, which evokes past and future experiences so that they must be brought to this present experience (Sutton, 2011). Kohut in a classical article entitled "Notes on the Psychological Functions of Music" (1958) emphasizes that psychological patterns of reflection and empathy are applicable to musical improvisation, they are applicable to musical improvisation, which allows the function of interior mirror of those who use it and the same musical expression induces an empathic reaction. These effects, however, says Kohut, may be induced by a wide selection of music that, unlike a poor selection, would have led to the failure of the two processes enunciated. The author finally shows in his article that music would have a medium function in dissipating conflicts, confirming what Klein had pointed out.

MUSICAL INTELLIGENCE AND RELATED SKILLS

Psychological theories and research have focused on the constructs and methods for improving mental health. Numerous studies are monitoring the empirical evidence of the effects of music on the intellectual, social and cognitive development of children and young people during the musical experience and training (Heinonen-Guzejev, Kliuchko, Monacis, Spinosa, Heikkilä, Tervaniemi, Brattico, , 2015; Kliuchko, Heinonen-Guzejev, Monacis, Gold, Heikkilä, Spinosa, Tervaniemi, Brattico, 2015).

In addition, it has been experimentally demonstrated that musical abilities can be transferred to other activities as the transfer of skills and learning occurs when what is learned in a given area is moved and generalized in several areas that usually affect cognitive abilities (Mestre, 2005). Personality and identity studies have also made an important contribution because it has been shown that personality can be a mediating factor in transferring skills to the learning and identity construction processes (Monacis, L., de Palo, V., Sinatra, M., Berzonsky,2016). Not by chance, researchers define the personality of musician as independent, individualistic, but also bold, sensitive to the path of knowledge of the depth of things beyond the material aspect, and anxious to seek perfectionism (Mihajlovski, 2016). Individual differences have also been identified among musicians of various instruments, such as brass players show a more extroversion trait and have low levels of self-discipline (Wills & Cooper, 1988).Moreover, gender differences or music choices also influence personality (Mas-Herrero et al., 2013). Contemporary studies explore the impact of musical abilities in language development, literacy, numeracy, intelligence measures, creativity, coordination of engine end, concentration, memory, self-confidence, emotions and in social skills (Toto, 2017).

Early exposure to music in childhood correlates with higher IQ scores and academic success (Schellenberg, 2006). Musical training requires targeted attention, an understanding of complex models of interpretation, memory and motor skills. A study by Moreno et al. (2011) reports the effects of two interactive computer training programs developed for preschool children: one for music and one for visual arts. After twenty days of training, only the boys belong to a music band have shown better verbal performance. These improvements in verbal intelligence have been positively correlated with changes in the functionality of brain plasticity during an executive-function task, demonstrating that the transfer of a cognitive ability is possible in early childhood. Brain research has shown that exposure to stimuli (visual, sonic, tactile) during childhood is crucial to the formation of multiple neural connections, thus promoting the development of multiple abilities including motions, emotions, behavioral, cognitive, and social issues (Hallam, 2010). Exposure to musical listening (the same applies to adult's speech discourse) rapidly improves the ability to distinguish sounds, reinforcing auditory discrimination and improving cortical processing of language models (Bigand & Poulin-Carronnat, 2006). Subsequent studies have confirmed that about 50% of the brain is well structured between 7-11 years and between 9 and 13 years and that the brain undergoes a process of eliminating of unnecessary associations while maintaining the more useful networks, and that a certain scarcity of neuronal connections in children in a state of cultural deprivation and whose brain appears 20-30% smaller than peers (Thompson & Nelson, 2001; Harris, 2009).

A series of experiments that expose children with reading or dyslexia problems due to cultural deprivation to a weekly rhythmic training, including beat, beat and simple notation, have significant effects on phonological awareness, literacy and reading skills (Thomson, 2014, Long, 2014). It has been studied that music education improves auditory and verbal memory (Roden et al., 2014) and Miendlarewska and Trost (2014) have suggested an essential mechanism that supports the learning and development of executive functions that may be at the base of improvements in reading and verbal memory. Other research has shown that music education has specific effects on reasoning and spatial skills in children (Persellin, 2000). From the early studies of the 1930s to the 40s, it was hypothesized the relationship between musical formation and intellectual development. Recent studies have shown that children with high IQ and belonging to a socio-cultural context rich in these conditions will also lead to the study of a musical instrument or musical activity (Schellenberg & Mankarious, 2012, Costa-Giomi, 2012).

During a musical performance, emotions pass under the form of nonverbal communication, through which people can respond in a basically subjective way, feeling different emotions. Resnicow et al. (2004) have shown, however, that there is a correlation between the characteristics of emotional intelligence and the identification of emotion in musical performance since they are based on the same sensitivity. Studies on the effects of music on creativity are still scarce, although those who benefited from music education have shown a significant increase in creativity and motor skills (Eerola & Vuoskoski, 2013). According to Gibson et al. (2009) the most interesting aspect of critical thinking and creativity emerges from the hypothesis of the transferability of these abilities through the artistic activity in general (Monacis, de Palo, Di Nuovo & Sinatra, 2016) and the rise of the diverging thinking of musicians towards non-musicians.

MUSIC LEARNING and TECHNOLOGY

Albert Bregman in his 1990 book *The Auditory Scene Analysis: the perceptual sound organization*, has formulated the construction of the auditory scene analysis (ASA), focusing on ways to rework the brain of that system. His theories on ASA have provided new perspectives for researching human and animal hearing systems, behavioral and neurological language perception studies, musical theory, hearing aid design, audio technology, and finally for the separation of speech from other sounds of computer. From this point of view it is important to understand how psychological theory has influenced the design of technology and at the same time how new technologies have changed ways of thinking, acting or perceiving the surrounding reality.

A sector strongly linked to technology that also influences the subsequent design is education: training must interact with the subjects in training to whom knowledge is transferred, taking into account the socio-cultural context of belonging. The pervasiveness of technology in everyday life makes it an indispensable medium for communication and mediation. In addition, the educational potential and teaching variation are infinite so that content and relationships can be exponentially differentiated. de Palo, Sinatra, Tanucci, Monacis, Di Bitonto, Roselli, Rossano, 2012; Di Bitonto, Roselli, Rossano, Monacis, Sinatra, 2010; Monacis, Finamore, Sinatra, Di Bitonto, Roselli, Rossano,2009). In this regard, a Chinese research (Ho, 2004) has evaluated to what extent the programmed introduction of Information Technology (IT) for five years in music lessons has led to the change in the changing learning mode of learning. Three generalizable questions emerge in all learning systems that experience IT: (1) is IT use to teach the most effective music in traditional music pedagogy? (2) According to teachers' opinions, could IT help improve teaching practices? And (3) Does IT use increase students' interest in learning music? Although teachers in this study have argued that music technology could facilitate their work, they had different opinions about using IT and the quality of music education. Students, on the other hand, appreciate the fact that using IT will improve the quality of their learning.

The didactic practice for building multimedia classes involves, in addition to using computers, the use of CDs.

Projectors, DVD players and LD / VCDs, MIDI keyboards, synthesizers, amplifiers and music software. In music, there are programs that have been developed to allow students without music background to create music. However, there are many hesitations to incorporate technology into the classroom. Many of these hesitations can be attributed to the lack of knowledge of available programs. Students who have not been able to follow music lessons through music technology can learn and appreciate music even from teenagers (Gall, 2017). Skills are no longer needed to compose or perform musical performances, but MIDI technology for creating electronic music also allows those who do not have the traditional music to do/play music. Technology also allows students to express their "music" ideas more easily, allowing them to participate while being culturally disadvantaged. Digital consumption and production have also changed the way in which music is used, this diffusion has exceeded traditional production and distribution (Peters, 2017).

However, technology has not always been blindly followed by students, since it has been demonstrated that when students of music education are questioned about their preferences between teacher or computer feedback, they had answered to prefer a human feedback to that provided by a computerized program, thus demonstrating the relational and emotional value of education not yet achieved by technological tools (Karlsson et al 2009).

Starting from the assumption that technology has an effect on enthusiasm and interest for students and that by now the means of communication and information retrieval, an interesting study has tried to combine music, technology and the scientific study. This study aimed to determine the effect of music – as a didactic means- on scientific declination towards the understanding of scientific processing skills and students' attitudes towards science, by using the "scientific song" containing facts, concepts, laws and theories of science with music. The results of this study show that the development of the *scientific* songs has let participants to experience a process for the practice of science, including concepts and scientific facts, and to a positively improvements of attitudes towards science. The success of this study on an adult audience demonstrates the adding value of music in learning if adequately supported by appropriate technologies and interdisciplinary nature. Teaching is, therefore, crucial to student progress, but this does not exclude the idea that technology is still an important support to creativity and success in learning music. (Yoon & Kim, 2017)

Music creativity is another well-studied theme in the use of technology in learning; it passes through different stages (Burnard 2012). Music creativity, in fact, must have group study moments and individual study moments. At the basis of musical creativity, there is the inspiration that needs of both internal moments of creation and moments of external expression, technology can play a decisive role. From a pedagogical point of view this leads to a dual problem in teaching practice (Leman & Nijs, 2017): (1) how to conform the learning and content of music technology to class instruction (2) how to measure and evaluate learning products that are definitely richer in expressiveness, but which hide the student's level of knowledge. In addition to these issues of music, the theme of music education has also dealt with research focused on the role of music education in the recovery of marginalized pupils and students (Creech et al., 2013, Rusinek, 2008). While maintaining a restless behavior and systematically refusing school rules, studies show that pupils appreciate music lessons. In this particular condition, the teacher has generated enthusiasm through an inclusive approach, where no learning difference arises, and the music is an instrument to stimulate everyone. Burnard (2007) emphasizes that music activities are fun and offer students the opportunity to value positive values such as cohesion and self-esteem as well as an improvement in social behaviors and skills. In this sense, it could be assumed the educational value of music as hand in hand of other school matters such as physical education and sports (Monacis, de Palo & Sinatra 20014).

CONCLUSIONS

The three above-mentioned dimensions have intended to demonstrate how the research approach to music learning must take into account a variety of themes, methodologies and tools. The purpose of this study is not to examine all dimensions involved in the music learning process, but to show these three significant and effective ones and to submit unpublished research questions. The analysis of the classical constructs of dynamic psychology used in musical learning has shown that music is used both in the field of didactic and therapeutic and recreational, but the hypothesis of this study is that music has effects through the same mechanisms or has the same functions in different areas. Concerning the analysis of the implications of psycho-dynamic perspective on music learning, it has emerged that music therapy uses classical therapeutic instruments by declinating them with music. Freudian concepts of the unconscious and the transference and countertransference are the theoretical basis for the development of general constructions and the techniques of musical therapy, since the use of music in psychotherapeutic practice allows the emerging of unconscious feelings in patients. The splitting technique, for example, based on Klein's theories is an effective method in treating the disorders. The link between music and psychotherapy on the side of memory and learning has been traced through Bion and Winnicott.

In addition, from experimental point of view, by establishing the linkages between musical education and cognitive functions, further studies have sought to understand whether this association is directed or mediated by another mechanism that influences musical learning and in turn intelligence. The studies focused on the systematic research of executive function, namely the ability to consciously control thought, can inhibit inappropriate responses, future planning, concentration, selective focus, and the ability to change strategies according to situations (Schellenberg, 2011). In this research, the field of inquiry has widened, assuming that other components also influence the executive mechanism of music.

The second dimension addresses to the analyses of the correlations observed between musical formation, intelligence and memory and other cognitive abilities. Examined studies have shown that music education improves general intelligence that is linked to many cognitive and academic skills, thus confirming the hypothesis that music education can improve overall cognitive abilities in children and adolescents and may have effects secondary to all other skills and competences. Early music treatment in children is correlated positively to work memory, cognitive control, or cognitive flexibility.

Finally, the development of new technologies has created a new socio-cultural context in which students are immersed, and of new languages and media with which education sciences have to talk. Although the data are being studied by the studies reported, they improve the teaching practices and the use of information technology increases the interest of students. Interdisciplinary studies have demonstrated the adding value of music in learning if adequately supported by appropriate technologies. Ambivalent is the study of musical creativity as a student without any musical knowledge can become a music creator and this process is difficult to evaluate from a scholastic point of view. Thus, the didactic planning must question the effectiveness of the effects of technology on musical contents (Cain, 2004).

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THE INVESTIGATION OF PRE-SERVICE CHEMISTRY TEACHERS' LESSON PLANS FOR THE CONNECTIONS TO SCIENCE CENTER ACTIVITIES

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The purpose of this study is to investigate preservice chemistry teachers' lesson plans to search for the connections to science center activities after an argument-driven-inquiry (ADI) workshop. The study was carried out during TÜBİTAK BILMER project, which aims at improving science teachers' and explainers' use of science centers as learning environments. As part of the project preservice teachers participated in an ADI workshop about strong and weak acids. The data were drawn from the lesson plans they submitted after a week. The results of the study showed that preservice teachers make connections to the workshops and exhibits in the science centers.

THE PATH TO MORE EFFECTIVE LEARNING FOR FLIPPED CLASSROOM

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ABSTRACT
Correspondingly to scientific and technological developments, learning has gone through major changes for ensuring a better education facility for individuals. Among all such major changes, flipped learning which is the newest model has the potential to transform blended learning . But there are still question marks surrounding this model like individual differences. Adaptive learning which is another innovative model, personalizes teaching for each student. In the research, two different environments were used as flipped class with and without adaptations. According to the findings the participants who involved personalized flipped learning session tend to have more positive experience than the other.

Keywords: Flipped Learning, adaptive learning, personalization, flipped classroom

THE POSSİBİLİTİES OF MUSİC AND LANGUAGE ACQUİSİTİON: A PROPOSED PAR STUDY

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INTRODUCTION AND CONTEXT

Norris (2007) states that Indigenous people in Canada are the fastest growing population in Canada; specifically, Indigenous people living in urban areas are the fastest growing segment of the Canadian population. Given the significant population growth, this study focuses on methods to enhance the educational experience for youth studying Indigenous languages. Specifically, the study will explore the use of music in second language classes to increase understanding and engagement of students using a participatory action research model. A Participatory Action Research (PAR) committee will be constituted, and research involving the following classes will be submitted for its approval: A Grade Two Chipewyan Language class in Fort Smith, NWT, a Grade Two Cree Language class in Yellowknife, NWT, and a Grade Two French Immersion class in Edmonton, Alberta.

Traditional languages such as Cree and Chipewyan are being taught as second languages in the NWT. A search in the Government of Northwest Territories online database through the Aurora College Institute of Research website reveals little research on music and language. Fifteen articles were found on the music of the Inuit, but no articles or research was located specific to the South Slave region of the Northwest Territories. This study will explore the possible influence music can have on second language acquisition. Maley (1987), in his article, *Poetry and song as language-learning activities,* states, … "one of the key factors in learning a foreign language is the ability and opportunity to play with it, test its elasticity" (94). Music allows students to do just that, in any language. Usborne, Peck, Smith and Taylor (2011) discuss Aboriginal language revitalization and describe it as one of the most important challenges Canada faces today. Usborne et al. (2011) state that of the fifty-three traditional languages originating in Canada only three currently have adequate chances of survival: Cree, Inuktitut, and Ojibway. Interestingly, two of the three languages noted for having the best chance of survival are spoken in the Northwest Territories (Cree and Inuktitut), and two are spoken in Alberta (Ojibway and Cree).

Statement of Purpose

The purpose of this study is to explore the factors that may impact the learning of a second language or (SL) among Aboriginal and French students in Northern Canada and Alberta with a specific focus on Grade Two students. The study will investigate how music might improve SL acquisition. Quantitative baseline assessments will be used in all three classes with pre and post testing to see if there is an increase in second language acquisition. Specifically, twenty-five key vocabulary terms will be used in French, Chipewyan, and Cree selected by the PAR committee. Each teacher involved in the study will be asked to conduct a pre-test to establish a baseline of knowledge of these terms. The first cycle of this research project focuses on developing key terms. During cycle two the pre and post testing will take place. During cycle three, the Participatory Action Research committee will determine if the same vocabulary should be tested again or if new vocabulary can be added.

Research Question(s)

Sagor (2005) notes that action research generally has two purposes; one purpose is to determine what is occurring in the research site, and the other is to test a hypothesis. This research project will attempt to do both. We will observe the integration of music in second language classes while testing the hypothesis that music assists with memory retention and student engagement. Our research question will focus on music and second language acquisition: How can music influence second language acquisition in students from Grade Two in the Northwest Territories and

Alberta? Follow-up questions will be designed, using a participatory action research model in which participants will be given the opportunity to design the research questions. Proposed questions presented to the PAR committee include: How does music engage your students? How is engagement measured? What types of assessments do you use to measure language learning? How can drumming/singing impact second language acquisition? The participatory action research committee, which will comprise one school board member from the NWT, one parent from Edmonton, one elder from the NWT, three teachers, and two co-researchers will discuss each of the questions prior to interviewing and surveying the teachers involved in the participatory action research project.

Purpose and Analysis
Possible factors impacting second language acquisition in Canada, according to Norris (2007), include but are not limited to the legacy of residential schools, increased migration of Aboriginal peoples between communities and cities, linguistic intermarriage, and inadequate access to technology. For French immersion schools, lack of strong language models and resources could impact SL growth. Aboriginal languages are in jeopardy of survival across Canada. Usborne et al. (2011) note that a little over seventeen percent of the Canadian population is fluent in a traditional Aboriginal language, whereas Berger (2006) notes that in Nunavut proficiency rates are much higher. Within the Francophone community, the Office of the Commissioner of Official Languages states that 225,035 Albertans are Francophone. The same site shares that, "…nearly 2 million Canadian students are studying French as a second language, in either core or immersion programs (Alberta Culture and Tourism Francophone Secretariat, 2015). In total, 9,590,700 persons are considered to be Francophone across Canada. French is a growing language in Alberta while Cree and Chipewyan have seen a decline since 1989, according to the NWT Bureau of Statistics (Northwest Territories Bureau of Statistics, 2014).
In the Northwest Territories, the proficiency rates have also decreased since Nunavut split from the NWT in 1999. Norris (2007) states that declining trends in the intergenerational transmission of Aboriginal mother tongues are being offset due to these languages being learned as second languages. Music and fine arts are positive ways to promote language acquisition development/acquisition. Programs such as CODE (Council of Ontario Dance and Educators) are created throughout Canada to assist teachers with educating through the stream of Fine Arts. CODE allows for music and poetry to make readers aware of "…pitch, tempo, tone [and] develop the use of voice production stages: Respiration, Phonation, Resonation, Articulation" (2015). CODE is another program designed to assist teachers developing language through Fine Arts.

METHODOLOGY
Sagor (2005) notes that the first step to any successful action research project is to have a clear vision. Secondly, you should articulate your theory or hypothesis clearly. Our hypothesis is based on the previous academic research conducted by Chan, Ho, and Cheung (1998) who have stated that adults who participate in music training before the age of twelve have a better memory of spoken words than those who do not, asserting that music training in childhood has long-term positive effects on verbal memory. Chan et al. (1998) have shown this by using magnetic resonance imaging. The left planum temporale region of the brain is larger in musicians than non-musicians. (p. 1) Verbal memory is located primarily in the left region temporal lobe; thus, musicians should have stronger abilities for verbal memory.
Based on the work of Chan et al. (1998), researchers Devin Roberts and Sarah Novosel have a clear vision that music can improve memory retention and increase student engagement in second language courses. We want to share this vision with our participants so that we can build a shared ownership of the project using a PAR model. Hinchey (2008) discusses the importance of buy-in from stakeholders when conducting action research. A participatory action research model will be followed in which willing participants will form a PAR committee to assist in creating the design research questions. This committee will include a parent representative, an Elder, the three classroom teachers directly involved in the study, co-facilitators of the PAR project and one school board official (See Appendix C).

Simpson (2001) and Cajete (1999), who encourage researchers to consider Aboriginal perspectives, warn against colonialism in modern research. Simpson (2001) states that teaching and learning Aboriginal students must entail employing the processes of Indigenous teaching and learning encompassed in Indigenous methodologies. Using a PAR model will allow the Aboriginal perspective to influence and shape the direction of our research and will encourage participant buy-in of the findings and recommendations. Findings of the study will be shared with the participants to gather their thoughts and insights before publishing final recommendations. There will be three teachers interviewed pending PAR committee approval. McNiff (2013) discusses the use of action reach in the natural world. McNiff (2013) encourages the researcher to facilitate action research in a natural way allowing for the research itself to shape questions and findings. We will allow our PAR committee to develop the research as we progress by changing questions or the length of our AR cycles. Student satisfaction and success with music and language acquisition will be the focus of all PAR committee decisions.

To ensure our students feel successful during the study, we will consider the work of Vygotsky (1987). Vygotsky's (1987) zone of proximal development is a theoretical idea that a task should be neither too difficult nor too easy for students. Students need to move smoothly through a zone of proximal development, feeling successful step by step. Vygotsky (1978) also indicates that language acquisition in children occurs in social interactions, as he observed in the 1920's and 30's. Our study will include both aspects of Vygotsky's (1978) work, as children will be interacting in classroom activities and the vocabulary words being taught to students will be scaffolded from simple to complex terms. For example, first, a root word will be taught, followed by family terms. It is important for students to feel successful while being challenged. Term selection and teaching strategies will be approved by our PAR committee.

To empower communities, one representative will act as a liaison to develop and screen potential survey questions. Appendix A provides a breakdown of the format of all the research, including both qualitative and quantitative data collection. The researchers will engage stakeholders at the various stages of the action research cycle with a particular focus on the design stage, communication outcomes stage, and the taking action stage. This engagement is subject to our PAR committee approval.

Participants

Three classrooms will be suggested to the Participatory Action Research committee. It should be noted that the PAR committee will be granted the opportunity to change or add schools to the study. The following schools are suggested: A Grade Two Chipewyan Language and Culture class in Fort Smith Alberta, a Grade Two Cree Language & Culture class in Yellowknife, and a Grade Two French Immersion classroom in Edmonton, Alberta. The suggestion of Grade Two students in Yellowknife and Fort Smith was purposeful; they will be compared to their counterparts at the same grade level in Alberta. The instructors involved have experience using traditional drumming and singing in their classrooms, which will be used consistently. The selection for Grade Two French Immersion students was purposeful; the Grade Two FI class is already involved with music, but music instruction will be more consistent during this time. Programs such as Jolly Phonics or AIMS will be suggested pending approval of the committee. Jolly Phonics is a song-based program used to instill the proper use of sounds of the French language in a learner's vocabulary. AIMS is an action program in which every French word, or gender word, is assigned an action. This allows for the movement to influence a second language in a learner.

Ethical Considerations

Kemmis and McTaggart (2007) state that following a participatory action research model does not guarantee empowerment of participants involved with research cycles, especially those such as ours that requires their input. The researchers will follow ethical standards that are outlined by the University of Calgary Conjoint Faculties Research Ethics Board, to ensure participants truly have a voice at each stage of the research. Using a PAR approach to research, Smyth and Williamson (2004) noted that creating a research advisory group made of various stakeholders including policy makers and service deliverers was important to respecting ethical guidelines in their project studying war-affected populations in Northern Ireland. Smyth and Williamson (2004) note,

"A research advisory group was established for each project, and representatives of donors, policy makers, and service providers were invited to participate in that group, which monitored the research design, piloting, fieldwork and other data collection, analysis and documentation and dissemination." (p. 146)

For this PAR project, both our PAR committee and the supervisory committee established through the University of Calgary will oversee the research. The committees will advise us on stakeholder engagement and ensure we are following ethical guidelines. The PAR committee will provide documentation, including the guidelines and policies of the University of Calgary Conjoint Faculties Research Ethics Board. The supervising committee will be able to point out ethical considerations for the researchers to consider; however, ultimately it will be the researchers' responsibility to conduct ethical research.

Consent Plan

Leadbeater (2006) asks whether individual youth participants are competent to give consent or assent. This, in turn, raises questions about the appropriate gatekeepers or guardians who can give consent or speak on their behalf. In Canada, young people's legal right to consent to research participation varies by province. In Alberta, the age of consent is eighteen, and in the NWT it is nineteen. The University of Calgary Conjoint Faculties Research Ethics Board, which follows the Government of Canada's Panel of Research Ethics standards, states that young people between sixteen and eighteen years of age with sufficient understanding are able to give their full consent to participate in research independently of their legally authorized representative. As the study will be working with students in Grade Two between the ages of eight and nine years, parental consent will be necessary.

Without parental consent, ethical and practicality issues will arise. Because the key vocabulary used will be pulled from provincial and territorial curricula, all students can participate in the class activities that involve music-based activities. The three teachers involved in the study will be asked not to share the results of the students without consent. The researchers involved with the study will be aware of who these students are based on the collection of consent forms and will also ensure that their information is excluded from the study. Initial consent will be applied to the University of Calgary Conjoint Faculties Research Ethics Board that reviews research ethics. The Government of the Northwest Territories requires all research involving human subjects to follow the guidelines and application process of the Aurora College Institute for Research. Once permission has been received from the University of Calgary in conjunction with the policy and procedures of the Tri-County Research Ethics Committee, Aurora College's application process will begin. In total, it could take up to two months to complete. Thus, with respect to commensurability of the project, application for this should begin as early as August of 2018. Both school boards/districts involved with the study will need to give their permission and will require their own consent forms to be signed by participants. As early as September of 2017 the specific school boards involved will be contacted, and permission for research involving primarily teachers, but also students, will be requested. The two respective school boards have indicated that permission can be obtained within four weeks, but this is subject to change. The action research project itself will not be scheduled to fully commence until January of 2019 to allow all necessary paperwork, consent and permission to be obtained. The expected completion of the research would be January of 2020, allowing one year to conduct all relevant research with regards to this action research project. This would allow for a total of six months to a year for a review of the findings of the research to be shared with stakeholders and the PAR committee involved with the initial design of the project. The PAR committee can decide to extend or shorten the study's timelines.

 An incommensurable aspect of our research would be the wide range of students and teachers involved in the study. There would be a major discrepancy in the years of experience as well as the education of the participants in Alberta and the NWT. The Northwest Territories does not require Aboriginal Language and Culture teachers to hold a Bachelor of Education degree. However, in Alberta, French language teachers are required to hold a B.Ed. However, as of late, and due to lack of language teachers available, the Edmonton Catholic School District has begun to hire Educational Assistants with language backgrounds (such as French), to instruct certain courses where class sizes are larger than 25 (Veilleux & Bournot-Trites, 2005). These Educational Assistants then become instructors, and because they do not hold a degree in Education, must then be supervised in some capacity. Aboriginal Language and Culture teachers can prove their competency through completing language aptitude tests. There is a wide range of experience

and education with our ALC teachers. Some hold master's degrees, while others have immense on-land experience and knowledge. This could cause questions about the validity of the study's findings and raise ethical questions. It will be important that the study provides this information to the public.

As language revitalization is linked to the residential school experience, sensitivity must be given to the data collection process. Some participants who are educators may have been students in these schools. Bloomberg and Volpe (2012) suggest that the success of a study can be impacted if ethical standards are not met. The University of Calgary Conjoint Faculties Research Ethics Board refers to decision-making capacity as the ability of potential or actual participants to understand relevant information presented in research. The researchers must explain all aspects of the study to participants involved in Alberta and the NWT. Information will not be shared without proper consent being authorized due to learning being a sensitive topic.

METHODS

"Participatory action research *does* provide opportunities for co-developing processes *with* people rather than *for* people" (McIntyre, 2007, p. 12). We intend to have all stakeholders involved in each cycle of our action research through collaboration and discussion, and with decisions based on the committee's approval. Koch, Mann, Kralik, and van Loon (2005) describe a similar three-cycle participatory action research project in which the researchers consulted Indigenous peoples in Australia by listening to the recommendations of participants involved in the research initially in shaping their questions. Koch et al. (2005) describe the importance of listening and responding to the voices of elders and stakeholders during the various cycles of PAR, especially in cycle one and three. Koch et al. (2005) state,

It is argued that reflection occupies a central place in participatory action research cycles of 'look, think and act.' 'Look, think and act' processes are appealing precisely because they are meaningful to research participants in their everyday lives. When these processes are internalized as modus operandi, they can be sustained throughout one's life as strategy for building capacity or moving on. (p. 261)

We will empower our educators in very much the same way as Koch et al. (2005) describe, ensuring that respective communities consider teachers, elders, parents, and school board officials. We will also recruit an elder to sit on our observation committee, advising the researchers on all three cycles of the action research project. In the second cycle, Koch et al. (2005) describe answering questions and conducting interviews via email. As bandwidth and Internet connectivity can be an issue in the NWT, the researchers involved may have to rely on the phone and in-person visits to receive the necessary participant feedback. This is why Yellowknife and Fort Smith were selected; these communities are relatively close to one another. Researcher Devin Roberts will be based out of Yellowknife and Fort Smith during the research cycles while Sarah Novosel will be living in Edmonton during the same time. These locations are subject to the approval of the PAR committee.

Koch et al. (2005) describe the third cycle of action research as capacity building. As we hope our research will have long-term significance for possible curriculum design and implementation, it will be important that our research committee is active in reviewing data collected and discussing future action. We hope to make recommendations that can be used by both the territorial government in the Northwest Territories and the possibly the provincial government in Alberta; thus, input for stakeholders will be essential. Elders, school board officials, and parents must see this research as their own and not simply something teachers and the researchers have designed and concluded. The findings of this study will be shared at the annual NWT Teacher's Association conference in February of 2021.

Action Research Design

Hinchey (2008) shares that the most important thing to do first is to look at one's classroom and accept what needs to be changed. This is where a committee would be selected, and the group would discuss questions and concerns. One initial concept Hinchey (2008) states that could have an impact on the research is that for teachers, "…improvements they pursue are varied as teachers and classrooms themselves" (p.3). Therefore, the group will decide on one or two methods to try to improve language through music. Once the questions and specific musical strategies are decided upon, teachers will use these strategies in the classroom, with the support of the committee, to see if their strategy works. During this time, it is crucial that the teacher and committee members involved take various forms of data as

proof. From there, the committee will meet again to review data and decide what needs to change for the next cycle, and what can remain the same. Hinchey (2008) states,

It's not enough to plan and implement an action: its results must be systematically analyzed to determine whether or not the desired improvements have occurred and whether unintended consequences, good or bad, turned up well. For this reason, the process is generally described as being cyclical (p.4).

This cycle will be repeated two times before the final data is collected and analyzed. From this data, the committee will be able to make a final decision regarding music and best practices for its integration to support and improve language acquisition practices.

Implementation Plan and Timeline

The implementation will begin on a set date, given by the committee, which ideally would be January of 2019. There will be regular check-in dates. "Check-ins" will be done through submitting reflection pieces, or answering questions created by the committee. "Checking in" will occur weekly. Check-ins will be the responsibility of the co-facilitators but will require the input of the teachers whose classrooms are being studied and the PAR committee. Sagor (2005) states that researchers should reflect on the experiences that are occurring and provide feedback to the participants involved deciding on what to focus on during the next cycle. In particular, it will be important to collect pre and post assessments on student performance during cycles one and two. Each cycle should last three months. This is because, in language programs, repetition and time are key for students in acquiring new skills. In total, this project will last nine months, which is almost an entire school year. Results from district mandated assessment tools can be used to measure student improvement between years, allowing the committee to come to stronger conclusions. The PAR committee can determine if a cycle needs to be shorter or longer.

Knowledge Mobilization Plan

According to the University of Saskatchewan, "…knowledge mobilization requires careful thought and planning" (p.1, n.d.). This informational site also includes questions that researchers should include and respond to, to ensure the success of their research. These questions will be used in the various cycles to ensure that the plan is well developed and properly executed.

The first step is to "develop awareness or interest" (University of Saskatchewan, n.d., p.1). This will be done through collaborating with others in various provinces and providing documentation of questions or statistical facts to stir the curiosity of stakeholders and participants.

Second, the University of Saskatchewan suggests that one should, "generate practice change" (n.d., p. 1). This would include teachers being encouraged to try different strategies or materials when practicing music in the classroom. These purposeful choices impact results, so it is imperative that ethical considerations are taken into account.

"Public action/policy action" (n.d., p. 1) would be the end of the last cycle and is perhaps one of the more imperative steps. This is where the data, conclusions, results and information are shared. This information, however, should be used to improve communities. This is why stakeholders are crucial in the process when promoting change to a broken system. Levin states,

knowledge is socially constructed and its use takes multiple forms that can be more or less direct or more or less rapid, with slower and less direct impacts more common. Some of the most powerful examples of research knowledge leading to changes in policy and behavior—for example, smoking or use of seatbelts or the end of corporal punishment in schools—took several decades to evolve. (Levin, 2008)

The University of Saskatchewan also discusses the importance of "Gain[ing] new knowledge/further[ing] research" (n.d., p. 1). This knowledge may assist in determining future district or provincial goals, depending on how interest is developed, which is the first step in this plan. The new knowledge gained through data collection may also leave researchers or the community with new questions, allowing the research to be taken to a new level in the future.

Significance of the Study

It is the hope that the findings of this study could be used to assist in the development of new Indigenous and French language curriculum in Alberta and the NWT. Currently, the NWT and Alberta are in the midst of creating new language programs. Educators will have the opportunity to make suggestions for curriculum improvement. This study could be used as an example of how to involve second language learners in music to improve engagement and memory in the classroom.

This participatory action research project provides a case study that other schools can use as research to explore the use of music in the classroom with language learning. If the study can provide tangible evidence of music assisting with language acquisition across three diverse classes, it could prompt further research on the topic. It is also encouraged that research findings will demonstrate to teachers the importance of collaboration. Hopefully, a sense of community engagement and appreciation can be shared between the three communities, celebrating language and learning.

CONCLUSION

This research project suggests that there may be a relationship between music and second language learning when the educational experience is more enjoyable and engaging for students. However, beyond the mood and emotional connection music can provide, previous research suggests it can also assist with memory and language retention. Patel (2008) suggests that one can learn the "rhythm" of a language for accuracy with fluency and understanding for the listener. Patel (2008) suggests that this rhythm of language can be learned orally and through both singing and drumming. Maley (1987) also shares that music and poetry discuss "…themes/common to all cultures [such as] love, death, nature, children [and] religious belief[s]" (p.94). Conducted in three unique settings with two different languages, this action research project will demonstrate that music enhances a learning environment. It will be impossible to draw full conclusions until the research is complete. Pre/post- assessments during the first and second cycle of the action research project will also attempt to show a relationship between music and memory retention. (Refer to Appendix B for data collection cycles). Fisher and Frey (2014) discuss the importance of applying words one remembers from a language and moving from shallow knowledge of words such as remembering them, to applying vocabulary in spoken word and writing. Our pre and post assessments will test memory as well as the application of the language. The success of this three-cycle participatory action research project will hinge on the research committee's ability to complete the three cycles in a timely fashion. If disagreements about the types of questions and assessments occur, the proposed timelines may not be achieved. It will be the responsibility of the researchers to meet with the PAR committee regularly so that all members of the committee are active. We look forward to the challenge and opportunity this participatory action research project presents and welcome feedback from colleagues and the public regarding this upcoming project.

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Appendix A

Method of PAR	Time
3 Qualitative in person interviews (20-25 questions)	One hour to complete.
15 Quantitative online survey (15 questions)	30 mins to complete.
15 Quantitative paper survey (20 questions)	30 mins to one hour to complete.
3 Qualitative phone interviews (10-15 questions)	30 mins to one hour to complete.

Appendix B
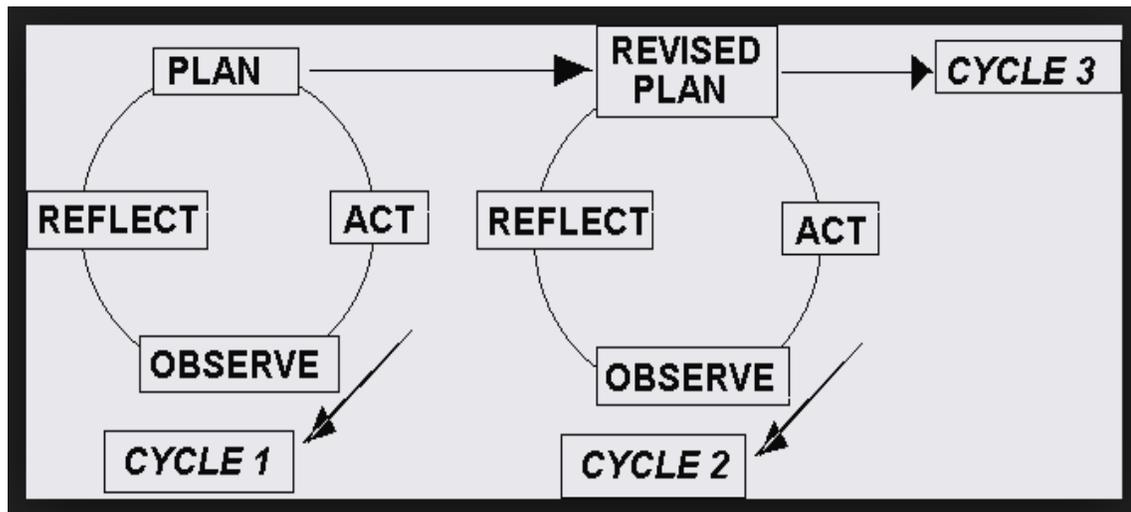
Appendix C

PAR Research Committee
1) Educator in Fort Smith
2) Educator in Yellowknife
3) Educator in Edmonton
4) Elder from the NWT
5) Local School Board Member (SSDEC)
6) Parent in Edmonton
7) Two Doctoral Students University of Calgary (Devin Roberts & Sarah Novosel)

Appendix D

Chart 1 Second language learners tend to be much younger than the people who learned an Aboriginal language as their mother tongue

Source: Statistics Canada, 2001 Census of Population.
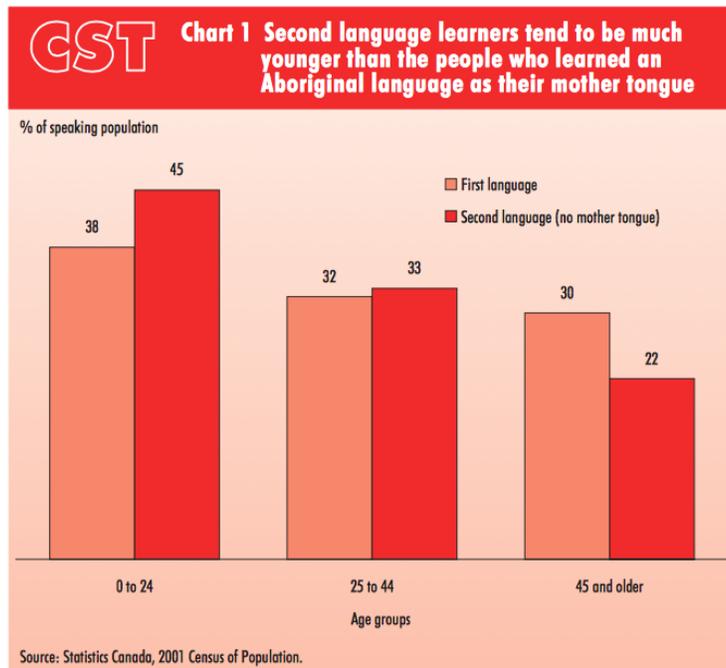
Appendix E

Alberta's French-speaking population *(2011 Census unless otherwise stated)*		
	Definition of terms	**Ranking**
French/Acadian origins (2006): 390,895 *(12 percent)*	• Refers to the ethnic or cultural origins of the respondent's ancestors and does not take into account knowledge of language.	• Provincially, 3rd largest cultural origin after British/Scottish and Germans.
French-speaking: 238,770 *(6.6 percent)*	• Refers to the individual's self identified ability to conduct a conversation in French.	• Provincially, 2nd largest language group after English.
Francophone: 81,085 *(2.2 percent)*	• Refers to the first language learned at home in childhood and still understood by the individual.	• Provincially, 3rd largest mother tongue language group after English and German. • Excluding Québec, 3rd largest Francophone population after Ontario and New Brunswick.
Unilingual French-speakers: 3,205 *(0.0 percent)*	• Refers to individuals who do not speak any English.	• Provincially, there are 5 other languages with more speakers who cannot speak either English or French (Chinese, Punjabi, Cantonese, German and Vietnamese).

THE PRİORİTİES İN EDUCATİONAL TECHNOLOGY LEADERSHİP THAT DETERMİNE İT INFRASTRUCTURE İN WESTERN CANADİAN K-12 SCHOOL DİSTRİCTS

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ABSTRACT

This is a report on the priorities that shape the educational technology infrastructure in K-12 school districts in Western Canada. This paper is based on the findings of an exhaustive study of all 75 large K-12 districts in British Columbia, Alberta, and Saskatchewan, encompassing over 1.1 million students. Using a data transformation model mixed methods triangulation design methodology, this study identified the priorities held by the leaders who determine the information technology (IT) infrastructure in K-12 schools. Interviews revealed the priorities of greatest absolute and relative importance to IT leaders. Multiple case study analysis, followed by correlation analysis, explored which priorities produced statistically significant differences in K-12 IT infrastructure. This included software and platform decisions across all major district IT functions. A finding of this study is that environmental influences, namely government policies, are the greatest determinants of IT infrastructure in Western Canada. This is particularly revealing as environmental influences were not identified by participants themselves as having the greatest influence on their IT infrastructure decision-making. Participants typically identified adopter characteristics and technology characteristics as superseding environmental influences in their IT decision-making. However, these two self-identified top priorities rarely produced differences in IT infrastructure.

INTRODUCTION

Contemporary teaching and learning activities in formal K-12 education are profoundly impacted by information technology ([IT] Chao, 2012; Papa, 2011; Picciano, 2011). This is true of the 75 districts examined in this research of Western Canada. This is consistent with others' findings that use of IT to support education is a global phenomenon (Alamin, Shaoquing, & Le, 2015; Dinçer, 2017; Pérez-Sanagustín et al., 2017). Underpinning the use of IT by students and teachers are the infrastructure decisions made by school district leaders. In Western Canada, this leadership is centralized in the office of the district superintendent, who makes nearly all of the major IT infrastructure decisions for the multiple schools in a district. This finding in Western Canada echoes the findings of others with regard to districts in Canada and the United States as well (Collins, 2012; Stein, Ware, Laboy, & Schaffer, 2013). A purpose of this study of IT infrastructure in K-12 districts in Western Canada was to foster a better understanding of the priorities that shape IT infrastructure decisions from the superintendent's office for multiple district schools. What are the top priorities that shape the technologies available to students and teachers within a district?

An important distinction concerning this research is that it was a study of organizations' rather than individuals' innovation adoption. Whereas individual innovation adoption is concerned with the factors that influence adoption by an individual for the same individual, organizational innovation adoption is concerned with the factors that influence the decision concerning an innovation to be adopted by others. The notion of agency is central to organizational innovation adoption, where decisions are made for the benefit of others by a district's leadership. The conceptual framework of organizational innovation adoption by Frambach and Schillewaert (2002) was found to be the most appropriate by the researcher for the purposes of this study. The details of this framework, and the associated findings, will be discussed further in the findings section of this paper.

THE STUDY

This study followed a data transformation model mixed methods triangulation design methodology. This study included all 75 large K-12 districts in British Columbia, Alberta, and Saskatchewan. Eighty semi-structured interviews were conducted with senior IT leaders, ranging in length from 30 minutes to over an hour and half. The study encompassed the IT infrastructure and IT leadership affecting over 1.1 million students in Western Canada.

Large school districts in this study were defined as districts exceeding an enrollment of 5,000 students in the 2012-2013 academic year. The 5,000 student or more threshold ensured that districts with comparable infrastructure needs were examined. This was an essential feature of the multi-case and cross-case analysis in this study (Stake, 2006). This design decision was a modification of Maas's (2010) study, which set the threshold for the definition of a large school district at 10,000 students in a United States context. In a Western Canadian context, the 5,000 student threshold was more appropriate because of the much smaller number of districts with 10,000 students or more. As with Maas's research, the purpose of this study was to produce findings that would be generalizable across a large number of districts (Adams & Umbach, 2012). Seventy-five districts in Western Canada met the 5,000 student enrollment threshold, and all were examined in this study.

During 2014 and 2015, the senior IT leaders of school districts in Western Canada were identified using referential/snowball sampling techniques. Document analysis was used to inform the recruitment processes, prior to contacting K-12 districts. The use of online documents from district websites and organizational charts provided insights concerning who was responsible for the IT infrastructure decisions in each district. Participants were then contacted by phone call, through the main school district's office, which then confirmed the participant's responsibilities for IT infrastructure in the district. This added an early triangulation aspect to the research during the recruitment process. In some instances, the district website information was outdated concerning staff responsibilities. The process of contacting the main school district's office provided accurate, updated contact information for participants, as well as helped clarify current IT leadership responsibilities in the district. Participants themselves, during the course of the semi-structured interview, then provided additional details concerning organizational hierarchy and responsibilities for IT infrastructure in the district. This confirmed that the appropriate individuals were interviewed. For the 75 districts in Western Canada, 80 senior IT leaders were interviewed. The additional interviews served the purpose of triangulation, as well as provided information on IT infrastructure details that the first participant from that district did not have.

In addition to IT infrastructure decision-making and IT infrastructure information, participants were asked to provide information concerning their perceptions of the priorities and influences that shape their district's IT infrastructure. These priorities and influences were derived from the Frambach and Schillewaert (2002) framework. The priorities and influences portion of the semi-structured interview asked participants to identify the strength of influences on a rating scale of 1 to 5. One indicated that an organizational innovation adoption factor had *very little influence*, and five indicated that a factor had *very much influence*. Participants were then asked to rank these same factors from *most important* (1) to *least important* (5).

As is appropriate for the data transformation model mixed methods triangulation design methodology, this study involved a single data collection phase (Creswell, Plano-Clark, Gutmann, & Hanson, 2003). Unlike with the sequential exploratory model, where the qualitative data collection phase is followed by a separate quantitative data collection phase, this methodology requires only a single data collection phase (Plano-Clark, Huddleston-Casas, Churchill, O'Neil-Green, & Garrett, 2008). The data transformation model mixed methods triangulation design applied here involved the transformation of qualitative data to quantitative data through a coding process to enable statistical analysis. The choice of this design also enabled a higher participation rate in the study because it limited the time commitment of the district senior IT leaders, who might have otherwise been too busy for an additional data collection phase.

Correlation analysis was applied to both qualitative and quantitative data collected. The initial qualitative findings concerned IT infrastructure and leadership. These were analyzed and triangulated based on interview transcripts, field notes, and document analysis. This qualitative data was then transformed into bivariate data for statistical analysis. Quantitative data, namely the rating and ranking information from participants concerning the organizational innovation adoption factors, were unchanged. Correlation analysis was then conducted on both the transformed qualitative data and on the quantitative data using Pearson's Chi-square and Fisher's Exact test. These statistical calculations were performed at a significance of 5%. The decision to use a 5% significance level was based on the conventions of educational research, and the lack of special circumstances within this research that would have necessitated a deviation from these conventions (Gay, Mills, & Airasian, 2009).

The conceptual framework of organizational innovation adoption by Frambach and Schillewaert (2002) was used in this research to guide the semi-structured interviews. This framework is presented in Figures 1 and 2. Only Figure 1 is applicable to this research because it is the portion of the framework that focuses on organizational innovation adoption by a district's senior leaders on behalf of the organization's individuals. Figure 2 focuses on

the subsequent adoption by the organization's individuals, which was beyond the scope of this study.
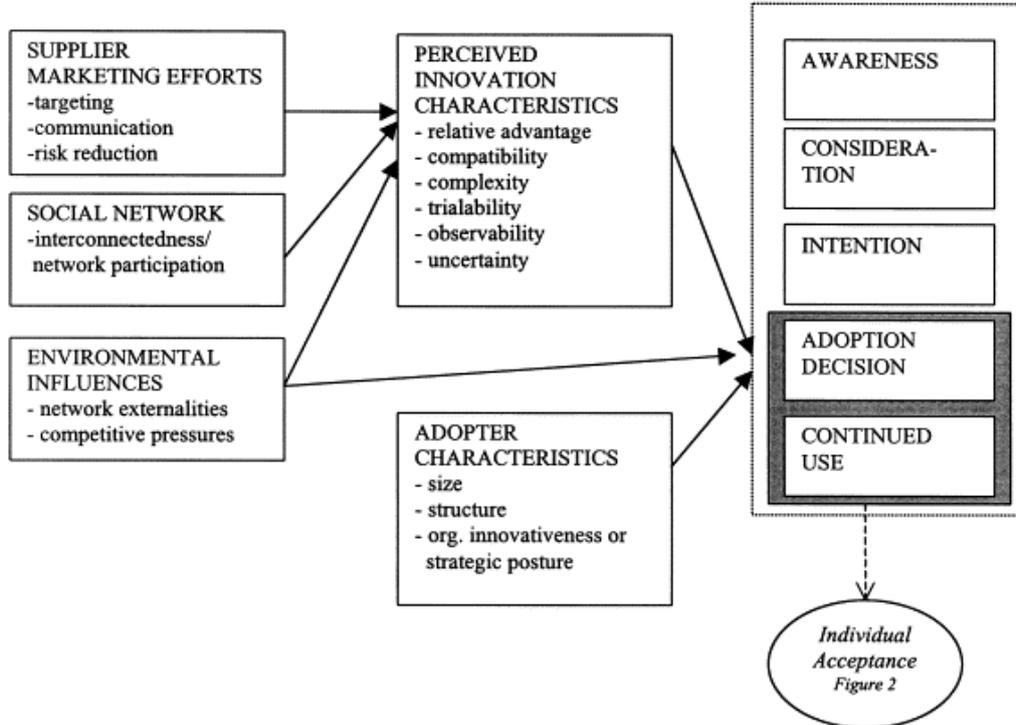
Figure 1. Conceptual framework of organizational innovation
adoption (Frambach & Schillewaert, 2002, p. 165)
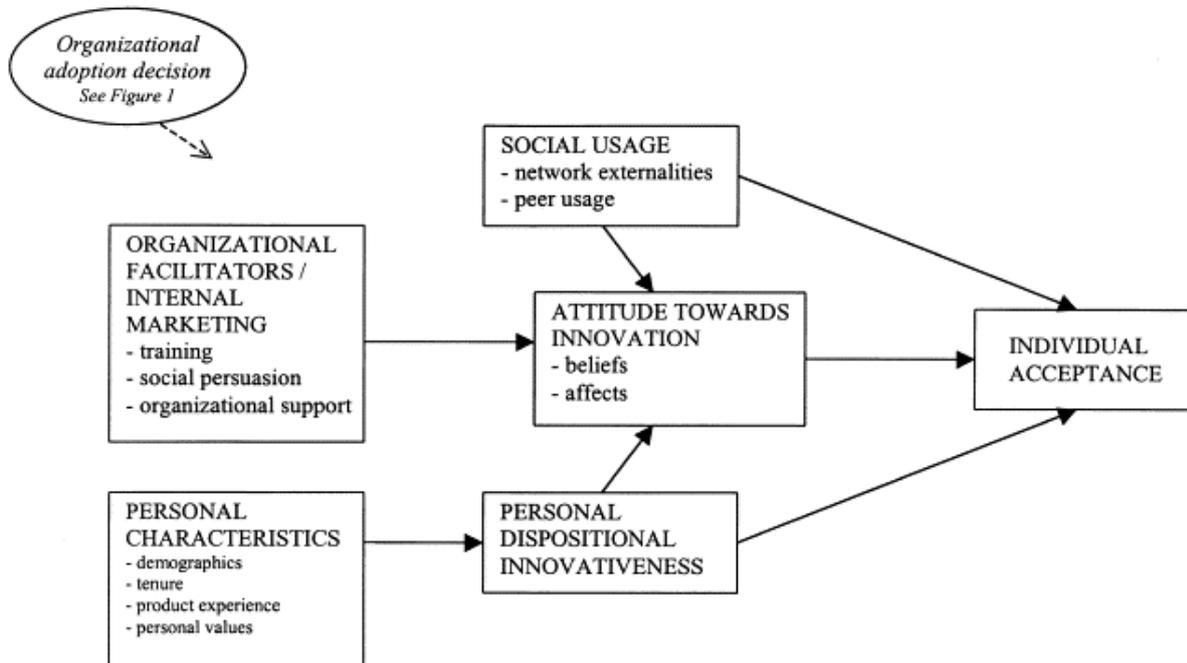
Figure 2. Conceptual framework of individual innovation acceptance
in organizations (Frambach & Schillewaert, 2002, p. 167).

As is evident in Figure 1, Frambach and Schillewaert (2002) identified five factors that influence an organization's adoption (or nonadoption) of an innovation: supplier marketing efforts, social network, environmental influences, perceived innovation characteristics, and adopter characteristics. Frambach and Schillewaert originally presented the conceptual framework in detail for an academic audience. The original text used scholarly language with comprehensive references to academic and business literature. Given the time constraints of the semi-structured interviews, and the diverse backgrounds of the participants, abbreviated

layman descriptions of these five factors were provided to the study's participants for their rating and ranking. Table 1 presents these simplified descriptions provided to the study's participants by the interviewer of Frambach and Schillewaert's organizational innovation adoption factors.

Table 1: *Frambach and Schillewaert's (2002) organizational innovation adoption factor descriptions.*

Frambach and Schillewaert's (2002) Organizational Innovation Factors	Simplified Descriptions for Study Participants in the Semi-structured Interviews
Supplier marketing efforts	"This refers to the materials from vendors and solution providers concerning a technology you are evaluating. This would be what Google and Microsoft say about their products, the new feature, performance information, etc."
Social network	"This refers to your trusted advisors and those knowledgeable in IT. This might include your counterparts in other districts, as well as the recommendations of your acquaintances who work in other industries."
Environmental influences	"This refers to factors outside of your district, such as government policies and the actions of other districts around you. Unlike Social Network, where you have a relationship with the people you are speaking with, Environmental Influences refers to the actions of other districts with which you may not necessarily have a relationship. For example, when the districts around you do a certain thing, there is a pressure for your district to also do that thing –or to at least have a good reason for not doing that thing."
Adopter characteristics	"This refers to user needs. This would be the needs of the students, parents, teachers, etc. who will be impacted by the technology you are considering. Will the technology you are adopting be a good fit for them?"
Perceived innovation characteristics	"Unlike the previous factors, which were not focused on technology, this factor refers to the purely technical aspects of the technology you are considering. This includes reliability, performance, cost savings, etc. These are the purely technical aspects of the solution you are considering. This factor is not related to people or policies."

FINDINGS

This study revealed that the most important factors that IT infrastructure in Western Canada are, in order of greatest importance: adopter characteristics, perceived innovation characteristics, environmental influences, social network influences, and, lastly, supplier marketing efforts. Beyond the relative rank of these organizational innovation adoption factors, this study also asked participants to rate the importance of each factor. A finding of this study is that the participants found all of these factors, with the exception of supplier marketing efforts, important in shaping the IT infrastructure decisions in their districts. The four top factors varied only slightly in their degree of influence, as described by the study's participants. Figure 3 summarizes the participants' responses concerning the strength and rank of the organizational innovation factors in Frambach and Schillewaert's (2002) conceptual framework.

Figure 3 presents the findings of the initial analysis of the organizational innovation factors and shows the mean values for the strength and rank of the influences and the priorities that shape IT infrastructure in Western Canadian K-12 districts. The second stage of the analysis was to identify statistically significant relationships among the organizational innovation adoption factors and IT infrastructure. Correlation analysis revealed that the top two priorities of adopter characteristics and perceived innovation characteristics were rarely linked to statistically significant differences in IT infrastructure between districts. Surprisingly, the third ranked factor of environmental influences was found to be the greatest determinant of IT infrastructure of the factors examined through the Frambach and Schillewaert (2002) framework.

The importance of user needs (adopter characteristics) and the performance characteristics of the technology under consideration for adoption (perceived innovation characteristics) was universal across all districts in the study. However, the statistical analysis revealed that these top two priorities rarely determine IT infrastructure. Conversely, environmental influences, such as a district's location and/or size, were found to be the most frequent correlates of differences between the IT infrastructure of districts. This finding concerning environmental influences is insightful as though environmental influences were identified on average as the third most important factor in a district's IT infrastructure decision-making, it was found to be the greatest determinant of IT infrastructure.
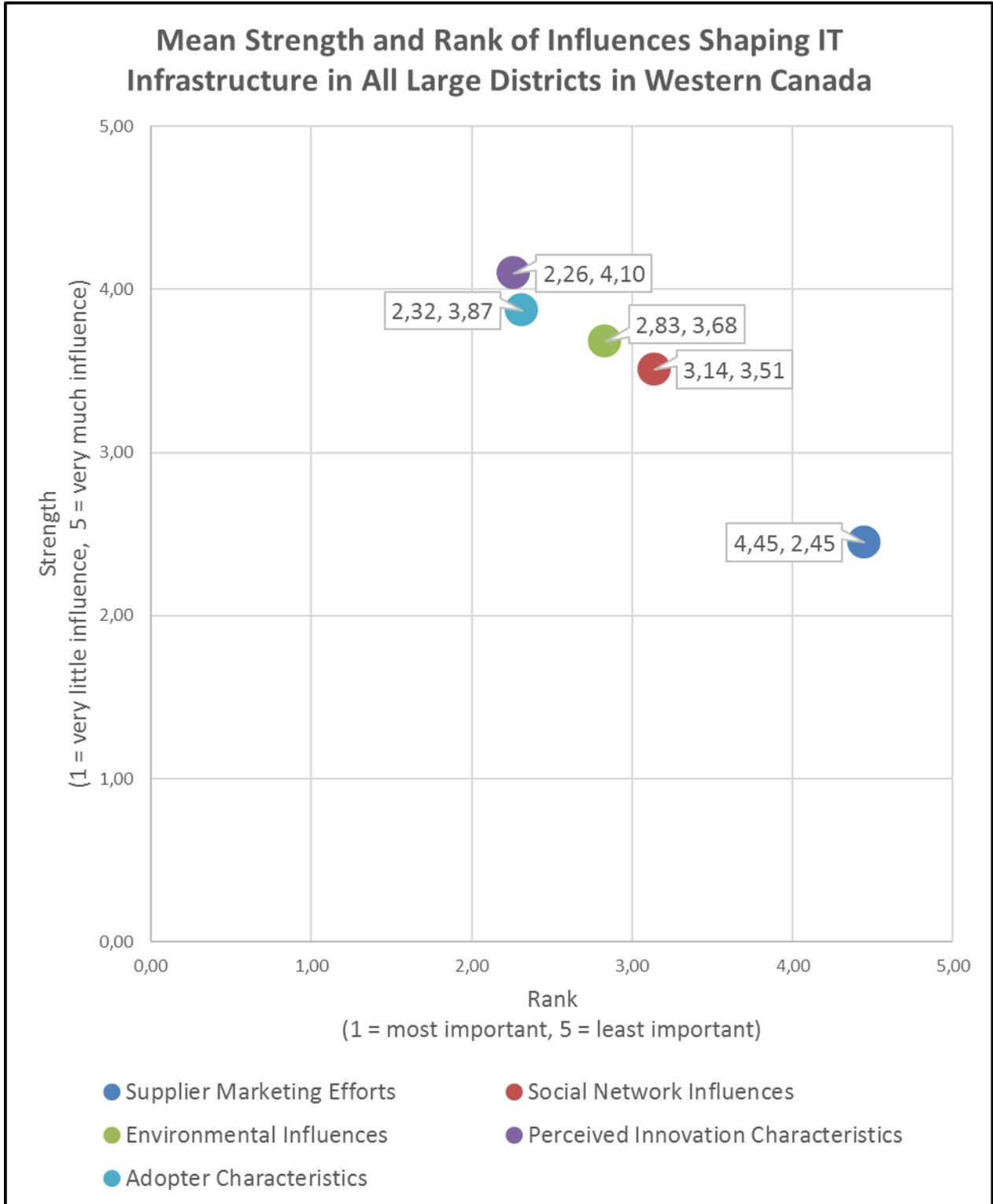
Figure 3. Mean strength and rank of influences shaping IT infrastructure in Western Canada.

CONCLUSION

K-12 districts should examine IT solutions for adoption, renewal, and so on through the lenses of Frambach and Schillewaert's (2002) organizational innovation adoption factors in descending order of importance. The first factor is whether the technology meets the needs of the district's users, such as students, teachers, parents, and so on. This corresponds to the adopter characteristics factor, which the participants ranked and rated the highest of the five factors examined. The second factor is the technology's reliability, features, cost, and performance, which corresponds to perceived innovation characteristics of the organizational innovation adoption framework. The third factor for evaluation should be environmental influences. This factor includes regional regulations and other organization's use of similar technology. The fourth lens should be the thoughts and opinions of knowledgeable peers, which corresponds to the fourth factor of social network influences. The final and least influential factor is the supplier marketing efforts.

Environmental influences, though the third ranked factor in the study by participants, was found to be a strong differentiator between districts concerning their IT infrastructure. When districts are affected by different environmental influences, their IT infrastructure similarly differs. The other organizational innovation adoption factors did not have such a pronounced impact.

A key finding of this study is the extent to which K-12 district IT infrastructure is shaped by the environmental influences affecting a district. The first two organizational innovation adoption factors of adopter characteristics and innovation characteristics were widely held top priorities/influences by districts. Regardless of the district's IT infrastructure, it was nearly universal for the IT leaders interviewed in this study to say that their decisions were guided by user needs and the technical characteristics of what they were considering for adoption, were adopting, or had adopted. In contrast, environmental influences differed considerably across districts and their provinces. With differences in environmental influences, such as government policies for a district's province, clear differences emerged between districts' IT infrastructure.

This study's findings suggest that understanding and affecting district environmental influences can facilitate changes in IT infrastructure. A key implication of this is that educators, educational leaders, parents, students, and technology vendors desiring a change in a district's IT infrastructure should seek to affect regional legislation. An example of such regional legislation, identified by the by study participants, is provincial privacy legislation. Several IT leaders interviewed in this study asserted that their districts would have different IT infrastructure and utilize public cloud solutions more widely if their provincial privacy legislation was different. Alternatively, these educators, educational leaders, parents, students, and technology vendors seeking change can also be effective by pointing to successful adoption cases of a technology by other comparable organizations in similar geographic and size categories. An example of this is the use of public cloud solutions, such as Google's G Suite or Microsoft's Office 365, in public sector organizations within Western Canadian provinces. Similarly regulated organizations' use of a technology alleviates compliance concerns.

The findings of this study on the influences and priorities that shape IT infrastructure in K-12 districts reveal an interesting paradox. Though the IT leaders universally acknowledged that user needs and technical characteristics are, respectively, the first and second most important organizational innovation adoption factors that guide their infrastructure decisions, the third most important factor, environmental influences, impacts IT infrastructure the most.

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THE RELATION BETWEEN BIG-FIVE PERSONALITY DOMAINS OF PROSPECTIVE ENGLISH TEACHERS AND THEIR FACEBOOK ADDICTION LEVELS

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The purpose of this study is to analyze the effect of personality traits of prospective English teachers on their level of Facebook addiction. A total of 230 students studying in English Language Teaching Departments of two different public universities for 2016-2017 academic year will be included. In order to determine the Facebook addiction levels of prospective teachers who will participate in the research, "Facebook Addiction Survey" developed by Çam and İşbulan (2012) and "Ten-item Personality Inventory" measuring the big-five personality traits in determining the personality traits of these prospective teachers, developed by Gosling, Rentfrow and Swann (2003) and adapted into Turkish culture by Atak (2013) will be used. SPSS 22.0 data analysis program will be used for the statistical analyses of data obtained from the research. Frequency analysis will be utilized to determine the demographic characteristics of prospective teachers and One-Way ANOVA analysis will be used for comparison of Facebook addiction levels of prospective teachers with their personality traits. Following the research, it is expected that the Facebook addiction levels of prospective English language teachers will differ according to their personality traits.

THE RELATION BETWEEN ETHICAL LEADERSHIP AND ORGANIZATIONAL JUSTICE İN SCHOOL ADMINISTRATION

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People have gained the virtue of maturity to understand what is right for people and also to live better. People accept socially accepted attiudes as beheviors that represent ethical leadership fairly and equally, by doing this they aim to act in accordence with social norms to comply with laws and regulations. With this reason a leadership, which is not accepted emotinaly by the society and the subordinates, wont be accepted emonially. ln this case, it is very importand that the manegers of schools should also adopt the behavioral ethic leadership. The aim of the research is to investigate the ralationship between behavioral ethics leadership and teacher's sense of organizational justice.For this reason, it has been tried to find out how much the teachers and administrators who work in schools can create organizational justice in terms of ethical leadership behaviors. With in this aim, teacher perceptions about school administrators 'level of application of organizational justice, teacher perceptions about administrators' level of application of organizational justice and teachers 'opinions about ethical leadership behaviors of school administrators and organizational justice perceptions were determined as sub - goals of school administrators' use of ethical leadership behaviors. In this study, which used to determine the relationship between the ethical leadership behavior of the school management and organizational justice, the relational screening model was used. The scale prepared for this research was applied to 579 teacher working for state schools in the centre of Batman in 2015-2016 academic year.As a result of the research, it was determined that the teachers were more influenced by outsider behaviors in the sub - dimensions of managerial ethical leadership behaviors and sub - dimensions of organizational justice. Teachers have adopted the Behavioral Ethics dimension among the sub-dimensions of ethical leadership. They followed ethical communicative and climatic ethical behavior without deciding. The teachers gave the managers scores below the average in terms of organizational justice. When the school principals implement the the procedural behaviors, an increase has been seen in their perceptions of adoption of climatic ethics and communicative ethical behavior

THE RELATION BETWEEN THE VIEWS OF PRE-SCHOOL AND PRIMARY SCHOOL TEACHERS ABOUT CREATIVITY AND THEIR STUDENTS' CREATIVITY PERFORMANCES

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Creativity is crucial in education, especially from early years on for an innovative society. Teachers are the key elements in developing creativity. They first have to believe in creativiy and also have to stimulate their students' creative thinking abilities. This study aims to determine the relation between the views of pre-school and primary school teachers on creativity and their students' creativity performances.This study was performed by using relational screening model, one of the quantitative research models. The sample of the study consists of 153 normally-developing students, attending at 16 classes, 83 of whom are females and 70 of whom are male students and 16 teachers from these students' schools.A form of Personal Information and Teachers' Views About Creativity was applied for the data collection from the primary and pre-school teachers. A Student Information Form used to collect the data from the students and Torrance Creative Thinking Test Visual Form was used to measure their creativity performances. SPSS 18 statistical package was applied for the analysis of the data collected from this study.At the end of this research, it was found that there is a significant relation between the teachers' opinions about creativity and also the creativity performances of the students.

THE RELATİONS BETWEEN PLAY AND LEARNİNG AND TEACHER'S ROLE[1]

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ABSTRACT
Play has an important role in early childhood education. Play is effective means for promoting all aspects of children's development and learning. The purposes of this study are to identify the relations between play and learning and the teacher's role to encourage play. The results of this study are as follows: First, play promotes learning, and guided play is a powerful teaching tool. Play is seen as contributing to 'Quality Learning' because it provides the ideal conditions in which to learn. These ideal conditions include spontaneity, inner motivation, active behavior, concrete experience, symbolic transformation, and repetition. Second, teacher's role are setting the stage for children's play, emphasizing the process rather than the product, observation for when teacher are needed, encouragement for children's involvement, and supporting children in their problem solving. Teachers can promote children's play and learning.

INTRODUCTION
Play has an important role in early childhood education, play has been viewed as an effective means for promoting all aspects of children's development. Play contributes to cognitive development, encourages problem solving, supports children's language and literacy, furthers social abilities, and helps to express emotions.
In addition, play is the most important way that young children learn. Through play, children learn physical, social, emotional, cognitive worlds around them (Anderson, Spainhower, & Sharp, 2015).
Play has been viewed as a valuable component of young children. Vygotsky described play as the leading facilitator of development in young children wherein children learn to think abstractly and impose arbitrary meaning on objects and actions. Piaget described play as assimilation where children assimilate or solidify their existing knowledge through play. Therefore, children's play is a reflection their cognitive development (Dunn & Herwig, 1992).
Psychologists, researchers, educators have long recognized the value of play in children's learning and development. Play is an absorbing activity and fundamental means for gathering and processing information, learning new skills, and practicing old ones. It is the ultimate realization of learning by doing (Wellhousen & Kieff, 2001). Freud viewed play as an emotional release for children, whereas Erikson believed that play helped children develop self-esteem and gain mastery of their thoughts. Piaget discussed two important by products of play one being joy and the other learning. Vygotsky believed that through play, children stretch beyond their own understanding and develop new skills and abilities that support further learning and development. Play touches on every aspect of development and learning (Rogers & Sawyer, 1992).
Play can be defined as 'open-ended', 'self-chosen', 'enjoyable actions and activities that unite and integrate cognitive, language, social, emotional, and motor aspects of learning within rich, culturally sensitive, child-centered, and supportive contexts' (Kieff & Casbergue, 2000). Therefore, when children play, many elements of an enriched environment are present.
But many parents do not understand the value of play. They become confuse about whether play is really a want to learn (Singer, Golinkoff, & Hirsh-Pasek, 2006). Play is an opportunity for children to learn more about their world, to stretch to accommodate new ideas and to foster their imaginations. Despite extensive evidence on the value of play, many parents begin to question its utility, play is behind in education.

Learning is difficult to define. According to Malone (1991), learning is the matter of our minds, and including thinking, becoming aware, imagining, seeing, hearing, hoping, remembering, abstracting, planning, and problem solving. Learning is deep in our species, emerging from our desire to take in new information by actively exploring new territory. Thelen and Smith (1996) reported that learning is a physical phenomenon, occurring in the sensory system, and in the brain where neurons send out neurotransmitters and forge networks of connections; and in the body where motor patterns are encoded for actions. Learning is also embedded in the world via life experiences,

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social interactions, and community membership. Because learning occurs at so many levels simultaneously, developmental science does not privilege any level of analysis over any other (Ostroff, 2012).

Children's learning was considered something of an unknown or 'black box' until recently (Gerner, 1981). In the last few decades, the field of developmental science has exploded with discoveries of how learning happens, giving us an entrée into children's mind. We can understand how and when children begin to think, perspective, understand, and apply knowledge (Ostroff, 2012).

In the early 1900s, when most industrialized countries began offering formal, public schooling to children, the curriculum were designed for future workers in an industrialized economy. Teaching techniques based on commonsense assumptions. For example, that knowledge is a collection of facts and procedures, that the teacher's job is to transmit those facts and procedures to students, and that success at school is determined by testing to see how many facts and procedures students have acquired (Sawyer, 2006). Teaching practice that require children to work individually in rows, to complete with others for good grades, to take tests alone, to concentrate for long periods of time without breaks, and to be put into reading or math groups with only peers of matched ability are based on tradition alone – not at all on evidence of student learning (Ostroff, 2012).

There were little time for play; the focus is on memorization of the 'fact'. Indeed play is viewed as a waste of time when more important 'work', the work of memorizing, could be done. As the pressure on children in school increases, paradoxically their ability to relax and just have fun through play is being restricted (Singer, Golinkoff, & Hirsh-Pasek, 2006).

Today, many schools have reduced or eliminated recess time. This is unfortunate, because during recess, children engage in play. Recess is an important part of the schedule, and return to classrooms refreshed and ready to learn. Children who had recess time score high on reading tests. Children who play together learn to work together (Singer, Golinkoff, & Hirsh-Pasek, 2006).

Class time across the country is now spent in either assessment or assessment preparation. Children learn to fill in the blanks with rote answers. The classrooms were designed to help children do well on standardized assessments. Schools have either dropped or cut back on creative curriculum (Singer, Golinkoff, & Hirsh-Pasek, 2006).

Children are not passive recipients of information, waiting to be filled like empty vessels. They are active, exploratory, and involved in the creation of their own knowledge (Ostroff, 2012).

Thus the purposes of this study are to identify the relations between play and learning and the teacher's role to encourage play.

RESEARCH QUESTIONS AND METHODS
The main research questions posed in this study are as follows:

  1. What are the relations between play and learning?
  2. What are the teacher's role to encourage play?

To investigate these research questions, the researcher reviewed the studies of play and tried to investigate the value of play and how play motivates and enhances young children's learning.

RESULTS
1.   What are the relations between play and learning?
Play is a wonderfully natural and spontaneous setup for learning. Children have an intention to play as a means of exploring and being inventive, creative, and curious (Ostroff, 2012). Learning is effective when students have these characteristics and play also has these characteristics: spontaneity, inner motivation, active behavior, concrete experience, symbolic transformation, and repetition.

 First, **Spontaneity.** Effective learning process has student's spontaneity. It's not pulse but spontaneous. Play also has spontaneity, it already effective learning requisites is included. Play is first and foremost a voluntary activity. Play is also the central activity during the time in development when humans are at their most receptive to knowledge, making it the ideal vehicle for learning (Lee, 2007; Ostroff, 2012).

Especially unstructured free play is especially important for learning. Children's performance on skills differs tremendously when they are left alone to play. The importance of child-directed play cannot be overstated. Play is more advanced when children take the lead.

If we are extra-sensitive to children's cognitive, social, and emotional needs for free play, we will allow them the pleasures of creativity, spontaneity, independence, and the sense of power. Children also engage more fully in the classroom and do better in school. Thus children who play spontaneously can better perform in learning.

 Second, **Inner Motivation**. Motivation is the driving desire behind all action and is the precursor and cornerstone to learning. To motivate children and keep them primed for the best learning possible, we must understand how motivation to learn develops. Motivation is a readiness to learn.

Children like to play. Children are by nature playful. They enjoy playing. Why do children love to play? Because play is intrinsically motivated. They play by their inner motivation. Play is intrinsically motivated. As an intrinsically motivated behavior, play maybe the most important process through which children learn to adapt to the world and become more mature. If we are to understand the value of play, we must know why it is so important for play to be intrinsically motivated (Rogers & Sawyers, 1992).

Gottfried (1985) offered three theories of intrinsic motivation related to play: cognitive discrepancy, competence/mastery, and attribution.

a) **Cognitive discrepancy**. Children are curious. They like to explore new things. They delight in being surprised. All of these features of cognitive discrepancy. The idea of cognitive discrepancy can help us identify the 'characteristics of play materials and play experiences that increases arousal and facilitate play'. How much discrepancy is effective? It appears that a moderate arousal level is most likely to lead to complex learning (Sutton-Smith, 1979). In play, children tend to select activities that offer most effective level. They voluntarily elaborate and complicate the activity. Adults can provide the appropriate materials and setting, but only children can select the best match in which learning is most likely to occur (Rogers & Sawyers, 1992).

b) **Competence / Mastery.** Play is a child's way of controlling the environment. Through play children learn that they can cause things to happen or change. Children begin to see how what they do has cause and effect, and they begin to assume responsibility for their behavior. When people or objects are not responsive to children's actions, children give up in despair, not because of the actual severity of the situation, but because they feel they have little or no effect on it. Children learn to feel helpless when they experience events they cannot control or are led to believe they cannot control (Seligman et al., 1984). Children's self-esteem and sense of competence is affected by whether they feel they have some control over what happens to them (Connell, 1985). Children who have a strong sense of self-worth are much more likely to be well-rounded, mature individuals.

Challenge can enhance children's motivation to gain even further mastery over their environment. Another value of play is that children can pick the level of skill and challenge with which they feel comfortable. Children who experience success are more likely not only to want to repeat the experience, but to want to take on new or more difficult challenges as well. Play gives children the opportunity for success (Rogers & Sawyers, 1992).

c) **Attribution**. When children are self-motivated, they enjoy the activity for itself. Externally motivated behaviors, on the other hand, are usually carried out just to get a reward or some desirable outcome. When children are engaged in play, they are learning and enjoying every minutes of it. All three of these views – cognitive discrepancy, competence/mastery, and attribution – are needed to explain motivation in play (Rogers & Sawyers, 1992).

Children play not because they know it will help them learn, but because they have fun doing it. When it stops being fun, children stop playing (Ostroff, 2012). Play is a wonderfully natural and spontaneous setup for learning. Children have an inclination to play as a means of exploring and being inventive, creative, and curious. The motivational forces of play cannot be overstated (Rogers & Sawyers, 1992). Children are highly motivated to play because they enjoy it, and that is the power of play for cognitive growth. In play, children can hypothesize or imagine many possible new situations, while creating responses to stretching ideas, theories, and behavior patterns.

The satisfaction of 'being good at' something also has adaptive significance for cognitive growth. In the process, children learn about the world. The inner motivation is important for effective learning.

 Third, **Active Behavior**. Play is first and foremost a voluntary activity. During play, children involve and concentrate on play. They explore, manipulate, and interact with many kinds of objects, toys and friends and adults. It make them become learn about the world. Exploration in children sets them up to learn. Children who are engaged in play are actively involved. Children cannot be passive recipients of play. When children's action and awareness merge, they become autonomous thinkers, not robots. The play-based curriculum values and promotes child-initiated individuality and autonomous thinking (Rogers & Sawyers, 1992).

Piaget refers to the intentional social process of constructing understanding as active education (DeVries & Kohlberg, 1987). Active education involves four elements; interest, play, genuine experimentation and cooperation. The interest, experimentation, and cooperation are joined within the context of play. Children first examine the kinds of play and the relation of these kinds of play to active education. Then, they place these kinds of play into particular learning contexts, intending to show that through play, children achieve all the elements of active education through play. When children are interested and applying attention to their play, they are engaging in active education. If, however, their play involves a simple manipulation of materials, without applying mental activity, it is unlikely that knowledge construction will take place. Little understanding can occur without interest, experimentation, and cooperation. Play offers the child the opportunity to make sense out of the world by using available tools. Understanding is created by doing, by doing with others and by being completely involved in that doing. Through play, the child comes to understand the world and the adult comes to understand the child (Chaille & Silvern, 1996). The elements of interest, experimentation, and cooperation must be present on order for active learning, or understanding, to occur through play (Chaille & Silvern, 1996). Children are active learners. They explore and handle objects every day.

Forth, **Concrete Experience**. Child-directed play makes children experience concretely. Through play, children can interact with his or her environment and increase cognitive and social awareness. Piaget believed that play serves an important cognitive function. It supplies children with numerous opportunities to assimilate and accommodate new information (Ness & Farenga, 2007). Play is essential for cognitive development. Because play offers numerous opportunities for children to act on objects and experience events (Rogers & Sawyers, 1992). Children learn through a combination of physical experience, social experience, and reflection (Kostelnik, Soderman, & Whiren, 2007).
All learning begins with perception: seeing, hearing, touching, tasting, and smelling. Thus, children learn best by using all their senses (Bredekamp & Copple, 1997; Hendrick, 2003). Because most researchers agree about the importance of hands-on learning, every activity for young children would naturally include a high level of sensory engagement by children (Kostelnik, Soderman, & Whiren, 2007). The most effective means of sensory engagement is firsthand experience. This means we must consider ways to give children direct contact with real objects, people, places, and events (Marzano, 2003). If no firsthand experience is possible, seriously reconsider whether the activity is age appropriate. The younger the children, the less valid is relying on secondhand experience rather than firsthand involvement. As children mature and express curiosity about people, objects, and events somewhat removed from their immediate experience; continue to plan activities that provide the maximum sensory involvement, keeping the following guidelines in mind: firsthand experiences are best, firsthand experiences should proceed representational or more abstract experiences (e.g., show real fruit prior to pictures of fruit), models are more concrete than pictures; pictures are more concrete than words, and plan activities so that sensory engagement occurs early in the procedure rather than later (Kostelnik, Soderman, & Whiren, 2007).

Fifth, **Symbolic Transformation**. Play enables children to transform reality into symbolic representations of the world (Rogers & Sawyers, 1992). A younger child usually uses an object based solely on its literal purpose. But as the preschool child develops the ability to separate purpose from usage, he or she may begin to use the block as an airplane or truck. Thus the child's imagination leads the activity. When children engage in symbolic play, they use mental representations, thereby allowing one objects to stand for another. A major cognitive shift occurs as children's actions arise from ideas or imagination, moving beyond the literal purpose of playthings. Using imagination is the first sign of the child's ability to think in more symbolic terms versus concrete or literal interpretation. Because imaginative play involves symbolism, such play facilitates the development of symbolic and abstract thought (Nell, Drew, & Bush, 2013; Wellhousen & Kieff, 2001). Symbolic play marks the beginning of representational thought through the use of substitute objects or actions (Rogers & Sawyers, 1992).
According to Vygotsky (1979) a child's greatest self-control occurs during play, since play requires acting against real-world knowledge. A child must put aside what he or she already knows about a stick to allow it to become a horse, for example. Because playing is by definition liberated from real-world consequences, children in play can be free to experiment and take risks that they might not take in other circumstances. Such risks are crucial to learning (Ostroff, 2012).

Sixth, **Repetition**. Almost everyday children play and play repeatedly. In repetition, effective learning is occurring. One basic premise of early childhood education is that children learn through repetition. Real learning does not occur in a single episode. Children need many opportunities to engage concepts, explore ideas, and try out skills to gain mastery. In other words, children need a chance to practice what they are learning and to utilize what they learned in new situations (Slentz & Krogh, 2001).

Practice takes a variety of forms (Freiberg & Driscoll, 2005): Rehearsals, repeating an activity with variation, and elaborations.

a) **Rehearsals** (e.g., children hear a story several times, then help the teacher tell it before telling on their own; children rehearse answering the phone in the housekeeping area).

b) **Repeating an activity with variation** (e.g., children sort shells one day, sort fruits and vegetables another day, and sort rocks a third day)

c) **Elaborations** (e.g., children associate a current skill or even with a previous one, for instance, the children recognize that the process of recording observations of the fish in the aquarium today is similar to the observation records they made last week about insects outdoors) (Kostelnik, Soderman, & Whiren, 2007).

Practice is most beneficial when the conditions under which it occurs vary slightly from one time to the next. Relevant practice episodes may occur within a day or during several weeks' time (Kostelnik, Soderman, & Whiren, 2007).

2.   What are the teacher's roles to encourage play?

Young children's teachers should regard play as an integral part of the curriculum. Teacher's roles are as follows:

First, set the stage for children's play. The teacher is responsible for establishing conditions that accept and encourage play. a) Provide enough time for children to develop their play. Longer time periods may be necessary for children 'to become involved in mature, complex forms of play'. B) Provide adequate space for children. Occasionally furniture may need to be moved, or room made for miniature plat sets. Careful planning and organization of play settings in order to provide for and extend learning are needed.

Second, emphasize the process rather than the product. This will be aid in developing children's creativity, but even more importantly will ensure that children feel competent and good about their own work. And therefore will be self-motivated to continue to learn.

Third, carefully observe when teacher is needed. Sometimes teacher might need to participate, just elaborate or to extend the play. Other times teacher can facilitate the play. Carefully observe what children really need, and then offer just enough to get them on the right track.

Forth, encourage children's involvement. Children new to the group or those who are less socially capable may need a bit of assistance to join in. Maybe the circus clowns or someone to sell hotdogs could be a good involvement. Offer a prized prop, such as a firefighter's hat, and see how the child's confidence soars when a fire suddenly breaks out.

Fifth, support children in their problem solving, and encourage them to expand the number and diversity of potential solutions. Teachers should not arbitrarily announce "That won't work!" before a child has had a chance to think about his or her plan. a) Attempt to grasp the child's intent. b) Ask about alternatives children considered ("Tell me what you thought about doing…Anything else?"). c) Inquire about the possible sources of information ("Has anyone done anything like this before? Might he or she help?"). How can we do this? Rather than probing for one specific answer, encourage children to try out, or think of, multiple solutions (Kostelnik, Soderman, & Whiren, 2007; Rogers & Sawyers, 1997).

DISCUSSIONS

Play is central to childhood learning. Play promotes learning, and guided play is a powerful teaching tool. For children, play is at the heart of early understandings about the natural worlds, mathematical concepts, literacy, and social and emotional competence. Play is optimally useful pedagogical strategy, fully realizing the heterogeneous effects on young children's development, learning, and their school readiness (Kostelnik, Soderman, & Whiren, 2007; Nell, Drew, & Bush, 2013; Singer, Golinkoff, & Hirsh-Pasek, 2006).

All areas of development are enhanced through children's play activities. Play is the fundamental means by which children gather and process information, learn new skills, and practice old skills (Fromberg, 2002). Within the context of their play, children come to understand, create, and manipulate symbols as they take on roles and transform objects into something else. Children explore social relationships, too-experimenting with various social roles, discovering points of view in contrast to their own, working out compromise, and negotiating differences. Play enables children to extend their physical skills, language and literacy capabilities, and creative imaginations. Play provides for the release of tensions and the expressions of emotions. As a result, play is central to childhood learning (Kostelnik, Soderman, & Whiren, 2007).

As children play with adults, they learn new vocabulary, understand culturally determined rules and roles such as how to treat one another, and build important emotional connections. When they play with their peers, they learn that others have perspectives, rights, and feelings that may conflict with their own. Playing with others is how children learn reciprocity and mutual respect, essential traits humans need to coexist in a peaceful world (Anderson, Spainhower, Sharp, 2015).

Rich play experiences are developmentally appropriate opportunities for children to build self-knowledge and understanding of the world around them (Nell, Drew, & Bush, 2013). Play is, indeed, the true work of childhood. When we observe carefully, it tells us what children know and what they are thinking about, what they are wondering, testing, and predicting, and what skills they are ready to master. Play touches on every aspect of development and learning. And then we, as teachers, can plan and support their development and learning (Rogers & Sawyers, 1992; Schwarz & Luckenbill, 2015).

Play is seen as contributing to 'Quality Learning' because it provides the ideal conditions in which to learn (Bennett, Wood, & Rogers, 1997). These ideal conditions include spontaneity, inner motivation, active behavior, concrete experience, symbolic transformation, and repetition. Play provides relevant meaningful experiences, which allowed the children to exercise autonomy and take responsibility for their own learning. Play enables children to identify and follow their needs and interests, which revealed insights into their behavior, learning, and development (Bennett, Wood, & Rogers, 1997).

Play is self-chosen, children bring their prior knowledge and experience into the play episode, are able to monitor the amount of challenge present in an environment, and thus extend their learning (Wellhousen & Kieff, 2001). In addition, play is the heart of developmentally appropriate early childhood programs and, therefore, should be at the center of every curriculum. Play is essential for optimal development and learning (Hoorn, Scales, Nourt, & Alward, 1999).

Bowman, Donovan, and Burns (2001) found that children in the 'direct instruction' program had higher rates of delinquency, were less willing to help other children, and were more likely to experience emotional problems. Hart, Yang, Charlesworth, and Burts (2003) confirmed these findings in a longitudinal study that directly compared children who received developmentally appropriate practices. Results showed that children receiving direct instruction experienced more stress than children receiving developmentally appropriate curricula. Children experiencing developmentally appropriate practices experienced higher levels of academic achievement, scoring higher on receptive language, mathematics, and reading in elementary school (Singer, Golinkoff, & Hirsh-Pasek, 2006).

Play enables children to learn about learning – through curiosity, invention, persistence, and a host of other factors. Children's attention spans are amazingly long when they are interest. Children become self-motivated learners. Play reduces the pressure or tension that associated with having to achieve or needing to learn (Rogers & Sawyers, 1992). In play, children are much freer to incorporate new knowledge at their own rate and in their own way. This reduces the inevitable tension and anxiety that inhibit learning (Rogers & Sawyers, 1992).

The cycle of frustration, failure, and lack of interest in learning can also result when children's early school experiences are not developmentally appropriate or when they have little or no relation to the children's interests, needs, and goals. As adults, we are often reluctant to relinquish the control over the learning situation to children. Many of us are more comfortable when we are directly teaching than when we act as facilitators for children's play. But we must allow children to play if they are to learn (Rogers & Sawyers, 1992).

Therefore, teachers should consider play as the most effective teaching-learning method of the curriculum and they should encourage children to play in many ways. Teachers are essential to their children's learning and development. By providing children with developmentally appropriate materials and support, teachers can promote children's play and learning. Teachers' interest and encouragement will reinforce children's self-motivation and pride in their play.

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THE RELATIONSHIP BETWEEN PROSPECTIVE TEACHERS' MEDIA AND TELEVISION LITERACY AND CRITICAL THINKING DISPOSITIONS

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Teachers are significant determinants of guiding students on media literacy and critical thinking. Hence, prospective teachers are required to have knowledge about media literacy and critical thinking during pre-service training. Providing that prospective teachers that will shape the next generation gain such skills as accessing to knowledge, examining knowledge with a critical perspective and discerning what is good and what is bad, they will be able to enhance students to acquire these skills. Likewise, a small number of studies which examine the relationship between media literacy and critical thinking were observed. That is the reason for conducting such a study.

The aim of the present study is to analyze the relationship between prospective teachers' media and television literacy levels and critical thinking dispositions.

Relational screening models were used in research. The sample of the research consisted of 166 prospective teachers studying teacher training course at one of the state universities in Turkey. Descriptive statistics, MANOVA and Pearson product-moment correlation were used in the data analysis of the research.

In the current study, it was found that critical thinking dispositions of prospective teachers along with their media and television literacy differ significantly depending on gender and major. It was found that there is a medium level of positive relationship between the general scores of critical thinking dispositions of prospective teachers and literacy sub dimension of media and television literacy scale while there is a low-level of positive relationship in the addiction sub dimension.

Based upon the findings of the study, recommendations are as such; given the low critical thinking disposition scores of the prospective teachers, it is emphasized that higher education curricula could be prepared for developing critical thinking skills; moreover, various measures should be taken with the aim of having the appropriate equipment and psychological environment to develop these skills, in the present study it was found that there is a medium level of positive relationship between the general scores of critical thinking dispositions of prospective teachers and literacy sub dimension of media and television literacy scale and the relationship between media literacy and critical thinking can be examined through different sample groups and different measurement tools.

THE RELATİONSHİP BETWEEN SEXUAL SATİSFACTİON, MARİTAL CONFLİCTS AND COGNİTİVE EMOTİON REGULATİON İN WOMEN VİCTİMS OF VİOLENCE İN SAVOJBOLAGH- IRAN

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ABSTRACT

Unfortunately, numerous factors may affect health of individuals as well as family health; violence can be named as one of these factors. The most common form of domestic violence is violence against women. The purpose of this study was to examine the relationship of sexual satisfaction with marital conflicts and cognitive emotion regulation in women victims of violence.this is a correlational study and statistical population of research consists of all women referring to healthcare centers in Savojbolagh, Iran during 2017. Sample members were selected using convenient sampling method from women who had referred to these centers in order to receive healthcare centers. First, women filled out the spouse abuse questionnaire and then 100 women victims of violence signed the consent and filled out Sanai's Marital Conflict Inventory (2000), Hudson et al Index of Sexual Satisfaction (1981) and Cognitive Emotion Regulation Questionnaire (CERQ-P). Correlation m and multiple regression method were used for data analysis. Results showed a negative and significant relationship between sexual satisfaction and marital conflicts (P<0.05); moreover, results implied a positive and significant relation between sexual satisfaction and cognitive emotion regulation (P<0.05).Considering the results obtained from study, women victims of violence have lower sexual satisfaction, higher marital conflicts, and lower cognitive emotion regulation. It means there is a relationship between lower sexual satisfaction, more conflicts and lower cognitive emotion regulation in women victims of violence.

Key Words: Sexual Satisfaction, Marital Conflicts, Cognitive Emotion Regulation, Women, Victim of Violence

INTRODUCTION

Family is the first life center for individuals also is one of main society pillars. Health of society depends on the healthy situation of family and family health is related to health of family members including their mental health and having good relationship with each other (DHL, 2000). Unfortunately, numerous factors can affect health of individuals as well as family health; violence can be named as one of these factors. The most common form of violence in family is violence against women (Razaghi, Parvizi, Ramezani, &Nejad, 2013) that is indeed a serious threat for health of person and definitely can negatively effect on life aspects. According to studies on healthy people (2010), domestic violence is introduced as global epidemic and some methods are recommended for screening, prevention, and treatment (Schuiling&Likis, 2006). World Health Organization has defined violence as the intentional physical force, threat or action toward self, others or any other group and community that each may lead to strong probability of injury, death or mental harm (WHO, 2002). Violence of men against women causes numerous problems for victim and family members (WHO, 2002; Maghsoodinasab&Ibrahimi, Bahar 2015).

Relationship between couples is the most significant life scope affected by violence so that increased marital conflict is one of consequences of violence. Conflict is defined as disagreement between two persons. In opinion ofHaford (2001), marital conflict consists of continuous and important dissatisfaction of at least one of couples in their marital relation and such dissatisfaction may effect on function and quality of their relationships (Fani&Fani, 2015).Faverz and Elsoun (1992) named individuals that were dissatisfied with personality and habits of their spouse with communicational problemsas conflicting spouses (Heidari, Zakernejad, Delawar, 2009).

Cognitive regulation style of person plays a vital role in stressful situation management. Thompson defines cognitive regulation as internal and external processes that monitor, evaluate and change emotional reactions that consist of cognitive, emotional, behavioral, and physiological responses that occurs automatically within a conscious or unconscious process that not only concentrate on negative affects but also on positive affects ((Mashhadi, Hasani, &Mirdoraghi, 2012). Emotional regulation helps human to manage emotions after experiencing various conditions. There is a strong relationship between regulation strategies and mental pathology so that use of maladaptive strategies lead to mental harms and use of health regulation strategies such as positive re-evaluation can contribute to optimal stressful situations management (Hasani, 2010).

The significant concept in marriage in marital satisfaction that is mental and unique concept (Winch, 2002). Marital satisfaction indicates the situation in which couples see their current marital situation matched with their expected

situation in life; in fact, marital satisfaction is a general evaluation of current relationships between couples (Siah Bahrami, Etemadi &Modebi, 2010). Olson (2000) points to three scopes of marital satisfaction including satisfaction with family life, satisfaction with marriage, and satisfaction with life in genera (Salehian, Sadeghi, Bahrami & Sharifi, 2010).Schumacher et al. (2005) believe that adoption between couple is the most significant factor in marital satisfaction (Schumacher & Leonard, 2005). Quality of marital satisfaction effects on their sexual satisfaction; in fact, couples with unresolved conflicts are separated emotionally and experience low marital and sexual satisfaction. Sexual satisfaction consists of judgment of person about her/his sexual behavior (Sadeghi, 2001). Results obtained from a study conducted on 8500 women indicated that sexual orgasm in women not only depends on sexual compatibility but also on their general satisfaction with marital relationships so that frequency of orgasm and sexual relationships will be reduced in case of marital conflicts (Amrollahi, Chelci&Azin, 2013).

Considering the high prevalence of violence against women and its negative consequences in Iran, this study was conducted to determine relationship between violence and marital conflicts, sexual satisfaction, and cognitive regulation.

METHODOLOGY

This is a correlational study and statistical population of research consists of all women referring to healthcare centers in Savojbolagh, Iran during 2017. Sample members were selected using convenient sampling method from women who had referred to these centers in order to receive healthcare centers. First, women filled out the spouse abuse questionnaire and then 100 women victims of violence signed the consent and filled out Sanai's Marital Conflict Inventory (2000), Hudson et al Index of Sexual Satisfaction (1981) and Cognitive Emotion Regulation Questionnaire (CERQ-P). Data Extracted were analyzed through SPSS23 Software.

INSTRUMENTS

Following questionnaires were used in addition to demographic questionnaire:

Ghahari Spousal Abuse Questionnaire : this questionnaire consisted of 44 items including emotional abuse (20 items), physical abuse (10 items), and sexual abuse (14 items). Physical abuse such as beating and any kind of physical harm; emotional abuse such as humiliation, not meeting economic and mental needs, mocking and any kind of disruptive behaviors; sexual abuse such as any action that is uncommon within a sexual relationship such as violent sex or forced sexual relationship. Internal validity and reliability of this questionnaire obtained to 0.92 and 0.98, respectively (Ghahari et al, 2008, Ghahari et al,2009).

Marital Conflict Questionnaire: this is a 42-items instrument using to measure 7 dimensions of marital conflicts including reduced collaboration, reduced sexual relationship, increased emotional reaction, increased demand for children's support, increased personal relationship with relatives, reduced family relations with relatives and friends of spouse, and separating form each other financially. Content validity of this questionnaire obtained to a good level. Each item is scored based on a 5-point Likert scale so that higher score is equal to higher conflict and reverse. Reliability of this questionnaire obtained to 0.94 using Cronbach's alpha in a study conducted on a 30-member group (Afkhami, Bahrami, &Fatehizadeh, 2007).

Index of Sexual Satisfaction (ISS): this index was designed by Hadson et al. (1981) to evaluate satisfaction levels of spouses consisting of 25 items. Responses are scored based on 5-point scale (1=always, 2=most of the time, 3=sometimes, 4=rarely, 5=never) so that minimum and maximum scores obtained to 25 and 125, respectively. Questions 1, 2, 3, 9, 10, 12, 13, 16, 17, 19, 21, 22, 23 were scored reversely. High score in this scale indicates sexual satisfaction. Reliability coefficient of Cronbach's alpha and retest (within one week) reported to 0.91 and 0.93, respectively. Cronbach's alpha coefficient of this scale obtained to 0.94 and its reliability reported to 0.85 in Iran using split-half method (Zadeh& Poor, 2016).

Cognitive Emotion Regulation Questionnaire (CERQ-P): this questionnaire conceptually distinguished 9 different dimensions of cognitive regulation including self-blame, acceptance, positive refocus, rumination, refocus on planning, positive reappraisal, putting into perspective, catastrophizing, and other-blame. Score interval was from 1 (almost never) to 5 (almost always). Each subscale consisted of 4 items. Total score of each subscale obtained through adding item scores. Therefore, score range of each subscale was between 4 and 20. High scores in each subscale indicated the greater use of mentioned strategy in coping with stressful and negative events. Persian version of CERQ-P was normalized by Hasani. In this study, reliability of scale obtained using internal consistency method (Cronbach's alph of 0.76-0.92) and retest (at correlation range of 0.51-0.77) and validity of this questionnaire reported at good level through analyzing the main component using Varimax rotation and correlation between subscales (at correlation range of 0.32-0.67) (Hasani, 2010).

FINDINGS

This study was conducted on 100 women victims of violence considering variables of sexual satisfaction, sexual conflicts, and cognitive emotion regulation. Demographic information of studied samples (table 1) indicates prevalence of illiteracy among women victims of violence (89%) and among their husbands (92%). According to the job status of women victims of violence, most of these women (65%) and their husbands (49%) were workers; 22% of these women and 14% of their husband were unemployed (without income).

According to the mean and standard deviation obtained in this research (table 2), women victims of violence obtained 143.89 and 28.80 as mean and standard deviation, respectively in case of marital conflict and obtained 83.27 and 15.857 as mean and standard deviation, respectively in case of sexual satisfaction. Mean score of respondents indicated a negative relationship between sexual satisfaction and marital conflict while mean score of sexual satisfaction had a direct relationship with mean score of respondents related to cognitive emotion regulation.

Table 1. Demographic data of women victims of domestic violence (frequency and frequency percent)

		N	frequency	frequency percent
education level	below diploma	100	45	45
	diploma		44	44
	BA and above		11	11
job	unemployed	100	22	22
	worker		65	65
	employee		8	8
	other jobs		5	5
husband's education	below diploma	100	68	68
	diploma		24	24
	BA and above		8	8
husband's job	unemployed	100	14	14
	worker		49	49
	employee		12	12
	other jobs		26	26

Table 2. Mean and standard deviation of variables

	N	Mean	Std. Deviation
Sexual satisfaction	100	83.2700	15.85786
Marital conflicts	100	143.8900	28.80302
Cognitive regulation	100	105.4100	18.40624

According to the obtained results from Pearson correlation coefficient (table 3), there is a significant and negative (reverse) (-0.597) relationship between sexual satisfaction and marital conflicts at level of P<0.05. Correlation coefficient between other predictor variable (cognitive emotion regulation) and criterion variable is acceptable considering its coefficient of determination (0.238) that is lower than 0.7. Therefore, it can be stated that there is a positive and significant relation between these variables at level of 0.05.

Since correlation coefficient between variables does not consist of complete correlation, multiple regression method was used to analyze results.

Results obtained from ANOVA and statistical properties of regression using simultaneous method indicated significance of statistical model (tables 4 & 5).

$$(F1,98)=54/392 \text{ ,P<0/0005 ,} R^2A=0/350$$
$$(0/370F2,97)=30/109, \text{ P<0/0005 ,R2A=}$$

Analysis of these results indicates that hypothesis 1 (model 1) can explain 35% of variance (Adjusted R^2=0.350); since Sig=0.000 (P<0.05), it can be stated with 95% probability that there is a negative relationship between marital conflict and sexual satisfaction; hence, this variable can predict sexual dissatisfaction in women victims of violence.

Results obtained from hypothesis 2 indicate that this model also can explain 37% of variance (Adjusted R2=0.370);since Sig=0.000 (P<0.05), it can be stated with 95% probability at significance level of 0.05 that there is a positive relationship between cognitive emotion regulation and sexual satisfaction; hence, this variable can predict sexual dissatisfaction in women victims of violence.

According to the results obtained from multivariate regression (table 6), a standard deviation from mean score of marital conflicts in women victims of violence leads to -0.597 reduction in standard deviation of sexual satisfaction among women victims of violence while this change rate is equal to 0.163 in case of cognitive emotion regulation. Therefore, it is concluded that marital satisfaction is stronger predictor of criterion variable (sexual satisfaction) compared to cognitive emotion regulation; hence, marital satisfaction can predict sexual satisfaction in studied sample.

Table 3. Correlation matrix between sexual satisfaction, marital conflicts and cognitive emotion regulation in women victims of violence

Variable	Sexual satisfaction	Marital conflicts	Cognitive regulation
Sexual satisfaction	1.000	-.597	.238
Marital conflicts	-.597	1.000	-.130
Cognitive regulation	.238	-.130	1.000

Table 4. Summary of regression model for sexual satisfaction, marital conflicts and emotion regulation in women victims of violence

Model	R	R^2	Adjusted R^2	SD error
1	.597[a]	.357	.350	12.78146
2	.619[b]	.383	.370	12.58379

Table 5. Results of ANOVA for significance of the regression model in women victims of violence

Model	Sum of Squares	Df	Mean Square	F	Sig.
1	8885.863	1	8885.863	54.392	.000[a]
2	9535.587	2	4767.793	30.109	.000[b]

Table 6. Results of multivariate regression (sexual satisfaction, marital conflicts, and cognitive regulation) in women victims of violence

	model	non-standardized		standardized		
		B	standard error	B	t	Sig.
1	sexual satisfaction	130.599	6.543		19.959	.000
	marital conflicts	-.329	.045	-.597	-7.375	.000
2	sexual satisfaction		10.373		11.002	.000
	marital conflicts		.044	-.576	-7.165	.000
	cognitive regulation		.069	.163	2.026	.046

DISCUSSION AND CONCLUSION

Results obtained from this study indicated a negative significant relationship between sexual satisfaction and marital conflicts and a positive significant relationship between sexual satisfaction and cognitive emotion regulation.

According to the results obtained from hypothesis 1, there is a positive and significant relationship between sexual satisfaction and marital conflicts so that an increase in marital conflicts between couples leads to reduced sexual satisfaction. Moreover, results showed that predictability of marital conflicts in relation with sexual satisfaction was at a high level. This finding was in line with results obtained from studies conducted by Soodani et al. (2015), Babu and Carbapenem (2009), Mohammadkhani et al. (2010), Raeesi and Hosseinchari (2012), Razaghi et al. (2013).

According to these findings, it can be stated that dysfunctional attitudes and beliefs lead to inappropriate perception of common issues between couple leading to increase in marital conflicts and violence of man against woman ((Larson & Holman, 1994) so that this violence is originated from unhealthy interactions between couples because of weak conflict dispute skills and communicational strategies for negotiation; in this case, when one of couples gets angry the other one cannot manage the situation and this leads to violence and reduce marital satisfaction (Enayat&Doost, 2012). Marital conflicts and violence among couples leads to decreased calmness and security in family and such stressful factors lead to disappointment and crisis as well as reduced marital and sexual satisfaction (Ruiz-Perez, Plazaola-Castano, & Rio-Lozano, 2007).

According to the result of hypothesis 2, there is a positive and significant relationship between sexual satisfaction and cognitive emotion regulation so that cognitive emotion regulation can predict sexual satisfaction in women victims of violence; in this regard, reduced cognitive emotion regulation leads to reduced sexual satisfaction and increasedcognitive emotion regulation leads to increased sexual satisfaction. This finding is matched with results obtained from studies conducted by Vin Stin et al. (2012), Valsh et al. (2010), Hogus et al. (2007), and Zanarini et al. (1991).

It is concluded that defective cognitive emotion regulation leads to violent behaviors toward spouse. Violence toward spouse is a reaction to control emotions men with personality disorder (J.M.Ross, 2011). Such persons have problematic cognitive emotion strategies and since are not capable of managing their negative emotions, use some

maladaptive emotion regulation strategies such as rumination, thought suppression, impulsive behaviors such as aggression and avoidance (Carpenter &Trull, 2013) and such strategies increase conflict between couple leading to marital conflicts (Bloch, Haase, &Levenson, 2014). The mentioned issue would effect on various aspects of marital life, in particular sexual functioning of couple and lead to sexual dissatisfaction.

According to the results obtained from this study, women victims of violence feel lower sexual satisfaction, higher marital conflicts and lower cognitive emotion regulation. In this case, there is a relationship between lower sexual satisfaction, higher marital conflicts and lower cognitive emotion regulation in women victims of violence.

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THE RELATIONSHIP BETWEEN TEACHERS' PERCEIVED SENSE OF ORGANIZATIONAL TRUST AND THEIR ORGANISATIONAL CITIZENSHIP BEHAVIORS

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 ABSTRACT
The aim of the study is to examine the relationship between the perceived sense of organizational trust and the organizational citizenship behaviors of teachers working in public elementary, econdary and high schools located in Elazığ and Bingöl. Participants were 564 teachers selected by the non-random sampling technique of purposive sampling. The results showed that male teachers have higher sense of organizational trust mean scores than females, and married teachers have higher sense of organizational trust mean scores than singles. A high, positive and significant relationship was detected between teachers' organizational citizenship behaviours and the sub-factors of volunteering, conscience, helpfulness, and sportsmanship. A moderate, positive and significant relationship was also found between organizational citizenship behaviors and organizational trust, trust for the principal, trust for teachers, trust for parents and for students.
Key Words: Organizational trust, organizational citizenship behaviors, private and public school.

INTRODUCTION

The term of organizational citizenship behavior was firstly used by Organ and Bateman in 1983 (Giap et al.). Organ (1988) described the organizational citizenship behavior as an individual behavior on a volunteer basis which helps the organization to work efficiently and effectively, and added that the behavior can not clearly and directly be described by the reward system of the organization. (Organ, 1988; Organ, 1997; Dyne and Ang, 1998; Özdevecioğlu, 2003b; Polat, 2007; Bolat and Bolat, 2008; Burns and Carpenter, 2008; Yılmaz and Bökeoğlu, 2008; Polat, 2009; Baş and Şentürk, 2011). The organizational citizenship behavior scale that has been reformed by Organ, is classified as five dimensional. These are: Altruism; all the voluntary behaviors to help other employees in a task or a problem with the organization (Ünal, 2003). Conscience; fulfilling the duties on a voluntary basis and beyond the role of behaviors which are expected of them. Sportsmanship behaviors make contribution to the efficiency and the activity of the organization by fighting off the problems with constructive opinions without tension and increasing the employees tolerability to the resulting adverse situations (İşbaşı, 2000). Organizational virtue; the employee should try to develop and state ideas about all matters related to the organization, instead of trying to be the person who is trying to adapt to the daily life without a question (Çınar, 2000). And volunteering/courtesy is trying to help other employees that are working in the same organization with a mission or a problem about the organization even if it is not obligatory (Kaynak, 2007). In this research, organizational citizenship behaviors are structured through above mentioned four sub-factors excluding the organizational virtue sub-factor.

Organizational trust can be described as organizational relationships and a behavioral network which composed by the organization members trust on the manager and organization itself (Tschannen-Moran and Hoy, 1998; Hoy and Tschannen-Moran, 1999; Tschannen-Moran, 2001). Trust includes the vulnerability which depends on the comfortableness of believing a person would not intentionally harm another person and taking risks (Hoy ve Tschannen-Moran, 2003). Trust is being disposed to the vulnerability of believing the other group is helpful, reliable, efficient, fair and open, as another group (Tschannen-Moran, 1998, 2001, 2003). Organizational trust has been described as a very important component for the effectiveness of the organizations (Tschannen-Moran, 2004; Baş ve Şentürk, 2011). It is not possible to approach about a healthy relationship and communication between the employees and managers, information sharing, organizational performance, participation and organizational effectiveness (Callaway, 2006). From where Samancı (2006) and Yılmaz (2009) stand, those who are working without organizational trust can not exhibit organizational citizenship behavior.

THE STUDY

In this study, the relationship between organizational trust and organizational citizenship behavior is being addressed by a screening method. Research has been performed in the second period of 2015-2016 school year with 564 teachers who are working at primary schools, middle schools and high schools in Elazığ and Bingöl. Purposeful sampling method has been used for this research. Scale of organizational trust: Wayne K. Hoy and Megan Tschannen

Moran's "The Omnibus T-Scale" (The Conceptualization and measurement of faculty trust in schools) is used for this study. Scale consists of 44 objects. Total variance of the scale is 64.49%, reliability coefficient is ,966. Scale of organizational citizenship behavior: Organizational citizenship behavior scale which has been developed by Yücel (2006) is used. Scale consists of 18 objects. Total variance of the scale is 72.80%, reliability coefficient is ,938.

The purpose of this research is to study the relationship between the organizational citizenship behavior and organizational trust that the teachers who officiate at primary schools, middle schools and high schools perceive.

Sub-goals of the research

1. What is the level of the organizational trust and organizational citizenship behavior that teachers perceive?
2. Is there a significant difference between the demographic characteristics like gender, marital status, title and the city of duty and organizational trust and organizational citizenship behavior that teachers perceive?
3. What is the level and aspect of the organizational trust and organizational citizenship behavior that teachers perceive?
4. Is there any dependence between demographic variables like gender, marital status, age, seniority, title, specialty, place of employment, positions, the number of years he or she served in the same school and the organizational citizenship behavior and organizational trust that teachers perceive?

FINDINGS
a. What is the level of the organizational trust and organizational citizenship behavior that teachers perceive?

The mean and standard deviation values of the organizational trust and organizational citizenship behavior that teachers who are working at primary schools, middle schools and high schools perceive is given at Table 1. Results given at Table 1 shows that throughout the scale of organizational trust (x = 3.57), in the trusting the manager (x = 3.80) and trusting the teacher (x = 3.60) sub-factors the level of teachers trust is "mostly", in trusting the parents and students sub-factor, (x = 3.01) the level is "sometimes". The level of teachers organizational citizenship behavior is "always" in the sub-factors of volunteering (x = 3.24) and conscience (x = 3.34).

Table 1: Descriptive statistics

Variables n=564	$\overline{x}$	SS
General organizational trust scale	3,57	,74
1. Trust Manager	3,80	,91
2.Trust teachers	3,60	,88
3.Parents and students trust	3,01	,82
General OCB Scale	3,41	,75
1. Voluntariness	3,24	,92
2. Conscientiousness	3,34	,85
3. Helpfulness	3,53	,88
4. Sportsmanship	3,57	,95

b. Is there a significant difference between the demographic characteristics like gender, marital status, title and the city of duty and organizational trust and organizational citizenship behavior that teachers perceive?

Table 2: Analysis on some variables with confidence organizational sub factor

Variables	Gender	n	X	SS	t	p
1.Organizational trust	Female	253	3,49	,92	-2,589	,010
a.Lower confidence factor for Teachers	Male	311	3,68	,84		
	Marital status					
	Married	368	3,66	,83	2,147	
	Single	196	3,49	,96	,032	

If we are to examine Table 2, we can see that in the sub-factor of trusting teachers, male teachers point average of organizational trust is higher than female teachers and also married teachers point average of organizational trust is

higher than single teachers. ANOVA analysis results of sub-factors of organizational trust and organizational citizenship scales and some variables are given at Table 3. Shown in Table 4, there is a significant difference between the perception of teachers which have worked in the same school for 6-10 years and 1-5 years on the volunteering sub-factor of organizational citizenship. To determine on which group the significant difference observed, Mann Whitney U test applied. The test showed that this significant difference is in countenance with the group of 6-10 years of working. In addition, Table 5 shows that there is also a significant difference between the teachers which have worked in the same school for 1-5 and 11-15 years on one of the sub-factors of organizational trust; trusting the manager. This significant difference is on behalf of the group of 11-15 years of working. Also, in Table 6, we can see that there is also a significant difference on one of the sub-factors of organizational trust; trusting the manager, between the teachers which have worked in the same school for 6-10 and 11-15 years. Again, this significant difference is on behalf of the group of 11-15 years of working. Furthermore, shown in Table 7, there is a significant difference between the perception of teachers which have worked in the same school for 11-15 years and 16-20 years on the trusting the parents and students sub-factor of organizational citizenship. This significant difference is on behalf of the group of 11-15 years of working.

Table 3: Organizational Trust With Some Sense and Sub-Factor ANOVA Analysis of Organizational Citizenship Regarding Variable Scale Results

Sub Factors	Seniority	n	$\overline{X}$	Sources of variance	Sum of Ranks	sd	Mean Rank	F	P	Difference
Sportsmanship	1-5 year	236	3,57	Between groups	10,181	4	2,545	2,822	,024	
	6-10 year	113	3,42	Between inside	504,258	559	,902			2-5
	11-15 year	72	3,44	Total	514,439	563				
	16-20 year	77	3,63							
	21 year and over	66	3,88							
Branch										
Conscientiousness	Science sciences	144	3,49	Between groups	4,571	2	2,285	3,130	,044	
	Social sciences	248	3,32	Between inside	409,575	561	,730			1-3
	Classroom teachers	172	3,25	Total	414,145	563				
Workplace										
Trust Manager	City center	308	3,76	Between groups	11,741	2	5,871	7,188	,001	
	District	233	3,91	Between inside	458,191	561	,817			3-1,2
	Waist	23	3,18	Total	469,933	563				
Trust teachers	City center	308	3,60	Between groups	9,888	2	4,944	6,459	,002	
	District	233	3,66	Between inside	429,445	561	,765			3-1,2
	Waist	23	2,97	Total	439,333	563				

Parents and students trust	City center	308	3,10	Between groups	8,178	2	4,089	6,071	,002	1-3
	District	233	2,93	Between inside	377,801	561	,673			
	Waist	23	2,58	Total	385,979	563				
Place of duty										
Trust Manager	Primary school	200	3,79	Between groups	22,714	2	11,357	14,247	,000	1-2 2-3
	Middle School	154	4,09	Between inside	447,218	561	,797			
	High school	210	3,59	Total	469,933	563				
Parents and students trust	Primary school	200	3,08	Between groups	10,097	2	5,048	7,535	,001	3-1,2
	Middle School	154	3,14	Between inside	375,882	561	,670			
	High School	210	2,84	Total	385,979	563				

p<.05

Tablo 4. Time to do the same task in the Schools Sub Factor Kruskal-Wallis Test Result

Sub Dimension	Mission duration	n	Mean Rank	sd	χ^2	p	Difference MWU	
Voluntariness	1-5 year	438	253,52	1	6,032	,014	14902,000 p= ,014	1-2
	6-10 year	82	297,77					

Tablo 5. Time to do the same task in the Schools Sub Factor Kruskal-Wallis Test Result

Sub Dimension	Mission duration	n	Mean Rank	sd	χ^2	p	Difference MWU	
Trust Manager	1-5 year	438	231,76	2	8,064	,018	5368,000 p= ,027	1-3
	11-15 year	32	286,75					

Table 6. Time to do the same task in the Schools Sub Factor Kruskal-Wallis Test Result

Sub Dimension	Mission duration	n	Mean Rank	sd	χ^2	p	Difference MWU	
Trust manager	6-10 year	82	52,29	1	7,275	,007	884,500 P= ,007	2-3
	11-15 year	32	70,86					

Tablo 7. Aynı Okulda Görev Yapma Süresi Alt Faktörü Kruskal Wallis Testi Sonucu

Sub Dimension	Mission duration	n	Mean Rank	sd	χ^2	p	Difference MWU	
Parents and students trust	11-15 year	32	25,47	1	6,285	,012	97,000 P= ,012	3-4
	16-20 year	12	14,58					

c. What is the level and aspect of the organizational trust and organizational citizenship behavior that teachers perceive?

Examining Table 8, there is a positive and significant relation between teachers organizational citizenship behaviors and volunteering, conscience, helpfulness and sportsmanship sub-factors (respectively r=0.81, r=0.89, r=0.88, r=0.72, p<.01). Hereunder, while organizational citizenship behaviors are increasing, volunteering, conscience, helpfulness and sportsmanship also increase. When determination coefficient (r^2 =0.66, r^2 =0.79, r^2 =0.77, r^2 =0.52) is taken into consideration, we can say that total variance of organizational citizenship behavior derives from 66% volunteering, 79% conscience, 77% helpfulness and 52% sportsmanship, respectively. Pursuant thereto while organizational citizenship behaviors are increasing, organizational trust, trust in manager, trust in teachers, trust in parents and students also increase and gain importance. When determination coefficient (r^2 =0.14, r^2 =0.10, r^2 =0.10, r^2 =0.10) is taken into consideration, we can say that total variance of organizational citizenship behavior derives from 14% organizational trust, 10% trust in manager, 10% trust in teachers and 10% trust in parents and students, respectively.

Table 8. Correlations between variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. OCB	1	,816**	,890**	,882**	,725**	,366**	,318**	,293**	,306**	,153**	-,036	,032	,068	,060	-,083*	,063	,034	,084*	,009
2. Voluntariness		1	,650**	,625**	,438**	,361**	,296**	,282**	,354**	,198**	-,014	,062	,062	,038	-,082	,060	,071	,094*	-,019
3. Conscientiousness			1	,693**	,531**	,322**	,294**	,244**	,264**	,139**	-,045	,015	,040	,075	-,102*	,049	,061	,050	,022
4. Helpfulness				1	,596**	,284**	,262**	,224**	,205**	,100*	-,037	,019	,055	,039	-,065	,070	,013	,089*	,025
5. Sportsmanship					1	,267**	,211**	,256**	,208**	,068	-,024	,021	,079	,046	-,005	,034	-,057	,059	-,004
6. Organizational trust						1	,884**	,848**	,715**	,075	-,050	,057	,032	-,008	,042	-,060	-,111**	,030	,048
7. Trust Manager							1	,564**	,487**	,007	,004	-,011	-,025	-,028	,014	-,011	-,097*	,015	,058
8. Trust teachers								1	,540**	,109**	-,090*	,083	,063	,017	,049	-,051	-,064	,024	,017
9. Parents and students trust									1	,110**	-,045	,106*	,073	,007	,047	-,141**	-,129**	,053	,045
10. Gender										1	-,135**	,221**	,181**	,031	-,064	,050	,094*	,066	-,025
11. Marital status											1	-,447**	-,445**	-,097*	-,039	,265**	,033	-,221	,067
12. Age												1	,857**	,365**	,137**	-,375*	-,066	,422**	-,244**
13. Seniority													1	,406**	,146**	-,425**	-,087*	,485**	-,210**
14. Degree														1	,026	-,142**	-,014	,257**	-,134**
15. Branch															1	,017	-,692**	,087*	-,025
16. Workplace																1	-,040	-,159**	-,128**
17. Place of duty																	1	-,071	-,129**
18. The same task in the Schools																		1	-,113**
19. Task the provinces																			1

Correlation is significant at the 0.01 level (2-tailed).∗∗   Correlation is significant at the 0.05 level (2-tailed).∗

ç. Is there any dependence between demographic variables like gender, marital status, age, seniority, title, specialty, place of employment, positions, the number of years he or she served in the same school and the organizational citizenship behavior and organizational trust that teachers perceive?

Organizational citizenship behaviors of teachers are examined through the variables like gender, marital status, age, seniority, title, specialty, place of employment, positions, the number of years he or she served in the same school, and all variables are significant with organizational citizenship behaviors according to the multiple regression results. Regression analysis reports are given at Table 9. Table 9 shows that if we take a look at the partial correlation between predictor variable and dependent variable, there is a medium-level positive correlation between organizational trust and organizational citizenship behavior (r=0.36), however we can see that if the other variables are also taken into consideration, the correlation calculated as r=0.37. Moreover, there is a low-level positive (gender, age, seniority and place of work) and low-level negative (specialty) correlation between other independent variables and organizational citizenship behaviors but if the other variables taken into consideration, the correlation between the variables are calculated as: gender (r=0.10), age (r=-0.08), seniority (r=0.13), specialty (r=-0.11), place of work (r=0.12). With these variables, there is a mid-level significant relation with the organizational behaviors of teachers, R=0.424, R^2 =0.180, P<0.05. Again with these variables, 18% of the total variance of organizational citizenship behaviors can be described. For standardized regression coefficients (β), the relative importance order of predictor variables on organizational citizenship behavior is: organizational trust, seniority, age, place of work and gender, respectively. However if the t-test results of the significance of regression coefficients have shown that organizational trust, gender, age, seniority, specialty and place of work variables are a significant predictor of organizational citizenship behaviors.

Table 9. Regression Model of Organizational Trust and Organizational Citizenship Behaviors (n=564).

Variables	*B*	Standart Hata *B*	β	t	p	Zero-order r	Partial r
Constant	1,760	,206	-	8,527	,000	-	-
Organizational trust	,374	,039	,371	9,606	,000	,366	,377
Gender	,156	,061	,103	2,572	,010	,153	,108
Age	-,137	,065	-,158	-2,097	,036	,032	-,089
Seniority	,128	,040	,242	3,161	,002	,068	,133
Branch	-,109	,040	-,108	-2,741	,006	-,083	-,115
Workplace	,165	,057	,126	2,919	,004	,063	,123
R= ,424	R^2= ,180		F(6, 557)= 20,374		p= ,000		

CONCLUSIONS

In general of organizational trust scale, in the sub-factors of trust in manager and teachers, the trust level of teachers is "mostly". In trust in parents and students sub-factor, the result is "sometimes". Organizational citizenship behavior level of teachers is also "sometimes" in the sub-factors of volunteering and conscience.

In the trust in teachers sub-factor, male teachers point average of organizational trust is higher than female teachers and also married teachers point average of organizational trust is higher than single teachers. The perception of organizational citizenship behaviors on sportsmanship sub-factor is on behalf of the group which worked +21 years. Moreover, on conscience sub-factor, teachers perception of organizational citizenship behaviors are on behalf of the science teachers. On the sub-factor of trust in manager, the perception of teachers are on behalf of the ones who work at cities and town centers. Congruently, on the trust in teachers sub-factor, the perception of teachers are also on behalf of the ones who work at cities and town centers. Similarly, on the sub-factor of trust in parents and students, the perception of teachers are only on behalf of the ones who work at cities. Again on the sub-factor of trust in manager, the perception of teachers are on behalf of the ones who work at middle and high schools. On the sub-factor of trust in parents and students, the perception of teachers are only on behalf of the ones who work at primary and middle schools. A high, positive and significant relationship was detected between teachers' organizational citizenship behaviours and the sub-factors of volunteering, conscience, helpfulness, and sportsmanship. A moderate, positive and significant relationship was also found between organizational citizenship behaviors and organizational trust, trust for the principal, trust for teachers, trust for parents and for students.

With this study, the relationship between organizational citizenship behavior and organizational trust   of teachers examined. Our findings show that it is important to determine the circumstances which are hindering the organizational trust of the teachers for organizational citizenship behaviors, and rearranging the social surroundings for achieving the goals of schools effectively.

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THE REPRESENTATİON OF THE VİCTİM AS A SOCİAL CONSTRUCTİON İN COURT NEWS

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ABSTRACT

There has been an increase in rape and abuse cases in the northern part of Cyprus. Consequently, these cases have begun to be reported by sections of the media in the Turkish Republic of Northern Cyprus. Unlike the traditional media, the characteristics of Internet journalism mean that it can be continually updated and it has the potential to reach the target audience, which has not only increased a common sensitivity, but also unethical acts in journalism.

This research examines how Internet media reported on two cases that occurred in the Turkish Republic of Northern Cyprus. These cases are the rape and murder of 7-year-old Mustafa Diker by his father in 2012. This case created a sense of indignation throughout Cyprus. The other case is that of 15 year old İ.E who raped a 5-year-old female child.

Furthermore, based on the fact that the concept of victim is shaped by personal and social values, it will be assessed how this concept is actually used by power holders in creating social construction as a means of social control. From this point of view, the perception created by the society based on the nationalities of the suspects will be taken into consideration.

Keywords: *Rape, abuse, TRNC, Law of Information, Internet Media, Traditional Media*

OBJECTIVE-SCOPE-METHOD

The Internet media has become an irreplaceable information source for all, as it has facilitated access to information at the touch of a button. It has become very easy to reach as it is completely free, fast and provides access to up-to-date news within seconds. The media in the Turkish Republic of Northern Cyprus (TRNC) media has shown an interest in news about incidents of rape, which have recently increased in the country. The objective of this study is to research the presentation of news about rape in the Internet media. Considering that the Information Law has still not been implemented, this work will aim to examine the Internet-based newspapers and their presentations of news about rape by providing specific samples.

With the descriptive approach to news about rape in the TRNC, all the articles concerning the two cases have been identified and have been analyzed based on other researchers' works. This work is particularly important for understanding the ethics that journalists should keep in mind while writing stories about rape, considering both the victim and perpetrator. In this case, this study aims to contribute to understanding the facts of news, the topic of news and the subject of news in the media.

In the final research conducted by the Media Ethics Committee in 2013, it was determined that there are 48 Internet newspapers in the TRNC. Undoubtedly, this number will have increased in the past 4 years. As the Information Law has not been implemented in the TRNC, standards have not been established to regulate Internet media. Hence, it should be considered that people who have no education in the media and who are not concerned about journalistic ethics can publish through the Internet media and can write stories in the country.

Although the Media Ethics Committee's statements have been used in this study, it should be understood that the Media Ethics Committee has no sanctioning powers in the country. Hence, Media Ethics Committee's statements should be taken to demonstrate how ethics in journalism should function. While examining the cases, in the second rape case, the name of the defendant has not been used as the defendant was under the age of 18.

Journalists cannot be dissociated from the society. Therefore, changes that the societies have been experiencing also apply to journalists. Sometimes, journalists can overreact to issues that occur in the country and this leads to a breakdown in common sense. Consequently, journalists often disregard the fact that there are often two sides to a story, which is one of fundamental ethics of the journalistic code. It is easy to provoke a reaction with stories of rape, suicide or murder. Therefore, it should be considered that journalists can often impose their own emotions into their news articles. Although they prepare articles under the pretense of journalistic impartiality, they usually assign blame to suspects who have not even had a trial.

In this study, the Internet newspapers who published in the TRNC have been examined. Some of the newspapers only publish through Internet media, while some also print traditional newspapers. In this research, it is found that newspapers who publish traditional newspapers seem to demonstrate more concern for ethical bases, while those who only publish on the Internet show less concern and are more interested in increasing their readership.

CRIME AND MEDIA

News about sexual rape is one of the most compelling stories found in the TRNC society. It is important that the society pays attention to these kinds of stories. Stories about rape represent the easiest and fastest way to attract readers to websites in the TRNC. Some of the Internet newspapers care about ethical rules, while others who are only interested in earning revenue from journalism do not care about ethical rules, or even laws. The only concern is how they can increase the number of followers of their page. The Internet=based newspapers who are not concerned with ethical rules, use titles that do not reflect the reality and are only aimed at attracting readers. It is known that advertising is the basic source of income for the Internet newspapers. Thus, the transmission of an advertisement to as many readers as possible and attracting new advertisements can only be achieved through more 'clicks'. Therefore, it is easy to observe that newspapers use exaggerated, incorrect and sensational titles to achieve that goal.

To find a solution to this problem, the Media Ethics Committee signed a declaration with the directors of Internet media in 2014, which stated "It is not appropriate to use exaggerated, incorrect and sensational titles just to create more clicks" (Internet Media Declaration; 2014). Unfortunately, most of the websites do not follow the signed Declaration today.

Social media allows users to access the content they want, create new content, and share information they receive outside of the traditional media. It allows the users to access the news either instantly or whenever they want, directly with the users on their own list, or by adding and sharing comments facilitating the access to news at the same time (Weeks & Holbert, 2013).

Rape causes more permanent and psychological damage to a victim than physical injury (Criminal Law/Art. 144). The laws in the TRNC (Criminal Law/Art. 145) suggest that a this crime is a grave criminal offense and life imprisonment should be considered as the punishment. On the other hand, the Constitution of the TRNC (Art. 18) also says that anyone charged with a crime is considered to be innocent until proven guilty.

The Media Ethics Committee made a statement in 2014 regarding rape, which stated, " The press should be respectful to presumption of innocence and should avoid publishing any article claiming a person is guilty unless the offense is fixed by judgment. Claims and advocacy must be transferred fairly and equitably in ongoing proceedings". With this statement, the Media Ethics Committee have referenced universal journalistic principles. (Internet Media Declaration; 2014)

In the same statement, the Media Ethics Committee attributed the media's power of mass access and said that if this principle is not taken into consideration, it could be detrimental to people's lives, and that an innocent man could suffer the loss of his reputation, career or even his life.

"Today, aggression/violence or crimes are being analyzed in terms of biology, psychology, psychiatry and sociology. The separate resolution of violence or aggression by each of these disciplines demonstrates that violent behavior has a multidimensional and complex character (Kızmaz, 2006: 248)

Kosse explains why it is important how the rape victim or the perpetrator is presented by the media: "The rape storytelling in the media affects people's thoughts and reactions to rape, and causes misinformation and stereotypes about rape to persist. This effect is quite damaging because it prevents the community from seeing

the real causes and issues underlying the rape. Rape can lead to improper understanding, wrong policies and legislation. Eventually, if the media continue to use unreal stories, real victims become less likely to share their true stories" (Kosse, 2007: 3).

MEDIA TO CREATE A SOCIAL PERCEPTION

This research aims to address the ethical violations and the method of processing rape in the media by presenting two cases that caused significant consternation in the Northern Cypriot community. Within the scope of this research, a case from 2012 in which a 7-year-old boy was raped and murdered by his father and the case of a 15-year-old boy who raped a 5-year-old girl in Nicosia are compared.

When people think about rape in society, the Mustafer Diker incident has considerable prominence. Seven year old Mustafa Diker was raped repeatedly, murdered and buried by his father in 2012. The issue entered the public arena when Mustafa Diker was declared missing on the 9th of April 2012. The boy's body was found on 14th of April 2012 in a garbage disposal area of Taşkent and Mustafa Diker's father Erol Diker, his uncle İbrahim Diker and his stepmother Özlem Diker were all arrested. On 6th of August 2013, the Criminal Court of Nicosia sentenced the father Erol Diker and imprisoned him for life. The court found Erol Diker guilty on 12 out of 13 charges of which he was accused. Bahar Saner, the Chairman of the Criminal Court Delegation, made a statement in the court about the issue and drew attention to the fact that rape was the most serious crime after the murder, which required a punishment of 14 years.

Another case of rape occurred on June 24, 2016, where 15-year-old İ.E, deceived a 5-year-old girl by asking her to play hide and seek and subsequently raped her. The court, found İ.E. guilty on the 23rd of October 2016 and imprisoned him for 14 years. İ.E. was found guilty on all 11 charges, including "sexual assault by violence", "kidnapping and detention of a child of the age of 5 without permission", "severe harm", "sexual assault", "sexual abuse", and "assault"

It is necessary to focus on how the media processes news about rape. After the incidents of rape, the media framed the story in a particular manner from the outset, in the form of "infuriating the society," "reducing the society's despair," and "experiencing a shocking event." The language, which can be expressed as the style of the media organizations, while giving some features to the news, can also cause some restrictions. "In the process of news writing, short and clear sentences should be preferred, which can lead to frequent mistakes as a result of the race to publish to beat the competitors." (Yurdigül & Zinderen, 2012: 82)

From the Havadis Newspaper, Duygu Alan's statement on 15 May 2013 with the headline "He denies he is his son" contained the following statement. "Erol Diker, who beat his 7-year-old son Mustafa Diker to death and threw him in the garbage ..." As can be seen from the introduction, the news story about an individual who has not tried by the court has been presented as a "murderous father" and the story was shaped around this theme.

In the story, it can be witnessed that the reporter, who made an emotional connection with the incident, is punishing the individual accused of the crime before they have been found guilty. According to the news, the father, Erol Diker, has been convicted by the journalist without his guilt being proven in court. This important mistake creates serious problems.

Linç korkusu yüzünden Erol Diker'e cezaevinde özel bölüm hazırlanıyor

7 yaşındaki Mustafa'ya tecavüz ederek vahşice öldüren utanmaz baba Erol Diker için cezaevinde özel bölüm hazırlanıyor

From Kıbrıs Gazetesi's story written by Elmas Tokay on May 4 2012, it can be seen that Erol Diker stated that he had a fear of being "lynched" in the prison and a private cell was prepared for him. The following statement is included in the opening section of the news article: "A special room in the prison is being prepared for Erol Diker, the shameless father who brutally killed Mustafa at the age of 7". As can be seen, the journalist showed disdain towards Erol Diker was still in the judicial process and called him a "shameless father", which played a significant   role   in   the   perception   of   society. Moreover, it is known that on 6 August 2013, the day on which final judgement was given, the father Erol Diker came to the court with a with a backdrop of a furious crowd demanding to lynch him.

Yenidüzen Newspaper, in its August 6 issue, conveyed information about the lynching attempt as follows: "The angry crowd who wanted to lynch Erol Diker, kicked the police vehicle and protested by applauding the police trying to secure Erol Diker, who murdered 'little Mustafa'"

MÜEBBET

"Mustafa Diker cinayet davası"nda KARAR
Bir yılı aşkındır süren 7 yaşında öldürülen Mustafa Diker cinayetiyle ilgili dava sonuçlandı.

Another important problem is that the names of individuals under the age of 18 are easily reprinted. Turkish Cypriot media generally pays attention to the use of initials when suspects or victims are under the age of 18. However, in the case of İ.E., many newspapers published the name of the child, disregarding his age. They also stated the nationality of the individual unnecessarily, creating society throughout society. The story was published on 18 October 2016 by Evrim Kamalı on the Kıbrıs Manşet Internet Newspaper as follows.

Çocuk tecavüzü karara kaldı

Evrim Kamalı
KIBRIS MANŞET ÖZEL HABER

Lefkoşa'da 24 Haziran 2016 tarihinde Kızılbaş bölgesinde 5 yaşındaki kız çocuğuna askeri bölge içerisinde tecavüz eden Hataylı sanık dün Lefkoşa Kaza Mahkemesi bünyesinde kurulan çocuk mahkemesi huzurunda aleyhine getirilen suçları kabul etti.

" İ.E from Hatay (a city in Turkey), who raped a 5-year-old girl in military territory in Nicosia on June 24, 2016, accepted the crimes against him in the presence of a children's court established in the Nicosia Accident Court yesterday."

As a result of this news, images of the 15-year-old child were shared on Social Media, and there were also calls to lynch him. After the developments, security measures were implemented so that İ.E was secretly brought to the court to ensure that the process continued and representatives from the Social Services Department were present. In accordance with the decision taken by the court, the interview was held in a closed environment, which resulted in the press being restricted from obtaining information about the subject and that it was only heard from the outside.

A DELUSION FOR THE MEDIA; ALL THE PROBLEMS ARE BECAUSE OF ETHNIC ORIGIN

When the socio-economic situation of the Cypriot people is examined, it is clear that people believe that immigrants from Turkey are the cause of many problems that occur in the country. Particularly in recent years, it is commonly believed that the reason for the increase in murder, rape and theft cases in the country is due to the increase in the number of immigrants who have come Cyprus from Turkey. Therefore, in the above-mentioned rape case, the press used the nationality of İ.E, who was under 18 years old, in order to provoke the public and exploit it as a certain point of interest.

As stated in the United Nations Convention on the Rights of the Child in 1989, "Everyone under the age of 18 is defined as a child". The rights and fundamental rights of each child as a rights holder were unanimously adopted by the United Nations Convention on the Rights of the Child in 1989. According to the agreement, people under the age of 18 years have rights, regardless of their race, religion or ability, whatever their thoughts or sayings, and how they come from a family.

On the other hand, in the Turkish Journalists' Rights and Responsibility Declaration of Turkish Journalists, the regulations regarding the communication of information about children states the follow: "The names and photographs of children under the age of 18 must not be published if they are a suspect, a witness, or a victim of a child-related crime or sexual assault, and the child should not be interviewed or photographed without the permission of a journalist, a family member or someone else responsible for the child" (Gencel Bek, 2011, p. 38):

'VICTIM' AS A SOCIAL CONSTRUCTION

The definitions of the victim concept can be found in international texts. In the first paragraph of the United Nations Declaration adopted by the General Assembly Resolution 40/34 of 29 November 1985, the concept of a victim was identified. According to this, the victim is a person or community who is physically, mentally or emotionally endangered, has suffered economic loss, or has suffered serious damage to their fundamental rights due to acts that violate the criminal laws in force in member states.

Richard Quinney identified that the concept of the victim is shaped by personal and social values and that the victim is actually a social construct used as a means of social control by the power holders (Shalhoub-Kevorkian, 2004: 208). For example, by analyzing judicial intervention in England for victims of rape, Lees claimed that the victims are being traumatized by the judicial system and defined it as "judicial rape" (Shalhoub Kevorkian, 2004: 210).

One of the most significant ethical violations in news about rape is to tell the news by creating a story. Although events transmitted in the court environment are used for clarification of the subject, the fact that the newspapers receive this information and place it as a story in the newspapers leads to individual results being detached from the social context of the subject.

Even though the incident involving Erol Diker was the first such event in the country, there have been similar examples around the world. Aside from the psychological dimension of the incident, the fact that it was presented as a story resulted in individual hatred of the father Erol Diker and the inability of the subject to be socially judged impartially.

In the story published in Star Kıbrıs Newspaper dated August 17, 2012, by Suna Erden, with the headline "First I raped, then I killed" information about the incident was published with all the details. This story could even provoke individuals who are so inclined to perpetrate such actions themselves. The following statements were made in the article.

"Everything happened last Friday evening. Mustafa sat in front of the television reading a book. I slapped him for not studying. He went to the bedroom. I went after him and beat him until he fainted. Then I made him smell onions in order for him to wake up. Then I took him to the bathroom, washed him. I took him to the bedroom. Then my wife Özlem Diker came home. When she saw that I was nervous, she asked why. I told her that Mustafa didn't do his homework, so I beat him. When Mustafa came to, I beat him again and he fell on the floor. He fell on the table and struck his nose. Özlem took him to the bathroom and locked the door so I wouldn't do anything. We took Mustafa and laid him on the bed. I couldn't take it. I beat him again! When he fainted, I took him to the bathroom and put him under water. I grabbed him from his neck and hit him to the wall. He suddenly fell and hit his head on the tap. İbraham came, dressed Mustafa and took him to the living room... It was night. We put the bed in the living room, I started sleeping with Mustafa. I woke up in the middle of night and saw Mustafa peeing in the bed. He was contorted, biting his tongue. I took him to the bathroom again, lost his balance and hit his head. He was stuck. Then I took him to the bedroom, let him sleep and I went back to living room and slept. In the morning I realized that Mustafa had died. Mustafa and I threw the body in the dump in Taşkent. Then, I remembered Mustafa's shoes were at home, so I called Özlem to put the garbage out."

It has always been observed witnessed that people are being targeted by the problems that they cannot cope with in their everyday or social lives. The mainstream media has the definition of 'we'. The definition of 'us' adopted and transmitted by the mainstream media is basically shaped by the ideology of the economic, politically dominant society. Accordingly, it is shaped by the 'Turk', 'Muslim', 'Sunni', 'Heterosexual', 'male', 'conservative' patterns with the concept of 'we' "(Dirini, 2010: 63)

The incident was portrayed in the newspaper with all the details that were presented in the court. Consequently, when someone reads the abovementioned text, they will begin to hate Erol Diker. Moreover, after Erol Diker's guilt was proven and he was sentenced to life imprisonment and Diker appealed to alleviate the sentence, the public reacted to the case in advance, before the court had made a decision. Furthermore, it was observed that members of society were calling for inmates of the prison to commit the same acts to Erol Diker as he had done to his son. This position of the press was shaped by the reaction of the people. Therefore, the position of the press about the incident is the determining position of the increasing hate speech against the father who had been convicted of rape, and ultimately determined the public attitude.

CONCLUSION

It should be acknowledged that the "clicking" problem of Internet journalism is seriously shaping news headlines. In addition to using headlines that do not reflect the content of the news, there are also headlines that appeal to the readers' emotions. Some of these titles can be listed as follows: "Incredible detail in the Diker murder", "Raped, killed, found the sentence too long", "He denied he is his son", "Lifetime sentence in the shame case of TRNC", "Bone age of the rapist is 17"

Although no scientific research has been conducted on the habits of readers throughout the country, it is observed that the readers generally read the headline and then visit the page, even many times, commenting on the subject after reading the headline. Therefore, the editorial selection of newspaper editors stands as the primary tool for directing the reader. The headline used by Gündem Kıbrıs Internet Newspaper "Raped, killed, found the sentence too long" makes reference to the appeal by the criminal Erol Diker. In the news, the newspaper aimed to influence readers before the court had made any decision.

A story with the headline *"Bone age of the rapist is 17"* by Star Kıbrıs Newspaper received negative reactions for using the name of the suspect, so they attempted to fabricate a new story that the child's age was actually 17 and they claimed they had determined this from his bones. The mentioned issue has been criticized as an editorial self-laundering policy and that it was not appropriate to publish the name of a suspect under the age of 18, regardless of the verdict in the case.

While writing court stories, journalists should ensure that the news is plain, not exaggerated and as accurate as possible. In sensitive cases, the reporter should not easily reveal the suspect's name and should act with the belief that the suspect may be innocent. The correspondent should not assign blame to a suspect who has not been proven guilty by the court due to any emotional connection they have with the subject. It should not be forgotten that guilt in the eyes of the press is equated to being guilty in public opinion. One of the main reasons for the reaction of the public after the evidence revealed the innocence of the hospital owners, which was revealed in the "Abortion Case" that was announced last March, was to criticize the judge and even to claim that he made a judicial error. Ultimately, the decision made by the court did not receive approval from the society because the press had declared all hospital officials, doctors and employees guilty from the first days of the abortion case.

On the other hand, the media should play an informative role in the development and protection of children's rights. It should make informative publications under this role and should demonstrate create sensitivity for children's rights. In the United Nations Convention on the Rights of the Child, violations of fundamental children's rights such as education, health, access to social services and security should be socially handled and the state should remind the tasks as a task force. (United Nations Convention on the Rights of the Child, 1989).

"Until the offense of rape / violence has been fixed in the news coverage, the allegations of "murderer suspect", "rape suspect", "alleged rape", "allegedly committed murder" and the terms such as" killer "and "rapist " should not be used in reference to the suspects in the news." *(Deniz Ş. Korap, Öze E. 2015, s.748).*

It should not be forgotten that it is against the guiding principles of journalism to punish those who have not been declared guilty by the court. Regarding an ongoing case of judicial proceedings, it should not be forgotten that the only institution that can accuse the suspect is a court, and it must be treated accordingly.

"As is known, although the sexual abuse of a child is extremely widespread in almost all societies, the number of events reflected by official authorities is extremely limited" (Topçu, 2009) Therefore, the importance of reflecting such news in the press is that it can be used to build societal consciousness and help governments to initiate work on the subject. "In terms of the functioning of the criminal justice system, it is important to have a viewpoint of the victim and the victim's rights. Victims should be encouraged to report to criminal authorities and the number unresolved cases should reduced on this count" (Demirtaş, 2005).

The fact that a group can be placed under suspicion by means of reporting on an individual who has committed a crime can have a detrimental impact on society. The publications that newspapers use to target a race have led to a disruption to the social equilibrium in today's society where cultures are mixed. It is evident that newspapers should take more responsibility at this point, showing more care when publishing news, and that editorial intervention should be implemented more effectively. As a control mechanism of the state, the Informatics Act must ensure that vigilance and supervision are conducted on a regular basis in order to prevent newspapers publishing news that is purely generated to create more clicks. In order for the Media Ethics Committee to function and apply sanctions appropriately, the work should be regulated and the work of the government should be supported by the community.

"Journalists should show respect to the privacy in sexual assault cases and children below 18 should not be compromised. The term "incest" should not be used in cases where children's names could be compromised." (Dursun, 2010, p. 26).

On the other hand, journalists should make particular efforts not to reflect the identity of the victim, and photographers should not publish images that expose the victims. The victim should be not treated in such a manner that would lead to physical, mental or emotional harm, and the rights of the individual should be carefully protected. Decisions are made to protect victims in the European Union. According to Article 8 of the Framework Decision of 15 March 2001, the EU recommended that member states should provide protection for victims. The right to protection also includes taking measures to prevent the disclosure of personal information and photographs, such as the physical protection of victims or their families.

While the news is being written, the journalist's role is to act as a mediator in putting the statements in the newspapers, without shaping hate and legitimizing the crime. Journalists should avoid incentive publications that give details of how a crime has been committed.

The journalists must refrain from declaring the offender guilty before a decision is announced by the court, and should make efforts not to use photographs. On this point, the editors should not pressurize the journalists to provide photographs of a particular incident or the victim or alleged perpetrator of a crime.

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THE RİSE OF ARTİFİCİAL INTELLİGENCE İN ECONOMİCS THEORY

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ABSTRACT
The rapid growth of the technology market relating to deep learning and artificial intelligence during the last decade has been breathtaking. The increasing utility of deep learning in various spheres of life has profoundly impacted the general opinion of how far this surprising technology would intervene in human life. This paper addresses the methodology of using deep learning to resolve various issues in the field of economics with particular attention to the use of neural networks. Specifically, it will be looking at the current and the future use of deep learning in the field of business and economics, noting the breakthroughs and possible limitations in the process. Specifically, in my project, this paper will be looking at the use of Deep Learning to drive the changes in economic theory.

INTRODUCTION
In 2016, Google purchased and integrated a deep-learning based translating program upon its corporate software. Similarly, IT Behemoths such as Apple, Samsung, Facebook all show a fanatic willingness to invest an astronomical amount of funds into what is now a gold mine of technologies. The enterprise funds that had been $220 million in 2015 has skyrocketed and is foreseen to jump over $11.1 billion in 2025 easily. Indeed, a gold rush has begun, and the prize is the key to the radiant door to the future: the technology of deep learning.

Deep learning is the technology of creating computational models that process and utilize multiple layers of representational data. As a sophisticated digital structure of piled information, the deep learning model primarily serves to classify intricate structures from a pool of already-existing data and form algorithmic predictions over new input. In this context, one could assert that the concept of deep learning parallels the function of a human brain, and rightly so: much like the human brain, deep learning allows the processing of images, audio, and functional data.

While deep learning's significance in the artificial intelligence industry had become stable in relatively recent years, the concept -and the early models- of utilized deep learning traces up to 1980, when electrical engineer Kunihiko Fukushima introduced neurocognition or a multilayered architecture that can define patterns through learning. In 1989, a neural network that relied on algorithms appeared, but although the algorithms were functional, the technology itself was deemed not due to various limitations both systematically and practically. Only after the century turned and the AI pioneer Geoffrey Hinton employed RBM -restricted Boltzmann Machine- to stabilize the neural network models, did deep learning resurrect as a legitimate "technology of the future."

Despite its staggering genesis, the legacy of deep learning has now hoisted itself upon firm ground of celebrity. Of the 10 Breakthrough Technologies of 2017 (MIT Technology Review, 2017) selected by the MIT Technology Review, four are closely related to machine learning and some form of data algorithm. Gartner, Inc has officially asserted that deep learning and artificial intelligence will stretch its influence over to almost every possible corner of society and life, including medical science, architecture, economics, education, and so on. Judging from the similarity deep learning shares with the human brain mechanism, such an assertion does not seem at all illegitimate: deep learning has indeed begun an era of technological transition: the digital industrial revolution.

Deep learning's compatibility with time-series data offers it a towering advantage over other digital technologies, especially in the field of economics. The continuous update of the big data grants digital algorithms to accompany the fast-paced changes in the stock market successfully and foresees the general financial trends and correlations among countless factors and society. Upon the almost omnipresent advantage of the big data, deep learning may even provide answers for all financial problems that have been and will be. This hugely beneficial characteristic of deep learning is one of the primary causes that software power plants and digital companies are now eager to invest great endorsement in the area.

However, some remain skeptical about the future impact that deep learning will have on such a variable field of economics. Such concerns are primarily based on the fear that deep learning yet lacks sufficiently in logic, abstract cognition, and management of unforeseen variables: all of which are the most substantial elements of the economic analysis. One of the biggest concern on the issue is that while deep learning allows a decision to be made in mere seconds, most deep learning systems systematically cannot explain the cause of their decisions: straightforwardly speaking, currently deep learning is incapable of making high-risk decisions. In the New Yorker, staff writer Raff Khatchadourian indicates the evident challenges highlighted during his interview on deep learning and artificial intelligence with Demis Hassabis, an AI researcher and neuroscientist. He quotes: "Hassabis was clear about the challenges…the system still fails hopelessly at tasks that require long-range planning, knowledge about the world, or the ability to defer rewards" (Khatchadourian, November 2015). Although admitting that deep learning has yet to meet its golden age, Hassabis ends the dialogue in a hopeful note, pointing out the endless prospect of potential development and the due rewards that could be just around the corner.

THE STUDY

The most concise and practical definition of a neural network, or an artificial neural network, was first provided by Dr. Robert Hecht-Nielsen in the 1980s. "A computing system made up of some simple, highly interconnected processing elements, which process information by their dynamic state response to external outputs" (Caudill, February 1989). While this description was coined when the evolution of deep learning technology was still in its most primal stage, it still stands as an apt explanation of a neural network's structure and primary function. Artificial Neural Networks, or ANNs, are processing mechanisms that are modeled after the structure of the human brain. As the human brain consists of multiple brain cells or neurons, the ANN is formed of layers of processor units that correspond with each other to transmit and utilize data. Therefore, a neural network is the prime method of creating a deep learning mechanism.

Figure 1.

Retrieved from http://colah.github.io/posts/2014-03-NN-Manifolds-Topology/
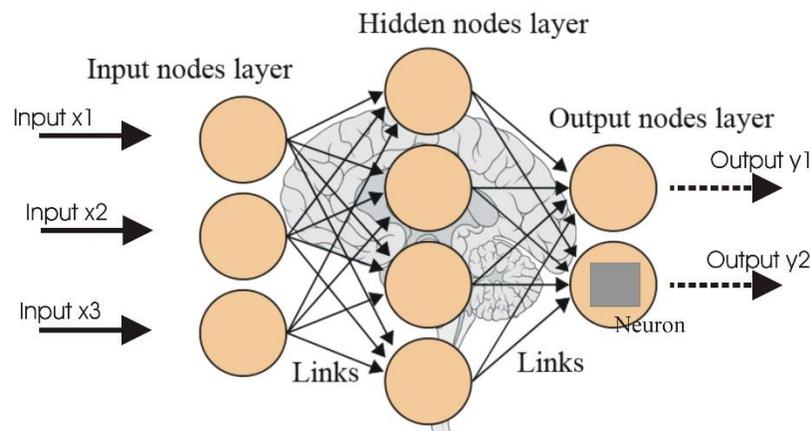
Neural networks are usually composed of layers, which include densely interconnected nodes that serve certain functions. The layers are separated due to their primary duties, usually into groups called the input, the hidden, and the output layer (Figure 1). The input layer communicates to one or more hidden layers, which in charge of the actual processing and evaluation of the inserted data.
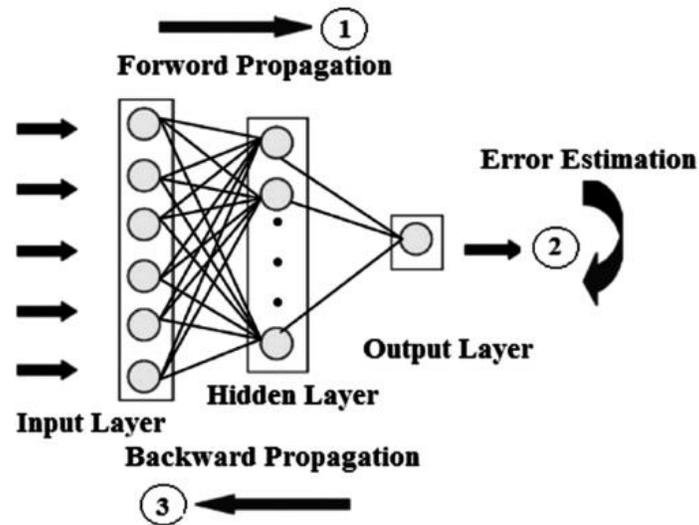
Figure 2.
(Retrieved from https://www.researchgate.net/figure/241741756_fig2_Figure-2-Back-propagation-multilayer-ANN-with-one-hidden-layer)

To enhance their functions, most neural networks own a 'learning rule' that aids in evaluating the value of each data and establishing an abstract concept. Learning rules serve the same function as does the human brain when it gradually develops levels of information and guidelines through experience and stimulation. One of the prime learning rules is the back propagation (Figure 2) or the procedure of adjusting errors in the neural system. When the layers are presented with data, the backpropagation algorithm guesses the outcome. It then changes the connection values of the nodes to further enhance the accuracy of the neural network's calculations.

Unlike the conventional computer, the neural network is not sequential nor utterly deterministic in function. Rather, it concentrates on programming and responding to patterns and determining relationships between variables. Therefore, the neural network is more apt to capture data relationships and solve dynamic problems that are otherwise unsolvable. This towering advantage allows the neural network to indulge in various convoluted issues, and to adapt to various situations and fields.

APPLICATION PROPOSALS FOR ECONOMICS

I.   Effective Fraud Detection

The increasingly common use of the internet leads to more valuable data, both private and corporate, stored and trafficked online. Daily Fintech reports that cybercrime in contemporary times "is estimated to cost the global economy 400 billion dollars" (Krishnakumar, July 2017).

Figure 3.
(Retrieved from https://www.cbinsights.com/research/top-acquirers-ai-startups-ma-timeline/)
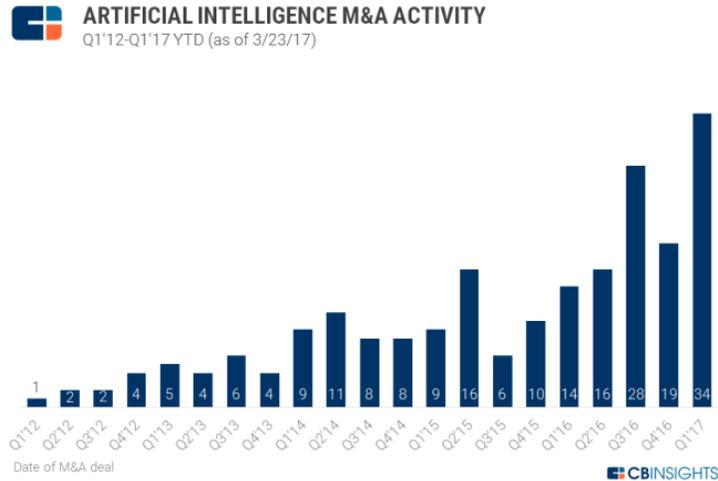
While the orthodox fraud detection systems rely on complex mechanism and rules, they often overlook contemporary threats and risk factors. Utilizing deep learning, systems will be able to more effectively detect abnormal activities and attempts to breach security, utilizing the outstanding capability of realizing patterns and sorting out anomalies. Corporates such as Mastercard have already announced the utility of AI fraud detection programs (Figure 3), and have noted that their uses in the last few years have been greatly beneficial.

IMPLICATION FOR EDUCATION AND TEACHERS
Scientists and researchers have long endured the criticism that artificial intelligence will never be a substitute for a teacher or a tutor. While this statement is currently correct, it is a folly to determine that machine learning will never play a role in economics education in the future.

This paper has addressed the advantages and potential uses of artificial neural networks, especially in fields that require mass classification. It has also illuminated the vast possibilities of adaptation. Educators must realize that through further years of development, artificial intelligence will assume substantial roles in how finance and economics is taught. Therefore, it is notably crucial that the digital systems, policies, and curriculums be innovated to greet the promising future of applied machine learning acting as teachers and tutors in the field of education.

CONCLUSION
While the goal of creating a "complete" artificial intelligence parallel with that of a human being is yet to be achieved, deep learning is still one of the most vastly utilized technology in the 21st century. Despite its few limitations, the deep learning technology has expanded its market in the fields of engineering, economics, and even education.

Accordingly, business schools and corporations alike are starting to include working with machines and intelligent programs in their curriculums; it seems that the future in which humans and computers coexist is indeed nigh. Acknowledging what AI can do to generate more profit and adapting to the change by sharpening the skills to handle better and enhance its possibilities should be viewed as the principal virtue of working with AI in the future. Furthermore, moral values and principles in utilizing the technology will have to be established, for technologies indeed have the power to affect lives, and in cases of economics, money: lots of it.

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THE RISEOF ARTIFICIAL INTELLIGENCE IN DESIGN

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ABSTRACT

The fact that machine learning and artificial intelligence has seldom been applied to the field of design and 3D modeling is not very surprising, for the primary use of deep learning models until recently has been limited to problem solving, recognition, and research. However, recently multiple attempts to synchronize this prestigious technology with the design industry has been made. This paper will primarily discuss the genesis and general application of deep learning technology, with a special focus on the field of graphic design. Furthermore, this paper will address how the increasing role of artificial intelligence in the field of aesthetic and practical design will be able to solve related issues in the future.

INTRODUCTION

According to Data Nami, deep learning is a form of machine learning that can utilize either supervised or unsupervised algorithms. The deep learning model's prototype, dating back to decades before the 21st century, focused on creating an infrastructure of data algorithms that would be able accumulate information independently. Through decades of research, the software and hardware requirements to create such a digital infrastructure were satisfied. The multiple layers of a deep learning network can now allow computers to organize the data into a hierarchy using each previous layer as input to create a more advanced, sophisticated output. Therefore, the technology of making machines learn, think, and even create has been born.

Of the multiple reasons that the deep learning technology and its fruitful cousin -artificial intelligence- has been shunned, the primary one is perhaps what makes the technology so special: its structure and function resembles that of the human brain. As a matter of fact, the artificial neural network is modeled after an actual human brain neuron, Figure 1 below, in order to simulate the processes of the human brain.

Figure 1.
(Retrieved from: https://appliedgo.net/perceptron/)
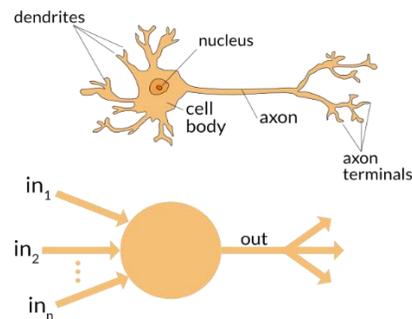
Similar to a human brain, deep learning uses previous data and experience to put out the best solution to a challenge. While the similarity had evoked a hunch of dystopian uneasiness to countless writers and technology conservatives, it has also become the main reason why deep learning applies to almost every field of human life. In fact, deep learning and artificial intelligence are one of the most prestigious spheres of technology in the 21st century: a technological evolution in the era of data. Today, it is hard to locate a business or individual who doesn't benefit from technology that is related to deep reinforcement learning. Image recognition, automatic speech recognition, and AI secretaries in cell phones are only the tip of the iceberg amongst the vast possibility of the deep learning application. Rob Girling from the Artefact Group reports that in 2017, "the New York Times said that Carnegie

Mellon plans to create a research center that focuses on the ethics of artificial intelligence. Harvard Business Review started laying the foundation for what it means for management, and CNBC started analyzing promising AI stocks" (Girling, 2017).

However, even in the vast ocean of possibilities, there are still some spheres that deep learning technology and artificial intelligence are at best, not welcome. Partially, such resistance has to do with the conception -and quite often a misconception- that AI is here to take away jobs from humans: the old fear of foreigners stealing work from the natives, but in this case, the foreigners are digital.

Another major concern is a bit more humanistic. In some fields in which creativity and wisdom are the highest virtue, deep learning and artificial intelligence have long been shunned for its "artificial" nature. Take the fine arts, of which the definition itself includes the term "human." Giants in music and film alike have long assimilated art and music to something that is intimately related to the human soul and emotion. Amiri Baraka had quoted that "Art is whatever makes you proud to be human" and Oscar Wilde "I regard the theatre as the greatest of all art forms, the most immediate way in which a human being can share with another the sense of what it is to be a human being." There is no wonder why it may seem strange, even blasphemous, that AI is on the verge of taking human's mantle as a creator.

Regarding such blasphemy, the art of design cannot escape similar accusations. Design, from its birth, has always been praised as it demanded both creativity and social intelligence that, conceivably, only humans may create and control, not to mention that effective design does not only have aesthetic value but also has considerable influence on human life. On the verge of the rise of design related artificial intelligence, critics are debating whether design industry should welcome or reject the help of the AI. Some critics argue the entry of deep learning technology will "steal" amateur design jobs and eliminate the lower end of the market, while some oppose such "jump to conclusions." Some designers and technology authorities hope that the application of artificial intelligence in the field of design may yield more variable, prosperous outcomes in the area. For instance, AI's adaptations to the field of design in the past few years has resulted in programs and apps such as Prisma and Albert, in which deep learning algorithms play a significant role in enhancing and recreating less presentable photos and drawings (Hudelson, April 2017).

Rob Girling agrees that design jobs are defined by creativity and social intelligence. However, the ability to complete the task of problem framing, problem-solving and negotiation is not a trait limited to human beings. The primary mission to stay competitive, he asserts, is to have "additional knowledge and expertise to contribute in multidisciplinary contexts, perhaps leading to increasingly exotic specializations." Girling believes that the vast usage and of the big data and the fluent implications abled by the modern evolution of deep learning may become the key to AI's active participation in design, without pushing human designers and workers out of their jobs. "(AI driven programs) enables designers to quickly and easily create millions of variations of design…With increased productivity and better tools, it will be easier for amateur designers to create acceptable -if not exceptional- work." With such dramatic increase in efficiency and productivity, designers are granted a significant amount of time to think and creative more professional, polished work. Designers, instead of concentrating on the repetitive design, can now work on illustrating the creative aspect uplifting the ceiling of design to another level.

Girling views AI as a competitive force that will focus on aiding human professionals to help them achieve what they cannot work alone. In concluding his essay, he writes that "I can see the potential for a future where our personal AI assistants, armed with a deep understanding of our influences, heroes, and inspirations, constantly critique our work, suggesting ideas and areas of improvement." Similarly, various prototypes of virtual blueprints and 3D design have risen to the surface. Perhaps the progression of this new technology is yet to galvanize the area of design: and furthermore, every corner of human life.

PROPOSAL

AI in Urban Planning and Architecture.Through extensive data mining, AI learns information of and patterns within societies. With this advantage, artificial intelligence would be able to present architecture and urban renovation plans according to the population's overall hobbies, activities, yearly income, age groups, etc. Such architectural planning may also be available for small groups and individuals, creating tailor-made buildings and homes according to various needs and wants.

Furthermore, AI specialized in aesthetic design has outstanding prestige in urban artistic architecture. For example, the London-based AI Build program created and unveiled the Daedalus Pavilion at the GPU Technology Conference of 2016. Despite that it was planned and created solely by artificial intelligence, this 3D printed piece was deemed stunning by numerous critics and costed significantly less than human-made architecture. Similarly, AI's capabilities to create aesthetic and practical structures will play a significant role in creating urban plans and architecture in the future, with acceptable budgets and design.

THE STUDY

The introduction above has summarized the structure of a broad learning mechanism as "an artificial brain." While such a description would be, in concept, correct, there is much more to discuss when it comes to a more technical description. Deep learning is a form of data learning that is carried out by a neural network, or a system designed to the function of neurons in the human brain. The unusual design of an artificial neural network allows it to process and learn considerable amounts of data and grants it astonishing flexibility in application and adaptation.

Figure 2.
(Retrieved from https://jaygshah22.quora.com/Neural-Networks)
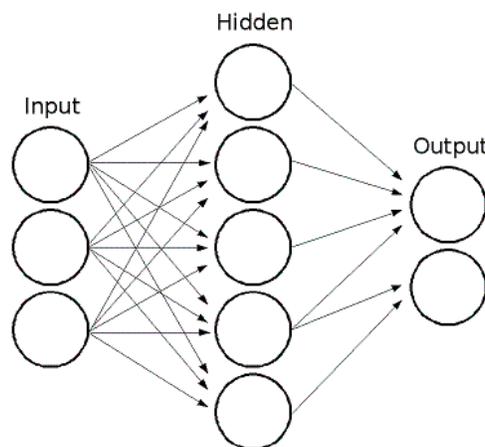
A neural network usually consists of multiple layers, or processors that operate in layers (Figure 2). The first layer receives the raw input of data, and each following tier process the data to calculate and comprehend the value of the information. It may be said that the layers function as nerves and neurons in the human body, for they serve similar functions of receiving and transmitting data. There usually exist three types of layer, each with different functions: the input, the hidden, and the output layer.

Figure 2.
(Retrieved from https://medium.com/the-data-experience/building-a-data-pipeline-from-scratch-32b712cfb1db)
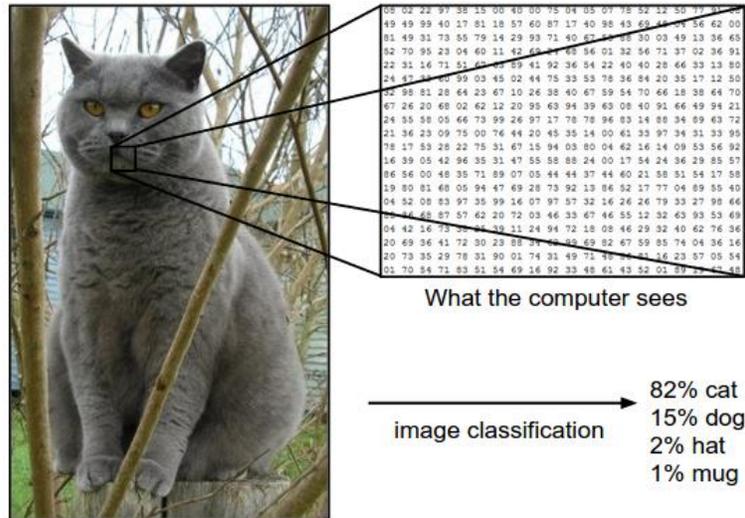
Each processor, or node, consists of independent, abstract knowledge that is either programmed or actively gained on its own. The layers composed of such processors are densely interconnected, which results in the biggest characteristic and advantage of the neural network: its adaptability. As the neural network modifies itself to the continual training and test data it processes, it learns to weight or the importance of each input data. For example, if constant images and such data about a cat's face were inserted into the network's layers, the neural network would soon establish a data set of recurring characteristics such as mustaches, curved mouths, and furry, often round faces (Figure 2). This grants the neural network to define objectives and make determinations, resulting in a powerful, flexible, and even independent artificial intelligence.

Neural networks have been initially designed to able more human-like knowledge and flexibility in machines. This purpose has made it a forerunning technology in creating artificial intelligence. Due to its broad possibility of applications, deep learning in neural networks has, over just a few decades, evolved significantly and now is on the brink of adapting to almost all the main spheres of human life.

IMPLICTAIONS FOR EDUCATION AND TEACHERS
The difficulties of adapting AI to the role of the teacher or the tutor must not conclude the search for possibilities in the field of education. As this paper has illuminated, the possibilities that CNN holds in processing and discovering characteristics and images are magnificent, and will lead to fruitful applications in the future.

It must be noted that the potentials deep learning and artificial intelligence hold, if developed enough, will bring major changes in future design curriculums and classrooms. It is incredibly important for researchers and educators alike to realize such potentials of the machine learning technology and begin to create more refined digital mechanisms, mine new data, and further enhance policies that will allow its fruitful and effective utility in the future (Luckin, et. al 2016).

CONCLUSIONS
Not surprisingly, the recent application of deep learning in the field of arts and design has met considerably more criticism than those in other areas. Such a tumult may result from a zealous rage from seeing computers and robots invade into the sacred ground of aesthetics and intimacy with daily individual life, or from an uncomfortable shattering of the assumption that the profession of design would be safe away from all the technological frenzy.

It is, of course, overtly naïve to consider that artificial intelligence's function in the design industry will end as a secretary, or a think tank full of data and useful information. However, it is equally absurd to announce that machines are now the suppliers of humans' thirst for beauty – better or not, creations by artificial intelligence are

nothing more than rearrangements of those of our own. Rather, most researchers suggest viewing deep learning technology as any other technology: an extension of human labor that focuses on making life easier. Furthermore, as does that of any technology, the prospect of deep learning's use and value lies solely in the hands of its makers.

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THE RISING INFLUENCE OF ARTIFICIAL INTELLIGENCE AND ALGORITHMS IN FOOD SCIENCE

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ABSTRACT

While deep learning models and hence artificial intelligence have progressed throughout past decades via various breakthroughs – the Boltzmann machine and Neural Networking – it may seem that the technology fixates upon programs such as visual and auditory recognition and basic problem-solving. However, thanks to deep learning's wide range of compatibility, the technology is now being vigorously explored by experts in the field of the food industry. This paper will address the development and general structure of the deep learning mechanism, with a particular focus on its applications in food science. Furthermore, it will discuss the current and future role of artificial intelligence in the food industry, and how this prestigious technology may be developed to profoundly change the methods of consumption and well-being in the 21st-century markets and homes.

INTRODUCTION

Scenes in which the protagonists are surrounded by machines that autonomously labor to benefit human life have already become something of a cliché in science fiction movies and novels. From decades back, authors and directors with brilliant foresight have dreamed of a future in which machines with artificial intelligence work, cook, fight, and care for us. These conjuring of imagination, through years of technological evolution, have now become a reality. Prototypes of self-driving automobiles are being utilized in almost every part of the US, while prestigious, intelligent secretaries embarked in cell phones aid everyday human life. The era of information sought the age of artificially intelligent machines: and this technology is here to stay, with the AI market expected to grow to well over $5.05 billion in the year 2020.

The glorious feat of machine learning is greatly attributed to some extremely convoluted -yet simple in purpose- technologies. One of such is deep learning. As the name itself suggests, deep learning is a technology that enables computers to not only learn information, but also learn to store, assimilate, and apply information in the way that it is most beneficially utilized. The deep learning model consists of layers and layers of algorithms, stacked onto each other as neural tissues in the human brain: not a surprising choice of design, for the very purpose of the deep learning technology is enabling machines to think like the human brain. While the elevation of deep learning in the field of modern technology is considerably new, the idea itself isn't. In fact, deep learning model had already been designed and developed in the 20th century: to be more precise, the model was first invented by electrical engineer Kunihiro Fukushima in 1980. However, the idea of stacking data algorithms did not promptly bear fruit, due to limitations in both software and hardware. It took a couple of decades for the functional problems in the deep learning model to be eliminated by the Boltzmann Machine, and another few decades for it to progress enough to be synchronized with other technologies. Although it took quite some time, the evolution of deep learning has indeed succeeded in establishing its empire in the technology market. Now deep learning dominates everyday life, from self-learning online engines to artificial intelligence powered by deep learning involved in almost every field of the human ecosystem one can think of: from bullets to bandages, from the cradle to the grave.

Despite its rapid evolution and its astonishing compatibility, artificial intelligence, it seems, has yet to see a promising future in the food industry. Much of the delay may be attributed to a couple of reasons. First would be the mutual uneasiness of leaving the human activity most substantial for life and well-being in the hands of something not human. While it may seem ironic that people would hesitate to command artificial intelligence to prepare food for them, while endowing upon them the duty of education, manufacturing, and even protection, it is crucial to note that cooking has always been a duty of intimacy: a manual labor of care mostly performed by guardians and close

friends. The other reason would be that the food industry has always been one of the slowest industries to adapt to new technologies. The technology of a food manufacturing institution, let alone that in an individual kitchen, seldom faced changes during the last centuries. This static nature of the food industry was preserved in factories because it got the job done in considerably low costs, and it was preserved in kitchens because most people who cook do not view cooking as a task that serves a single purpose of feeding one's stomach, but a skill that, when polished, may bring unparalleled joy.

Despite the reasonable skepticism toward establishing a healthy, functional synchronization between artificial intelligence and the food industry, the progression of artificial intelligence technology that allows machines to improve the production line and accurately analyze and cater to individual needs are rising as the key improvements that will pioneer the future sphere of the food industry. Such progression in the food market is anticipated to bring substantial change in both factories and sorting lines. For instance, TOMRA, an AI-based food sorting machine that aims to reduce the amount of waste in food sorting. TOMRA uses data of the minimum standard of quality of potatoes, and successfully sorts potatoes into those set for French Fries' production, or those better qualified to crisp or potato wedge products. This new form of sorting allows the utility of almost every crop without discarding the smaller ones. Another intelligent device called the Momentum Machine, can 400 burgers an hour through a 24-square foot machine-powered assembly line. Both mechanisms allow a convention of human labor, while efficiently limiting costs and wastes at the same time. Pieter Willems, technical director at TOMRA Sorting Food, says that "It is about capturing the essence of this consumer thinking and putting that intelligence into a machine…The ability to control a natural variable and apply a degree of intelligence to the process would be hugely powerful tools to the food industry in general" (TOMRA Sorting Solutions, 2015).

The utility of artificial intelligence continues to the markets and the homes. Amazon's unmanned store without lines or checkout counters is already in use in various cities in the US. Customers are tracked with sensors while they shop, and their purchases are automatically sent through the database and charged to the shoppers through their Amazon account. Hello Egg, an AI-powered "home-cooking sidekick" (Cherian, 2017), lets the experience continue in an individual kitchen. This egg-shaped can "plan weekly meals according to dietary preferences, demonstrate cooking tutorials on its convex video screen, supervise the pantry, organize shopping lists, and arrange grocery delivery." (Chowdhury, 2017)The deep learning model that allows computers to simultaneously learn its users' preferences and provide personalized products and advice is becoming the gadget of a breakthrough for technologies that savor the joy of consuming or cooking food while making the experience unique and considerably convenient for customers and manufacturers alike. Researchers anticipate the usage of artificial intelligence to grow significantly in the next couple of decades of progression: perhaps the future in which humans trustfully endow their food-related chores to intelligent machines is slowly but certainly arriving.

PROPOSAL

This paper proposes one-way artificial intelligence can be applied – image classification. An example of this is a computer algorithm that can categorize beef products according to their qualities. To do so, we utilize the mechanism of CNN, or Convolutional Neural Network. The following is an example of how the model works.
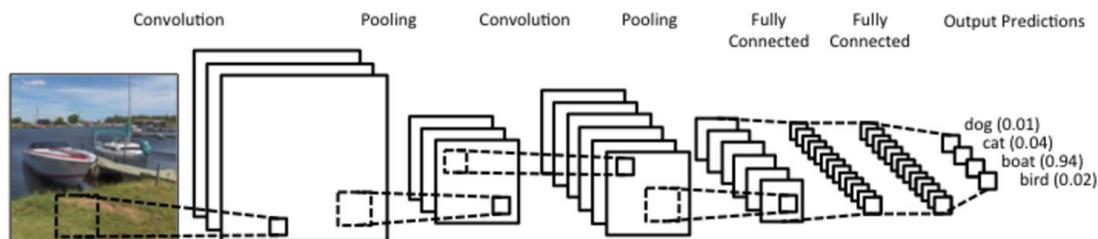
Figure 1

As shown in the Figure 1, the network consists of four main steps (i.e. convolution, pooling, full connection, and output prediction). How each of these steps works will be explained in the next part.

TECHNOLOGY
What is CNN?
CNN, or formally known as Convolutional Neural Network, is a class of artificial neural networks that is used for analyzing visual imagery. A CNN consists of an input and an output layer, along with multiple hidden layers between them, as seen in Figure 2. (Krizhevsky, A. et. al. 2012)
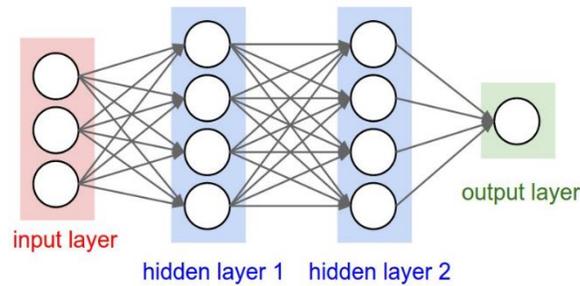
Figure 2.

How a CNN operates
I. Image Conversion
All images that are shown to CNN are converted into pixels. Each pixel takes numerical value between 0 and 255, and each of these indicates the intensity of the color as seen in Figure 3 below.
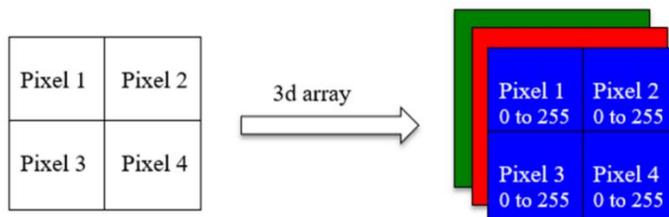
Figure 3.

Above is an illustration of how image is converted into digital form. Unlike black/white images (which take 2d arrays), colored ones take 3d arrays (i.e. red, green, and blue layer). (Krizhevsky, A. et. al. 2012)

II. Convolution
Simply put, convolution can be understood as the mixing of information. Its purpose is to simplify input images by sorting out particular features.
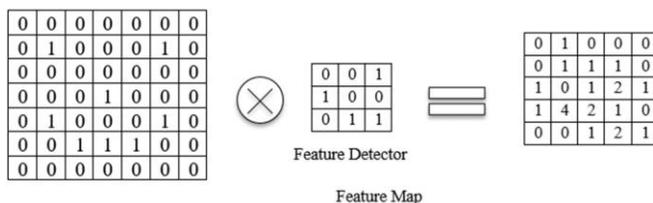
Figure 4.

We start by taking the feature detector and comparing it with the top left corner of the input image. The calculation is done by multiplying each pixel value in the detector with respect to the values in the grid of same size in the input image and adding up all the products. These product values make up what is called a feature map, and each of these maps make up a convolutional layer. After that we apply what is called a rectifier function in order to form a ReLU layer. (Krizhevsky, A. et. al. 2012)

III. Pooling & Flattening

Pooling is similar to convolution in that its purpose is to reduce the spatial size of the representation and computational complexity of the network. The most frequent method of this process is called max pooling, as seen in Figure 5.
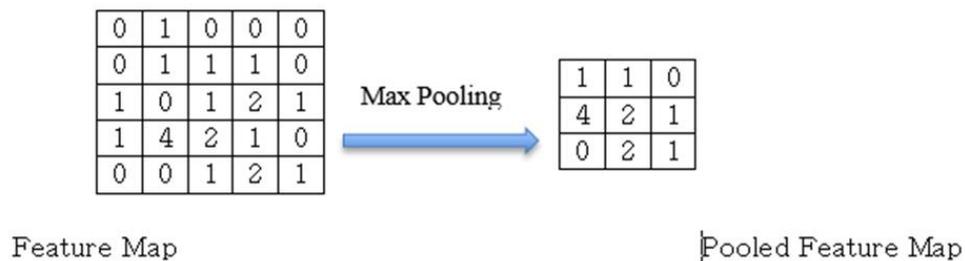
Figure 5.

This is done by taking the maximum value in each grid from the feature map (test grid size doesn't matter; in this case a 2*2 sized test grid was used). (Krizhevsky, A. et. al. 2012)

All pooled feature maps go through the flattening process (Figure 6) where the numbers are taken row by row and put into a single long column. When all pooled feature maps are flattened we finally form an input layer of the convolutional neural network. (Krizhevsky, A. et. al. 2012)
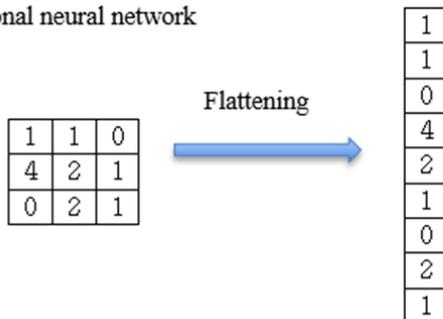
Figure 6.

IV. Full Connection
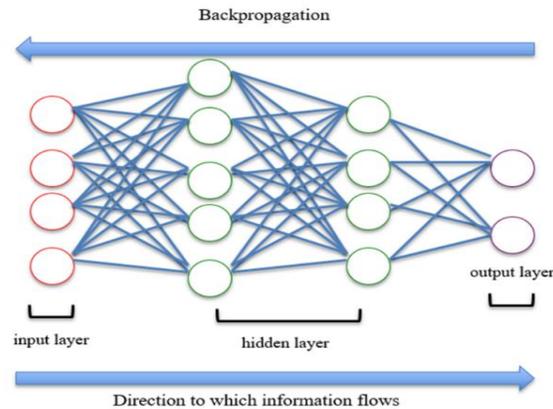
Figure 7

After the input layer is formed, all the layers are compiled to create a single fully connected network. As the information flows from left to right during the training process, it goes through the hidden layers and at last the neural network comes up with a prediction. Each time a prediction is made an error is calculated and the program adjusts its weights (simply put, a weight indicates the strength of synaptic connection between two neurons) according to the error. This re-adjusting process is called backpropagation. The neural network continues this cycle until it is fully trained. (Goodfellow, et.al. 2016.)

TECHNOLOGY

Structuring and exercising are two primary steps in cultivating a successful deep learning model. To further fathom the importance of these steps, one must know how exactly the mechanism of deep learning is structured. The neural network, or the structure of the deep learning model, is consisted of the input, the hidden, and the output layer. These three portions determine the successfulness of the due calculation by utilizing a node, or a connection point for data transmission and communication. (Goodfellow, et.al. 2016.)

The input layer's function is to sort the values of inserted data. While doing so, it traffics the information to the adequate nodes in the hidden layer, thus maintaining the equilibrium in the data circuit. The various nodes in the hidden layer receive and work out the data passed on from the input layer utilizing Forward Propagation. During this stage, the network compares the data with the real value to detect any errors. The output layer then concludes the traffic, determining the value of the information processed from the previous layers. (Goodfellow, et.al. 2016.)

To accommodate the needs of the programmer, some elements within a neural network are often revised. For instance, a change in the hidden layer's nodes may be made, to differentiate the activation function, or the input proceeding mechanism. The number of hidden layers may also be altered, for in the case of algorithmic programming, the more is not always the best. (Goodfellow, et.al. 2016.)

The exercising, or training, of a neural network, swiftly follows its structuring procedure. A neural network differs from the conventional computer in a way that it may continually evolve and accustom itself to any data, instead of utilizing static codes that serve singular, unchanging functions. This process includes accumulating the necessary elements that could affect the output, allowing the network to wield effective, comprehensive knowledge of all causes and effects. (Goodfellow, et.al. 2016.)

After a satisfactory accumulation of statistics, the data is divided into test sets and training sets. Of these two portions, the training set is first entered in the deep learning model to establish a predicted result, which is then contrasted with the definite standards. While the data is being processed, the Back-Propagation method is used to

calculate the error distribution in the output. After each training sets, or epochs, are completely dealt with by the layers, final examination via the test sets ascertains that the network is complete and reliable.

This paper suggests four main ways in which artificial intelligence can be applied in food industries and furthermore in the field of food science. (Goodfellow, et.al. 2016.)

I. Pattern Recognition

An example of this is the application named Pic2Recipe developed by researchers from MIT's Computer Science and Artificial Intelligence Laboratory (CSAIL). When an image of a food is shown, the application correctly identifies recipes for that particular food 65 percent of the time. This app shows the potential for AI to be used to identify patterns in food production.

The program might not be useful for now due to its relatively low accuracy. But things may be improved in the future, as the system behind the Pic2Recipe app gets more data training. In the future with enough data, the app should reach almost perfect accuracy.

II. Classification

Nowhere is the potential for AI more useful than the potential of AI for classification. Using CNN, we can teach AI programs to:

Firstly, classify beefs into different types, for instance, chuck, rib or loin.

Secondly, classify beefs into different grades, for instance, Prime, Choice, or Select

Lastly, within a grade, such as "Choice," we can further grade the beef to, say, top 10% or top 25%.

The author of this paper is working on developing a program that will be able to do this. If successful, the advantages are:

1. Savings in cost - there will be no requirement to train human classifiers, no need for years of training.

2. Time saving.

3. No human bias, no health insurance, no pensions, or no time off; in other words, there will be no human limitations.

4. Easily available to anyone.

5. Consumers can check on their own if the local butcher is really accurately representing the grades of beef.

III. Process Modeling

A third application of Ai in food sciences is process modeling. The optimization of food processing operations may not be an easy task due to complexities and variations in the raw materials.

Algorithms have proved to be an important tool for difficult search and optimization problems and have received increased interest during the last decade due to the easy way of handling multiple objective problems. Enitan, A.M. and Adeyemo, J. 2011)

Optimization techniques that have been applied to solving complex problems include: linear programming (LP), nonlinear programming (NLP), dynamic programming (DP), stochastic dynamic programming (SPD), genetic algorithm (GA), differential evolution (DE), shuffled complex evolution (SCE), fuzzy logic (FL), simulated annealing (SA), ant colony optimization (ACO), particle swarm optimization (PSO), and artificial neural networks (ANNs). (Enitan, A.M. and Adeyemo, J. 2011)

The process-modeling problem consists of finding a sequence of actions that leads to the desired goal from an initial state. By formulating a process model as a planning problem, we can answer questions such as:

Is the food manufacturing process guaranteed to deliver the required outcome?

Are there other ways of arriving at the same outcome?

Does the manufacturing process contain redundant steps?

IV. Quality Control

A fourth application of AI in food science is quality control.

A factory is churning out, say, pizzas, when a sensor spots a defect. That data is fed to a computer in the cloud, which immediately pulls the defective pizza from the line and orders a replacement. That's real-time problem solving that can save manufacturers billions in lost resources. (Business Insider, 2017)

CONCLUSION

This paper therefore concludes that

I. Artificial intelligence will be with us and this is just the beginning of AI in food-related areas.

II. Soon, AI will take roles in all the levels of food production.

III. Practitioners in food industries and food science, whether they be in education, inspection, or production, must become familiar with this new technology and begin to incorporate the advantages of AI into their practices.

After decades of evolution since its genesis, the deep learning technology has stretched its influence upon not only the urban life but also upon the domestic, making it no longer an exaggeration to state that artificial intelligence will soon take over all steps from the fields to the tables. The flexible but precise nature of deep learning allows machines to produce data-based outcomes that satisfy the wants and needs of every individual.

Although artificial intelligence and data-based technologies have yielded successful devices in food sorting and the kitchen, their complete applications in food science yet face concerns, for the outcomes would relate directly to the well-being and thus the life of its clients. The relatively slow pace the food industry has on accepting new technology also plays a role in the skepticism. Of course, is inadequate to argue that digital technologies will take over the kitchen and food circulation in the future; however, it is true that they have been devised to better individuals in carrying out such labor. Through recognizing the advantages that deep learning provides in the food industry, will its users in the future be able to explore its actual possibilities and applications.

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THE ROLE OF DATA MINING AND MACHINE LEARNING IN BIOTECHNOLOGY

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ABSTRACT
The advance of deep learning technology has made many things possible. Despite its relatively short history, deep learning is now getting involved in almost all spheres of the modern society. Of course, the most substantial reason for this ubiquitous adaptation is the structure of deep learning models itself, but the amount of data that is reaped via contemporary data mining must also be credited. Recently, artificial intelligence powered by substantial data mining has begun to take part in the field of biotechnology and medicine. This paper will discuss the advance and issues of using deep learning to solve problems and create change in biotechnology, with particular attention to artificial neural networks and data mining. Furthermore, this article will address the advantages and limitations of utilizing deep learning in medicinal practices and therefore, saving and improving human lives.

INTRODUCTION
The evolution of humanity's technology had consistently widened mankind's sphere of influence upon its own life and the world around it. As James Brown sang in one of his renowned masterpieces, "Man made the cars to take us over the road / Man made the trains to carry the heavy load / Man made the electro lights to take us out of the dark / Man made the boat for water like Noah made the ark." Through centuries of development and several industrial and technological revolutions, humanity had, if one may say so, has gotten closer and closer to something godly: a nearly omniscient breed that could achieve almost everything within its boundary of imagination. However, humankind has stayed, alas, mortal. The race that has obtained control over nearly everything is still powerless against a strike of misfortune towards its health. While the shackle of mortality will always bind humankind -as it should- the modern technological revolution represented by data mining and machine learning has succeeded in establishing a biotechnological breakthrough that will keep a man, at least, from dying an untimely death.

Deeper research into the technology of deep learning presents the inquirer with an exciting tingle of discovering a vast ocean of possibilities. Machine learning enabled by the contemporary era of infinite information is entirely different from any technology that had come before simply because it's an attempt to make something human-like: not in flesh and bones, but of intelligence. The very conception of the deep learning was rooted in making a machine think like a human being. The very structure of the deep learning model imitates that of the human brain: a pool of representational data, in the form of structured algorithms and self-sustaining codes, piled on top of each other like brain tissues to achieve a single goal: to think, decide, and learn like a human brain. As seen in Figure 1 below, the artificial neural network is modeled after an actual human brain neuron.
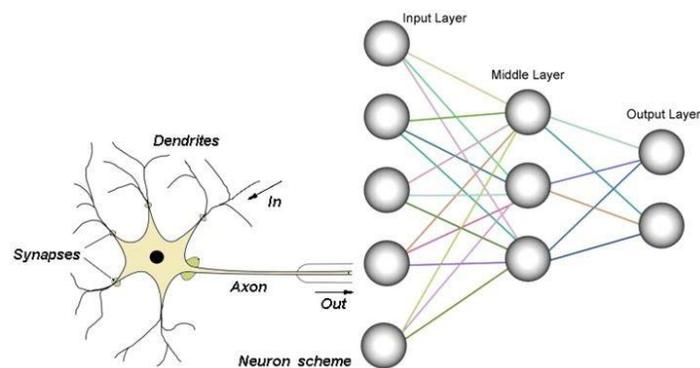
Figure 1.
(Retrieved from: https://sites.google.com/site/mrstevensonstechclassroom/hl-topics-only/4a-robotics-ai/neural-

networks-computational-intelligence)

While the idea of such a technology seems considerably new, it had existed for several decades, since when the celebrated electronic engineer Kunihiko Fukushima introduced neurocognition – a multilayered computational architecture that can define patterns through learning – in 1980. Although Fukushima's invention had staggered due to difficulty in both software and hardware, the turn of the century signaled its resurrection when the AI pioneer Geoffrey Hinton utilized the Boltzmann Machine, or RBM, to reorganize deep learning's neural networks. Since it walked out of the Lazarus Pit of dead technologies, deep learning has been sufficiently rewarded for the past decades of neglection. Of the 10 Breakthrough Technologies of 2017 (MIT Technology Review, 2017) nominated by the MIT Technology Review, four are technologies directly related to machine learning and the utility of the big data. The ability of deep learning models to learn has allowed the technology to influence almost every field in life.

Despite its compatibility, deep learning has seldom collaborated with the world of biotechnology. Perhaps the biggest reason for the phenomena was because most people when they were given a choice, would rather entrust their health to another individual, rather than to a machine. Another reason for the neglection was that data alone could not exert practical influence upon the patient. However, the accumulation of information in the field of health and medicine had become more animated than ever through the help of systematic data mining, and its synchronization with the introductions of increasingly concise hardware is beginning to create a platform for machine learning and biotech. Researchers at Google succeeded in training artificial intelligence to detect the spread of cancer or other prevalent diseases, such as tuberculosis, through X-rays with an astonishing rate of accuracy. Prototypes of microchips and nano machines that detect hostile fluids or anomaly within the bodily system are rapidly developing under a shower of patronization from tech giants and ambitious corporates. While diagnosis and the treatment of evident diseases are also in the limelight, one of the most prestigious amalgams of deep learning and biotechnology is the technology to monitor one's health and predict a problem. Enabled by large genetic data, information about the patient's lifestyle, and an ocean of precedent cases, such "sensor" technology would be able to create personalized treatment plans and diagnosis for everyone. Dr. Eric Topol, director of the Scripps Translational Science Institute, asserts that "the potential is perhaps the biggest in any type of technology we've ever had in the field of medicine…computing capability can transcend what a human being could ever do in their lifetime" (Tirrell, May 2017).

Of course, the deep learning model in artificial intelligence is not perfectly functional as a human being: the lack of ability to read unstructured information or to identify the cause of the answer over the answer itself, is still a technical difficulty that must be overcome. Also, the fact that most medical data is stored in servers of individual clinics or hospitals rather than revealed to the public is another problem in data mining that becomes the substantial base of machine learning. Moreover, the ethical concern of how far computers are to set foot on a doctor's turf continually arises. While the recent evolution of technology has indeed succeeded in creating valuable secretaries, it still seems that humanity is not wholly ready to leave their well-being entirely upon a computer's hands.

BIOTECHNOLOGY APPLICATIONS

I.　Technology of Discovering Infected Cells among Normal Cells.

Singularity Hub reports that machine learning has invaded the field of biotechnology with tremendous success and is currently capable of being utilized in running professional tests (Bethencourt, March 2017). What researchers are most hopefully anticipating is an AI technology that operates in cellular measurements.

Deep learning technology's capacity of differentiating factors based on learned databases will prove to be especially beneficial in brisk but concise diagnosis of abnormal cells or enzymes, especially of conditions and deceases that may be fatal. Such diagnosis and cure methods may be conducted through methods of body scanning including X-rays, or even by nanotechnology (Figure 1) sufficed with machine learning. More establishment of deep learning in the field of biotechnology may yield the technology of discovering and curing the human body in a scale that was once deemed impossible.

II. Implementations in Bioinformatics.

Figure 2.

(Retrieved from: http://www.divyahimachal.com/2011/09/expanding-opportunities-in-bioinformatics/)
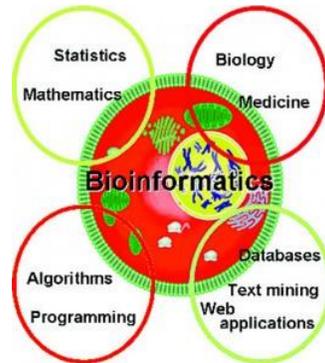
Bioinfomatics is the blending of mathematics, biology, computer programing and data to create actionable information in prediction models and application models, as seen in figure 2 above.

It is plausible that in the future that the evolution of data mining technologies will result in broader, more detailed databases, even of comparably covert medical information. Deep learning may be a key technology that recognize medical patterns and healthcare situations in different regions and communities, thus diagnosing factors such as the spread of epidemics, and distribution of healthcare programs. Such applications will prove to be especially fruitful if utilized by organizations that act as benefactors, such as the UNISEF, or governments to research the enforcement and effectiveness of health cares.

DEEP LEARNING MODELS
As mentioned, the artificial intelligence technology primarily focuses on creating a computer model that, in structure and function, parallels the human brain. The brain is an amalgam of intertwined, communicating neurons. Like so, the basic building blocks of the deep learning system are the nodes, or processors that recognize, traffic, and evaluate the value of stimuli; or in this case, the input data.

Figure 1.(Retrieved from http://www.kdnuggets.com/2017/08/deep-learning-neural-networks-primer-basic-concepts-beginners.html)
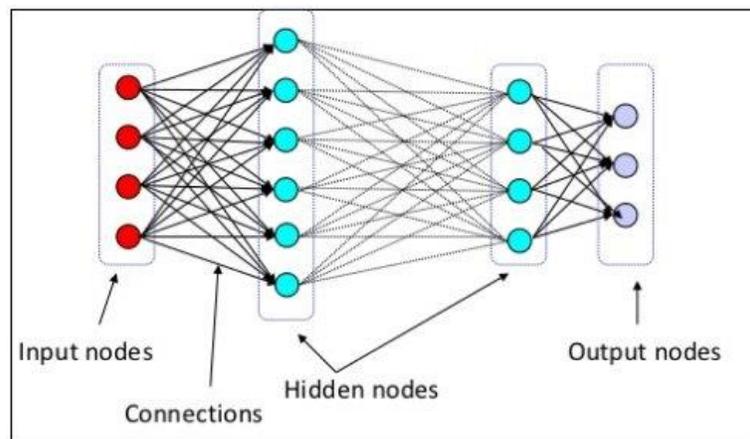
Nodes in a deep learning model are usually divided functionally into three different types of layers: the input, the hidden, and the output layers. (Figure 1) These tissues' functions are mostly loyal to their names. The input layer accepts the incoming data and encodes it while weighing the fundamental value of the information. The one or more hidden layer genuinely determines the data's value and establishes/reinforces theoretical insight toward data. One of the most primary functions of the hidden layer is to produce procedures called back propagation, through which the network calculates the value of the input information and then adjusts the weights in the program according to the actual calculated outcome. Finally, the output layer computes the errors and finalizes the steps.

Of course, a neural network undergoing deep learning must experience multiple pieces of training and tests to become complete. During these difficult procedures, the existence of a vast, reliable database is doubtlessly necessary. Accordingly, a deep learning process usually requires a team of researchers, who train the network by data harvested by data mining. Data mining is, simply put, a process of discovering demographic patterns -that would most likely be impossible through manual procedures- in huge volumes of data. Patterns are harvested through a broad range of techniques, usually divided the kind of information. Some of the most well-known techniques are predictive modeling and descriptive modeling, in which the data is tested by an existing training data or clustered in groups. Data mining is an evolving technology that used in almost every sphere of life, including not only computer science but also politics, education, and media entertainment. In the modern world where information is the prime value in life, data mining is often deemed as the criterion of power.

IMPLICATION FOR EDUCATION AND TEACHERS
While it is true that AI in its current stage of evolution is not yet adequate to serve the role of a tutor, this fact does not mean that artificial intelligence will never be able to take the mantle of a teacher in the future. The current difficulties in machine learning must not hinder researchers from further enhancing the future role of adaptive technology such as adaptive learning software and learning management systems in the future classrooms and curriculums. It is crucial that we recall the difference artificial intelligence will make in how and what we learn, and start to devise new methods of implementing this technology and further enhancing our policies and knowledge of it.

ROLE OF TEACHERS
As the role of AI systems increases in education, teachers will need to develop new skills
According to the creators of the AIEd system (Luckin, R.et.al. 2016) teachers will specifically need:
1. the capability to utilize AI products along with their curriculum;
2. an ability to develop research skills regarding AI and be able to interpret data
3. an ability to utilize AI data and incorporate them into the curriculum
4. an ability to manage AI resources effectively. (Luckin, R.et.al. 2016)

CONCLUSIONS
As astonishing as the deep learning mechanism is, a complete artificial intelligence may never be created without a substantial database of harnessed information. It is not an overstatement to assert that artificial intelligence's wide variety of uses and compatibility should be primarily credited to the recent evolution of the data mining technology.

However, creating a successful, updated database is especially challenging when it comes to harvesting data relating to biotechnology, due to reasons such as the exceedingly animated nature of the biotechnological field and limited medical data revealed to the public. However, this difficulty may have met a breakthrough point recently, as corporates and some major medical alliances are showing a willingness to participate in establishing a common ground of data and research for the development of biotechnology. Without a doubt, it is viewed by scientists and researchers that such projects will primarily revolve around deep learning and artificial intelligence.

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THE ROLE OF DATA MINING AND MACHINE LEARNING IN INTERNATIONAL RELATIONS

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ABSTRACT

Amongst various fields that data mining technology has been applied to, the sphere of international relations is perhaps the one amongst most controversy. Mainly, the issue of data mining and data-reinforced artificial intelligence technology in global power distribution has been addressed multiple times in recent years, from the US assassination of foreign enemies to Edward Snowden's reveal of national surveillance in the United States. This paper discusses the mechanics and influence of data mining, with a special focus on the increasing influence it has on the international distribution of power. Furthermore, this article will show major concerns towards issues that may be proven legitimate via the contemporary progression of digital data related technologies.

INTRODUCTION

On May 2, 2011, a team of United States Navy SEALs attacked a compound in Abbottabad, Pakistan. This famous military action, code-named Operation Neptune Spear, led by the CIA and monitored directly by former president Barrack Obama, was aimed to capture and eradicate one of the most notorious "enemy of the state" Osama Bin Laden. An autonomous Sentinel drone narrated the operation, as officials, including Obama, nervously monitored the raid. Due to the painstakingly discrete nature of the process, no major firefight took place. A few hours after the SEALs entered the compound residents, Bin Laden was killed in action, and the decade of searching for one of the most nefarious terrorists in the US history came to an end with the confirmation of Bin Laden's death.

While the operation itself took only a few hours, it is crucial to note that the data gathering and monitoring process that took place through months beforehand was just as arduous and in high stakes. The search for America's most wanted began with a piece of unearthed information leaked in 2002, after which followed a decade of data gathering. Germany's Federal Intelligence Service -BND- and the United States' CIA collaborated to locate the exact whereabouts of Bin Laden, continuously sharing valid information. Months of wiretapping, data mining, and analyzing movements within the compound area after information was narrowed down specifically. Although the compound itself had no Internet or a landline telephone service, the role of acquiring digital data still played a crucial role in establishing a firm base of reliable information required for a military inrush. Therefore, it is legitimate to state that the operation that eliminated one of the middle east's most influential terrorist was substantialized by persistent and painstaking data mining.

When the assassination of Bin Laden and Operation Neptune's Spear went viral, so did the ability of United States government and intelligence services to utilize international data mining and surveillance to get whatever information that they required. However, as obvious as this fact was, it was not nationally and critically brought up until Edward Snowden, former US intelligence contractor, disclosed to the public the "secret, massive and indiscriminate" (Bowcott, December 2014) surveillance conducted by the government in the name of fight against national and international threats. Snowden revealed to the world the existence of PRISM, a program which the United States National Security Agency may utilize to collect internet communications and concurrent information from at least nine major US internet corporations. His disclosures also revealed several global surveillance programs that included the participation of telecommunication companies and European governments. While the American public knew vaguely already what the US government was capable of when it came to the acquisition of data, the fact that the government was utilizing its ability to accumulate information of its citizens came as a sensational shock nonetheless. Snowden's disclosure also disturbed citizens and governments of several other nations, for it was evident that the United States' net of data had no boundaries. In his report on the matter, Nils Muiznieks, commissioner for human rights at the Council of Europe, wrote: "It is becoming increasingly clear that secret, massive and indiscriminate surveillance programs are not in conformity with European human rights law and cannot be justified by the fight against terrorism or other important threats to national security. Such interferences can only be accepted if they are strictly necessary and proportionate to a legitimate aim". He also added that "surveillance has gone beyond the bounds of the rule of law and democratic oversight needs to be more robust."

Data mining is the practice of statistical harvesting patterns from such enormous databases while focusing on the extractions of models that may prove to be beneficial. The current progression of the internet had brought life upon the era of information via digital communication. The animation of data worldwide resembles communicative hormones between ants and the dances of bees that signal the whereabouts of honey. Especially on platforms such as major search sites and SNS pages -it was on Twitter where Snowden publicized his exposures-, unlimited data regardless of almost any boundary circulates the database every second of every minute. For nearly every action upon the internet is a deliberate and traceable emitting of data, it would be correct to conclude that who owns the big data and has the technology to "mine" necessary pieces in this vast ocean of information would own the upper hand on almost every corner of life: and as the cases of two "America's most wanted" -for Snowden must be just as much as a terrorist and a wanted man to the US government as Bin Laden had been- has proved, upper hand on international matters as well.

Data mining and its applied form -machine learning in artificial intelligence, since its utility in the modern times, have had considerable influence on politics and international relations. The 2012 election campaign of former US president Barrack Obama utilized data mining to analyze voter behavior, and companies such as Google and Amazon employ predictive analytics via intelligent computers to establish a personal profile of every user worldwide that allow them to predict and recommend required products. Researchers in Spain developed a model using data records to create maps that monitor and predict the distribution of wealth in Europe with high accuracy. Effective data mining and machine learning have now indeed become a power in the modern world. This present "black magic" grants its users with a wholly new dimension of power truly without limit. As the examples discussed reveal, contemporary wielders of this technology easily own an upper hand in politics and society, international issues, from developing databases of global trends and individuals to developing an arsenal of intelligent machines - US military has already succeeded in developing drones that is empowered by a deep-learned face recognition software able to detect specific individuals even in crowds. Andrej Zwitter from the Carnegie Council on Ethics and International Affairs asserts that big data "changes power distributions and thereby some basic assumptions of international relations theory, and its analytics will increasingly inform international relations and policymaking. It has created both new opportunities and threats in areas such as humanitarian aid, development, and international peace and security" (Zwitter, December 2015).

The technology of data mining had benefited the digital human life and powerfully influenced international issues in the last couple of decades. However, like any technology, it is a double-edged sword. Even with only the humblest understanding of the human nature, it would be deception to assert that such power would only fall in the right hands, for even without referring to works of George Orwell and Kurt Vonnegut, we have learned through the history of nations -and the history of technology- that absolute power corrupts absolutely.

APPLICATION FOR INTERNATIONAL RELATIONS

The seas and the air belong to no nation, yet belongs to every nation. Sure, there are boundaries on the world map that determine naval and national precincts. However, since the movements of waters and air abide by the rules of nature and not international laws, it could be said that they belong to and depend upon the good judgement of all humankind. Sadly, this responsibility has not been taken in the last decades, for researchers announce that international pollution and rates of global warming have skyrocketed during the last century (Figure 1 and Figure 2).

Figure 1.
(Retrieved from https://www.eea.europa.eu/soer-2015/global/pollution)
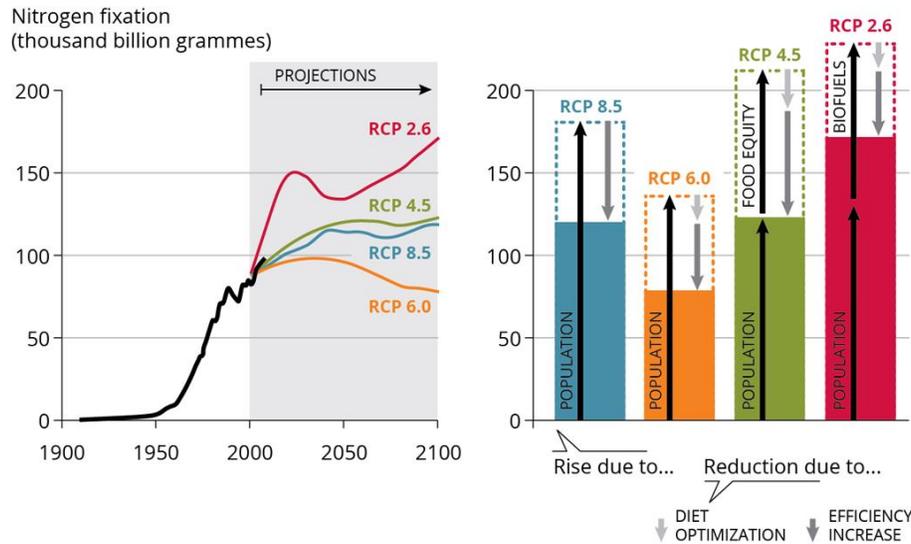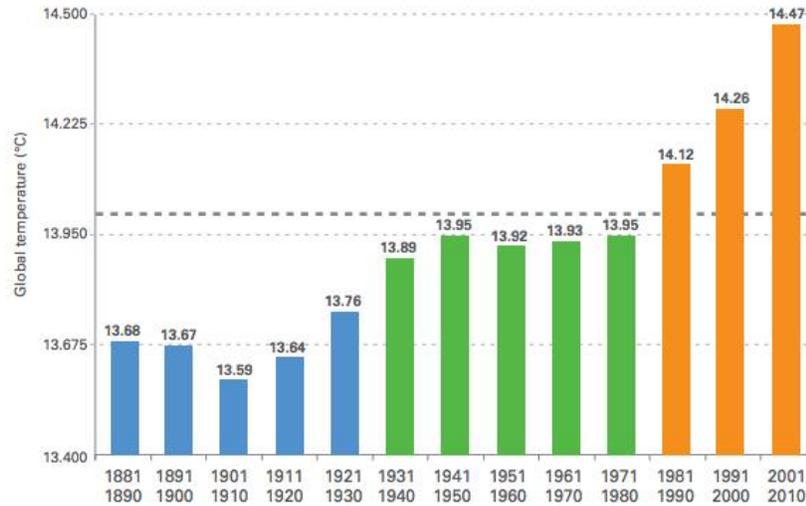
Figure 2.
(Retrieved from https://www.washingtonpost.com/news/wonk/wp/2013/07/09/you-cant-deny-global-warming-after-seeing-this-graph/?utm_term=.a25da7af9c37)

One of the outstanding reasons for this phenomenon is the lack of international monitoring over which nation must take more responsibility than others in emitting energy wastes and polluting. Data mining technology's ability to detect water and air movement patterns along with the regional rate of pollution will allow to discover which nations must take especial cautions in utilizing the gifts of nature. Consequently, it can be hoped that this application will lead to more participation in maintaining global property and furthermore environmental health.

THE STUDY
Data mining is a process of turning raw data into beneficial information. Usually a procedure of discovering patterns in large databases, data mining holds unparalleled influence in the contemporary society, in which almost everything is relatable to data.

Figure 3.
(Retrieved from http://www.zentut.com/data-mining/what-is-data-mining/)
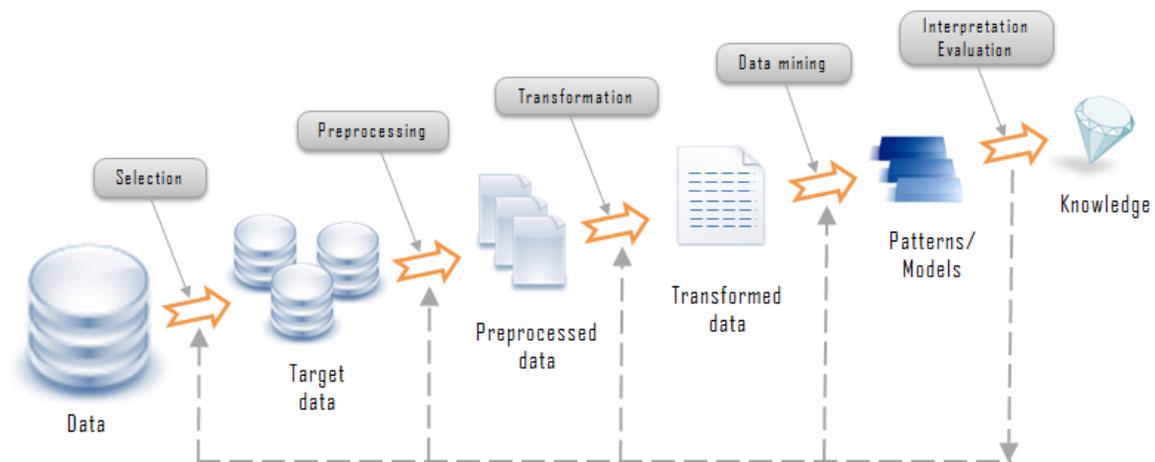
Data mining process can be broken down into several major steps. First, data is collected by organizations and encoded into data warehouses, or private databases. Then, researchers store and organize data according to use. The stored data is sorted and searched for correlations and patterns, usually by an application software. Deep learned artificial intelligence might play a significant role in this procedure, due to its outstanding ability to recognize patterns and sort input information. Finally, the end user presents the mined data and trends in a convenient format, usually a graph or a table (Figure 3).

The power of data mining technology parallels the availability of data in the community, for data is drawn from different platforms including cell phones, surveys, social media, internet searches, and so on. The contemporary boom of information on the web abled the research and collection of almost infinite amounts of data and resulted in the birth of fin-tech -an amalgam of finance and technologies- companies that innovate and enhance traditional products and services to gain profit. A recent discovery has shown that data mining technology is one of the most influential technologies in the modern world, and is even employed in fields such as politics, education, biotechnology, and international relationships.

IMPLICATION FOR EDUCATION AND TEACHERS
While the evolution and application of AI in multiple fields have been notable in the past decades, there still exists major criticism upon its future role as a teacher or a tutor. While it is true that artificial intelligence and data mining is yet to endure technical and moral lashes, it is an absolute folly to deem these technologies unfit for roles in the classrooms.

This paper had addressed the structure and possibilities of data mining and machine learning. Also, by providing examples of their applications, it had addressed that through beliefs and time, technologies have changed not only the way we work but also the way we learn and live. Educators must note that further evolution of these technologies in the future will indeed make significant changes, and prepare by devising new curriculums, recreating policies, and implementing innovative digital systems.

CONCLUSIONS
Snowden's disclosure of the capability of US surveillance made the public recognize what has been overlooked by Operation Neptune Spear: that the technologies that exerted power overseas may be, and are, used upon populations in the nation. Particularly in countries with higher technological power, such capacities are indeed incredible. Undoubtedly, the technologies relating to data is of unparalleled influence in the global society. As the broad applications and impact of deep learning are recognized, international voices towards regulating big data constantly rise. However, for the degree of data mining utility in the international community is, by nature, often vague and unable to censor, researchers, agree that such voices will only get louder in the future.

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THE ROLE OF DATA MINING IN POLITICAL SCIENCE AND INTERNATIONAL RELATIONS

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ABSTRACT

The controversial question of the use of data mining in the election process has been widely debated in the political science arena, with Micro-targeting emerging in 2004, Big Data taking more influence in the 2008 United States presidential election, and data-driven campaigning becoming the norm in 2012. Gaining the upper hand on mass quantity and quality of information is the key to political power in the 21st century. This paper addresses the definition of data mining and its use to influence the electorate population. Furthermore, this article will focus on the incredible prestige data mining technology holds for politicians in the future, and resulting concerns. Specifically, in my project, this paper be looking at the use of artificial intelligence and machine learning to drive the next generation elections. This paper discusses the future role of artificial intelligence in teaching political science and International Relations, and juxtapose them against traditional methods of political science and International Relations, in order to reveal the increasing role that A.I. will play in the 21st century classroom. I argue that, indeed, artificial intelligence will be able to increasingly affect future elections and that this development will profoundly change the way politics is taught in the classroom. In conclusion, this project, by closely examining the role of machine learning in data mining of elections, sheds new light on the rapidly developing changes in political science and International Relations.

INTRODUCTION

Technological revolutions in the past have signaled the birth of inventions that were dominantly visible. Growth in the twentieth century was highlighted with factories, urbanization, and computer hardware. Practicability and innovation were the forthright virtue. But as the century turned, so did the pages of technological prestige. Now it's all about data: the era of information has begun, and its influence in just the past decade had been breathtaking.

The movement of the vast amount of information that passes through the databases every day somewhat resembles a scene from "The Matrix" in which every object and being are depicted as an animated flow of data. As ants and bees signal each other through specific codes and movements, humans continuously emit data. From a purchase in a drugstore to a private search on Google, almost every activity equals a piece of information: the communicative hormone of the modern human ecosystem. The salience is that a piece of information, no matter how small, is seldom discarded. On July 2017, Facebook updated a list of statistics about its users worldwide, claiming that "1.28 billion people log onto Facebook as daily active users" and that "on average, the Like and Share buttons are viewed across almost 10 million websites daily" (Zephoria Digital Marketing, July 2017). Despite that every action of an individual now circulates the global database in the form of 0s and 1s, there is not many who take it seriously, either due to pure indifference or a mutual reassurance that such information will not be taken advantage of. While it is true that no corporate marketers or politician are interested in someone liking a video of a singing cat, it is excessively naïve to assure that personal information and inclination exposed on the internet is passed unnoticed.

Data mining is the practice of harvesting beneficial statistical patterns from an enormous pool of data and forming it into a certain structure for further use. While also called "knowledge-discovery in databases," the term data mining itself is quite self-explanatory. However, the term "mining" may be misleading, for data mining focuses on the extraction of patterns and knowledge rather than the extraction itself. Data mining was first developed as a method to furnish marketing strategies further. For this function, programmers focused mainly on structured data, which had a fixed formality of researchable topics. However, soon the data mining method became sophisticated enough to tackle unstructured data: for instance, searches on web engines, photo data, and history of purchases. The ability to see through patterns and correlations, classify vast amounts of information, and cluster similar-structured data allows data mining to serve as a substantial foundation for artificial intelligence and machine learning. Consequently, artificial intelligence powered by data mining is capable of diagnosis, classification of trends and forecast of problems.

Data mining is a critical power in almost every sphere of modern life, but the field it exerts the most influence -and thus is most fiercely debated on- is undoubtedly politics. From 2008, United States' political campaigns have utilized microtargeting – reaching out to individual voters with explicit appeals based on their demographics. The Obama campaign in 2012 also greatly benefited from its substantial pool of big data and its utility. CBC News' Senior Correspondent Susan Ormiston vividly reports the astonishing force that data mining has in the hands of political parties. "It's a candidate's chance to press the flesh, of course, but increasingly, it is the entry point for data mining, which is how parties collect as much data as they can about you and your voting intentions. Whether canvassers enter it into an iPad or scribble it in a notebook, the information you inadvertently give a prospective politician will end up in large databases jealously guarded by each of the parties – and closed to the prying eyes of privacy commissioners." (Ormiston, 2015).

The fact that an all-seeing programmatic harvester of information -with artificial intelligence- is aiding political campaigns unsurprisingly comes as disturbing to most. Susan Ormiston's interview with Jill Mills, a voter in Ontario, represents a worldwide concern towards data mining in political science. "I think we have a Big Brother watching us," she reports. "You know it's kind of scary, in a way, because what are they going to do with all this information in the future?" While parties reassure the voters that big data is more about learning what the voters are talking about rather than creating secret files, the omnipresent nature of the great data-enforced artificial intelligence makes it nearly impossible to eradicate the fear of government spying or using the collected information for something more dangerous than mere investigation. After all, George Orwell and the history alike had shown that Big Brothers had existed: that absolute power corrupts absolutely.

The same characteristic of data mining and applied artificial intelligence -and its users- also cause uneasiness in the field of international relations. This present "black magic" allows nations more advanced in the technology a crushing advantage over others, from establishing a functional database of international issues and central figures to developing an arsenal of intelligent machines and manipulating the balance of global power. Andrej Zwitter from the Carnegie Council on Ethics and International Affairs asserts that big data "changes power distributions and thereby some basic assumptions of international relations theory, and its analytics will increasingly inform international relations and policymaking. It has created both new opportunities and threats in areas such as humanitarian aid, development, and international peace and security" (Zwitter, 2015).

Information is one of the most substantial powerplants of the 21st century. Thus, data mining, the technological ability to harvest and analyze them, is a powerful tool indeed. However, it is also a double-edged sword. On one aspect data mining is a capable secretary, but on the other, it's the most powerful weapon in the world. The consensus of utilizing data mining and artificial intelligence is undoubtedly valid: whether it is a progression or regression for humankind conclusively is a question that its employers must contemplate on.

POSSIBLE APPLICATIONS IN POLITICS

Face Recognition in Political Microtargeting

Since the early 2000s, politicians have vigorously utilized data mining and artificial intelligence programs to target possible voters. Until recently, such "microtargeting" was based mainly on private online searches, amount and content of consumed goods, and regions. However, researchers assert that artificial intelligence will now be able to deduce much more information from individuals, for algorithms may now be able to identify people's political views, traits, and even sexual orientation via photos. While this may sound incredulous to some, Professor Michal Kosinski from the Stanford University asserts that "faces contain a significant amount of information, and using large datasets of photos, sophisticated computer programs can uncover trends and learn how to distinguish key traits with a high rate of accuracy" (Levin, 2017). This could mean that in the future, significantly more personal data will be collected and utilized for political analysis and campaigns.

Smart phones now use face recognition as the method for unlocking the phone instead of a password. The face recognition data collected from this method can be collected and used to create a personal profile for each individual user. Using the large datasets, campaigners can target their political messages to groups, for example, who would be most likely influenced by a certain message.

THE STUDY: DATA MINING

Data mining is a method of analyzing vast data sets to discover patterns and establish relationships that may be utilized in solving problems and predicting trends. As the forms and frequencies databases may vary, various methods via parameters may be employed. Parameters used in successful data mining include association rules, Sequence or Path Analysis, classification, clustering, and forecasting. Each parameter is used according to different goals in mining information.

Figure 1

(Retrieved from https://www.slideshare.net/pierluca.lanzi/machine-learning-and-data-mining-10-introduction-to-classification)
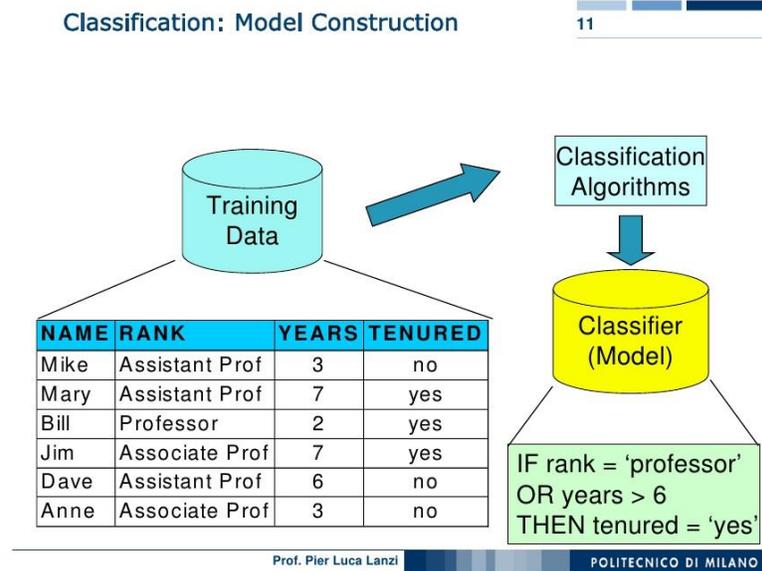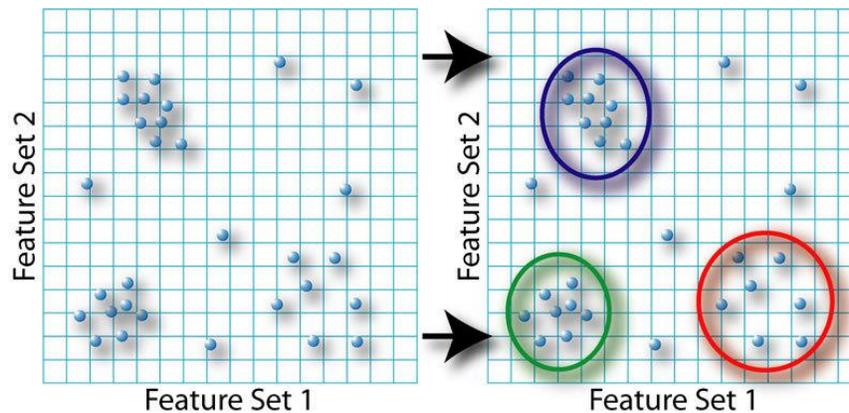
Figure 2.

(Retrieved from http://userwww.sfsu.edu/art511_h/acmaster/Project1/project1.html)

For instance, Sequence or Path Analysis parameters search for patterns where one factor leads to another, while a classification parameter (Figure 1) looks for new patterns and predicts variables according to other details from the database. Clustering parameters (Figure 2) group a set of factors, usually previously unknown, based on their similarity to each other.

Data mining was first utilized in fields such as mathematics, genetics, and marketing. The field of economics and commercialization primarily benefited from successful data mining, for gaining the upper hand on data allowed to predict customer behavior and topple competitors using predictive analysis. Later, as methods of mining data evolved, the technology began to adapt to almost every sphere of life. Especially in the field of politics, the ability to uncover hidden patterns and correlations in data meant that the candidates could more efficiently determine what the public wanted, and how to carry out a successful campaign. Accordingly, data mining began to take part in elections and policy making from the early 2000s and has become a crucial factor in the distribution of political power.

IMPLICATION FOR EDUCATION

Despite AI's wide range of applications, the argument that artificial intelligence is unfit to teach or tutor, unfortunately, still stands. However, this must not necessarily mean that the endeavors to apply artificial intelligence in education of national and international politics must cease. If anything, further modification of knowledge, policies, and curriculums must be put more fiercely into action, as this paper had illuminated the incredible capabilities of data mining and deep learning technology. It is crucial for educators to understand that the future application of AI in the future will change the very concept and methods of teaching, and necessary changes must be made to accommodate further adaptations in the future.

As AI systems and data mining becomes more prevalent, they will begin to influence how political science is taught in schools. While teachers will be not required to know all of the technical aspects of artificial intelligence technology, educators must be familiar with the issues and concerns of how AI systems will continue to influence the political arena. Therefore, educators and administrators at educational institutions must begin to acquire new skills.

ROLE OF TEACHERS
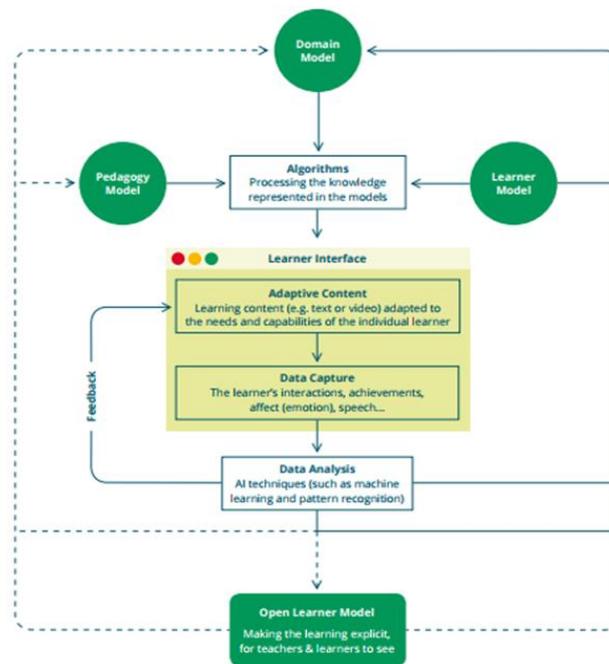
Figure 3

As the role of AI systems increases in education, teachers will need to develop new skills

According to the creators of the AIEd system illustrated in Figure 3 above (Luckin, R.et.al. 2016) teachers will specifically need:
1. To reexamine the pedagogical models in which political science is taught, given the increasing role of AI systems, particularly the utilization of data
2. To develop and be able to interpret data and use that data to help learners obtain information more efficiently.
3. An ability to adopt to the changing domain model as AI systems become the norm in the political area.
4. An ability to manage AI resources effectively. (Luckin, R.et.al. 2016)

CONCLUSIONS

With its implications in the past decade of elections, data mining technology has proven that the ubiquitous flow of data does mean something, and that through the right methods one may harvest enough to bring changes in the voting population. Successful data mining may result not only in accumulating targeted information about the voters but also in attacking the opposite party and establishing policies. The victories and defeats of most recent electoral battles in numerous nations have revolved around data, and it is evident that the technology of mining and utilizing data has become, as some have called it, 'black magic.'

With the rapid development and applications of this prestigious technology comes the users' duty to take responsibility in wielding it. In the contemporary society in which information is the prime power source, it is crucial to understand both its beneficial and detrimental influence, and develop moral guidelines in mining and utilizing data mining. Especially, those who partake in politics in a democratic nation must contemplate on whether powerful data mining will signify a progression or regression of liberty.

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THE ROLE OF DEEP LEARNING IN MECHANICAL ENGINEERING

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ABSTRACT

The deep learning technology itself consists of both computer programming and mechanical engineering. Perhaps because of this reason, the question of the role of deep learning models in the mechanical engineering field has not been widely explored, with them usually revolving around the use of face recognition, speech recognition, and processing patterns to solve problems. This paper addresses the methodology of using deep learning to solve complicated mechanical engineering problems with emphasis on the use of Convolutional Neural Networks. Primarily, this article will portray the changes deep learning is making and will make in the field of mechanical engineering, with a particular focus on why the deep learning technology is of significance not only in computer programming but also in engineering.

INTRODUCTION

As much as Google Deepmind's artificial intelligence system AlphaGo is now widely and very well known as a milestone of the modern artificial intelligence technology that even talking about it has become something of a cliché. The legendary match between AlphaGo and South Korea's Go champion Lee Se-dol had ended with the prestigious artificial intelligence yielding but a single win to the best Go player in the world. Sure, there has been cases in which artificial intelligence-based models had won against human beings -just a short game of online chess or blackjack against the computer reminds us of our humble intelligence- but what made AlphaGo's victory so much of a legacy and a shock at the same time is that Go is not only a game of precise calculation that could be infinitely reinforced by the data input. Go is rather all about intuition and feel: detecting a hunch, if you will, of what strategy the other player will adopt, and thinking several steps ahead of him. This is a feat that cannot be achieved without some sense of independence. AlphaGo's victory signified a revolution of artificial intelligence, signaling that deeply learned computers now not only wielded intellect but also could imitate intellectual autonomy: a virtue that only humankind enjoyed; a virtue that had made it unique.

The era of information had shortly signaled the rapid evolution of artificial intelligence. Considering that deep learning in artificial intelligence is no more than piling multiple layers of representational data and algorithms from a vast ocean of data, it is but a natural occurrence that the increased circulation and accumulation of data had significantly increased and sophisticated the level of artificial intelligence. Deep learning's recent progression in the Convolutional Neural Network now allows artificial intelligence to process continual flows of information and emit optimal results with a very slim rate of failure. What's more, it is now also capable of determining the problems itself before solving them. The primary reason that had made such a progression possible lies in the structure of deep learning: it is a mathematical model formed after the human brain.

The evolution of deep learning and AI toward a "human-like" intelligence is significant for one ultimate cause: to better human life by receiving aid from the computer. Several applications have already been set in motion: face and speech recognition, mathematical calculations, and even prototypes of self-driving cars. However, the introduction of artificial intelligence in the field of mechanical engineering signifies something wholly another level. While the role of artificial intelligence and deep learning has not been explicitly explored in this certain area, Lauren Jane Heller's Betakit interview with Vention, a 3D mechanical design company, illuminates how the mechanical engineering industry is slowly but steadily beginning to adopt the aid of AI. Vention's CTO Max Windisch announces that "With the help of artificial intelligence, we are paving the way for a significant democratization of mechanical engineering" (Lauren Jane Heller, 2017).

The company's custom software is based on AI, that calculates the mechanical durability and legitimacy of the customer's design. Its deep learning based database allows the final product to be cheaper, more precise, and more conveniently created than when produced by any other method. Venture's CEO assets that their company's AI structure "will allow us to provide powerful classification and search capabilities for patterns recognized in the assemblies that our users produce."

Cloud robotics and automation is another key attempt to synchronize artificial intelligence and mechanical engineering. Cloud robotics in automation is a paradigm which allows various hardware to connect and share data and code within a web infrastructure of information. Thus, it overcomes the limited capability of an autonomous robot by enabling it to act upon an active, almost infinite database that guides the robotics' actions based on artificial intelligence embarked on both sides. The autonomous car that Google introduced in 2017 is already briskly utilizing cloud robotics to index maps, determining the spatial localization and making its own decisions. USA Today anticipates that "A range of automotive and technology have said they aim to produce self-driving cars for ride-hailing programs by around 2020" (Marco Dell Cava, 2017).

The rapid growth of artificial intelligence has indeed penetrated deeply into all aspects. The autonomy of AI followed its intellect, and now it is evident that computers are not only intelligent secretaries but also self-driven and programmatically determined. While this notion comes as uneasiness for the majority -for it indicates a threat to humankind's significance as the most intelligent and autonomous species- developers of artificial intelligence and pioneers of its application anticipate making use of deep learning and artificial intelligence function in a comprehensive fashion, influencing many subjects.

THE TECHNOLOGY

I. Convolutional Neural Network (CNN)

Image Classification uses a particular type of deep neural network, called a convolutional neural network (CNN). CNNs are particularly useful for categorizing distinct images and sorting them. (Krizhevsky, et.al. 2012) Using CNNs becomes particularly advantageous when faced with a task of processing a multitude of images.

Convolutional neural network is a multi-layer network that identifies visual features by processing pixels images. CNNs are operated by mainly 5 steps: convolutional operation, ReLu layer, pooling, flattening, and full connection. (Figure 1)
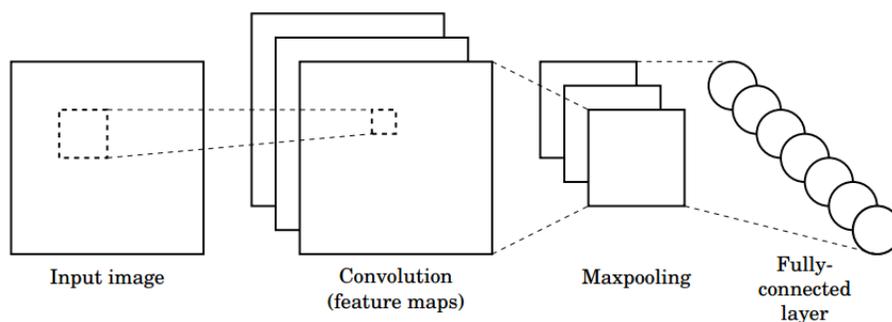
Figure 1.

Neural networks consider images as a two-dimensional array; computer-wise, each pixel range from 0 to 255. A totally black pixel has the value 0 while a totally white pixel has the value 255. The computer recognizes images as a digital form by processing it with 0s and 1s. Red, green, blue layers or RGB layers are needed for colored images.

II. Steps of CNN

1. Convolution

Convolution, in intuitive terms, is a process when a feature detector — also called as kernel, or filter — is placed on an input image.

The sum of values multiplied creates a feature map, or an activation map. Feature map reduces the size of an image, which makes it easier to process faster information. Feature map may lose information; however, the purpose of applying feature detectors is to detect only certain feature that are important. Features shows how it is easily perceived as. What feature maps do is to preserve important features and get rid of unnecessary things. Multiple feature maps are created because different filters are used. Convolution is therefore a process that detects important features and preserves spatial relationships between pixels.

2. ReLU layer

ReLU layer stands for rectifier layer units. This is a process when rectifier is applied after convolutional layers are built. This increases nonlinearity in images.

3. Max Pooling

Max pooling is used to make neural networks recognize images that are not the same. It enables neural networks to look for exactly the same feature. This requires neural networks to have spatial invariance, a certain flexibility to find features whether they are tilted, distorted, or different in texture. A box of pixels is placed on a feature map. Max pooling then considers the maximum values and disregards other values. This preserves features, gets rid of unnecessary information, reduces the number of parameters, therefore preventing overfitting.

4. Flattening

This process flattens the layers into a column, then inputs this into artificial neural network.

5. Full Connection

This adds a whole artificial neural network to convolutional neural network. A fully connected layer is a hidden layer but it is more specific in that it is fully connected. This combines features into more attributes. (Krizhevsky et al., 2012)

6. Connection to Deep Learning Model

Deep learning is successfully creating a multilayered neural network that carries out similar functions as the human brain. As the brain is made up of neural tissues, an artificial neural network consists of layers of algorithm-driven nodes or multiprocessor particles. The nodes are usually connected to form multiple layers, divided into the input, the hidden, and the output layers. In these intertwined layers, the nodes act like cells in the human brain, passing, processing, and evaluating the value of various stimulus, or in this case, data. (Goodfellow, 2016.)
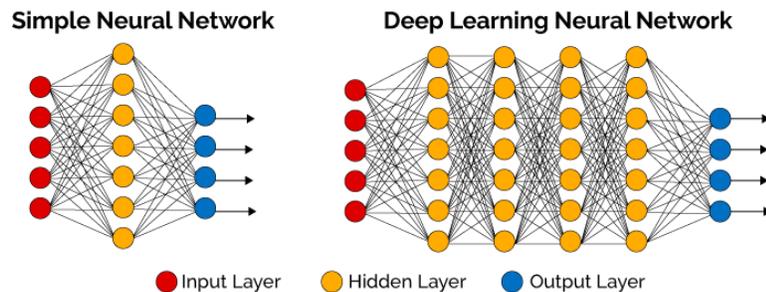
Figure 2

Before it can be put into practical action, a neural network must go through multiple training and testing procedures to ensure accuracy in problem-solving and pattern recognition. One of the most crucial concepts that must be carried out in the training process is back propagation, or a network's function in which it guesses the output of the raw input, and adjusts the weights in the network according to the actual production. Through several backpropagations, the system gains both accuracy and a profound ability to compare data and their informational values.

A complete deep learning model (Figure 2 above) differs significantly from the conventional computer model in a way that it is precisely monitored to utilize abstract knowledge. This characteristic allows the neural network to establish a sort of comprehensive understanding of the inputs through the continuous stimulus, a method similar with that used by the human brain to learn. (Goodfellow, 2016.)

Of course, the allegory of the human brain is yet just a figure of speech, for the deep learning model yet lacks the necessary intuition, and dynamic thinking paralleled to that of a human. However, it is also true that deep learning and artificial intelligence is one of the most swiftly evolving technologies in the history of the technology itself. In fact, judging from the breathtaking speed of its progress and adaption over the last few decades, it is not a ludicrous assumption that deep learning will soon be able to duplicate, and perhaps exceed human intelligence.

III. Solutions for Mechanical Engineering Problems

As machines play an integral role in embodying blueprints, keeping good maintenance of machines is a crucial process of mechanical engineering. Therefore, convolutional neural networks can be potentially used to diagnose any problems occurring due to machines.

1. Identifying Damaged Tools

Damaged tools can bring about unexpected events. CNNs can provide a consistent checkout for these tools if they are externally out of shape. The neural network will be provided with images of normal shapes of each tool, trained to recognize them as what mechanics are to use, and the neural network will be used to determine if a particular tool is out of use. This will enable mechanics to eliminate the possibility of using a worn tool and reduce the amount of work they spend to sort out damaged tools. (Figure 3)
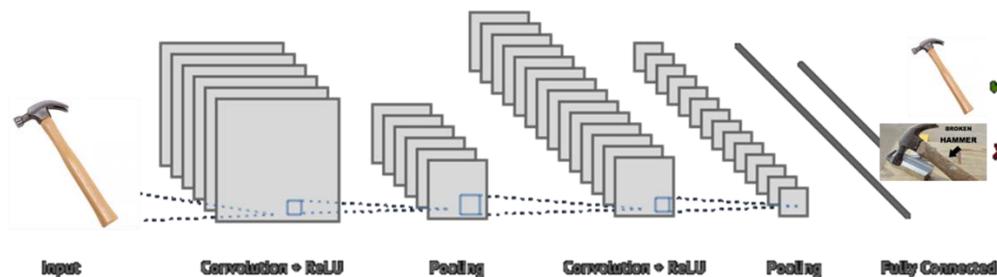
Figure 3.

2. Detecting unusual movements

There can be many reasons for why machines malfunction. For any rotating machines malfunctioning, its axis may be out of place. The axis' center may not be in a correct position or the axis itself may be out of shape. This could lead to overheating of bearing or unusual movement of pumps. Convolutional neural networks are apt to detect these internal problems because moving machines produce vibrations that are observed through graphs as seen in Figure 4 below. (Olivier, 2016)
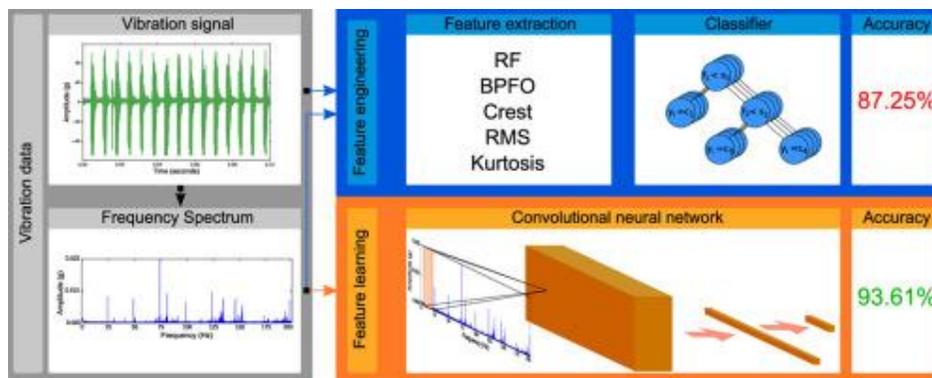
Figure 4.
(Retrieved from: Olivier Janssensa,et al, "Convolutional Neural Network Based Fault Detection for Rotating Machinery" Journal of Sound and Vibration Volume 377)

How CNNs could be potentially used is by detecting unusual patterns of graphs of vibrations. Unusual peaks, amplitudes, patterns indicate certain deviation from how the machine should originally work. What CNNs will do is to train itself with data of different categories sorted by level of deviation from standard. As machine operates, a system trained through CNN suited to sort by images will recognize different level of malfunctioning. Mechanics can further utilize this neural network by training it to provide appropriate diagnosis of each levels. This will provide a relatively accurate detection for mechanical trouble.

ROLE OF TEACHERS

As the role of CNNs and Deep Learning networks and other AI systems increases in usage, mechanical engineering education will change along with it.

According to the creators of the AIEd system, (Luckin, R.et.al. 2016) teachers will specifically need to make value judgments and evaluations when it comes to which AI systems and products should be incorporated into the teaching curriculum, to develop research expertise in relations to AI systems, to interpret data from AI systems and explain such data to learners, to utilize AI assistants in addition to their human counterparts, and to manage AI resources effectively. (Luckin, R.et.al. 2016)

CONCLUSIONS

Ever since the existence of mechanical engineering in the civic life, machines have been in charge of creating other machines. Throughout decades of development, conveyor belts and exact machines with a certain amount of flexibility have been introduced to lessen the harsh work of humans. Even so, the synchronization of mechanical engineering and artificial intelligence came as a surprise, if not a disturbance, to most. Perhaps the fact that machines are now assuming full, not partial control, over technological life is the prime culprit of such uneasiness.

On the other hand, researchers assure that deep learning will always put first the safety and well-being of humans. While this is true, it must also be noted that although machines are yet to be independently determined, they are programmatically so. The amalgam of artificial intelligence and mechanics include not only self-driving cars or autonomous 3D printers but also face-scanning, lethal drones and a global surveillance program. Perhaps the primary concern upon utilizing artificial intelligence should be about human morals and values, more than it is about a machines' technical abilities.

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THE ROLE OF IDENTITY STYLES AND LOCUS OF CONTROL IN PREDICTION OF SELF-EFFICACY AM

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ABSTRACT
Identity styles and locus of control are of the most important strategic variables in determining the characteristics of people personality,So, this study was conducted to investigate the relationship between identity style, locus of control and self-efficacy among teachers of Khodabandeh city in Iran during the academic year 2014- 2015.Among all teachers in Khodabandeh city during 2014-2015 academic year (419 teachers), 120 were selected using systematic random sampling method. All of them completed identity Style Inventory (ISI), Levenson Multidimensional Scale of Locus of Control and General Self-Efficacy Scale (GSE-10). For data analysis correlation and regression analysis (stepwise) was used.Data analysis showed a significant correlation between teachers' identity style, locus of control and their self-efficacy (p<0.05). Due to the results, it can be concluded that identity style and locus of control can predict self-efficacy in teachers.

INTRODUCTION
Self-efficacy refers to belief of people in their ability to achieve desired goals. The concept of self-efficacy was presented for the first time by Albert Bandura and Adams to present an integrated theory to change behavior (Gallagher, 2012). Moreover, self-efficacy refers to belief and trust of person in his/her ability to show a special behavior even in a suggestive position (Shin, 2011). In fact, meeting desires and needs and behaving based on internal criteria can improve self-efficacy and failure in meeting needs, expectations and goals decrease it. People with low sense of self-efficacy feel disparate and believe that they can't control the events of their life

(Schultz, 2012). Many studies have shown that people with high general self-efficacy are more resistant against problems compared to others (Ghorbani ,Marzooni and NasiriSemnani, 2015). Moreover, studies in field of self-efficacy indicate reverse relationship between it and mental disorders such as depression (Shikayi et al, 2007; Hermann, 2005; Tahmasian and Anari, 2010). Self-efficient people expect success in their work and are focused on this issue that how they can be successful and overcome the problems through this (Sullivan & Atkins, 2009).

The concept of success was presented for the first time by Ericson and was analyzed by other theorists (tabatabaei et al, 2011). Ericson has defined identity as an organized identity of self, created by desired values, beliefs and goals. In view of Ericson, identification is one of the most important tasks of adolescence (Bosch and Cad, 2012). Identity is subjective concept of person about self and is used under titles such as personal identity, social identity, ethical identity, gender identity and so on (Reber, 2001).

People with successful and late identity have more academic achievement than early and disoriented/avoidance identity (HosseinNejad, 2007; quoted from Tabatabaei, 2011). Weak identity can prepare individuals to have negative beliefs. This is because; beliefs such as who I am, what I do and similar beliefs can expose the person to anxiety (Bosch and Cad, 2012). People with informational identity process content of religion deeply and significantly (Clardi and King, 2011). Identity style is one of the main variables that can affect quality of life in adulthood (Micolinser and Shaver, 2009; quoted from Bonder et al, 2010).

Locus of control refers to manner of controlling the environment in view of individuals. In other words, locus of control is a system of beliefs, based on which individuals evaluate their own success and failures based on strengths and weaknesses (Sha'baniBahar et al, 2010). In locus of control,craving, feeling positive control and life satisfaction are effective (VafayiJahan, 2012). Theory of documents is on this basis that people attribute their successes and failures whether to controllable factor or uncontrollable factors. The first group has internal locus of control and the second group has external locus of control (Soleimani et al, 2013). Studies demonstrate that people with high self-control have high quality of life and behavioral health (Swendeman at al, 2014). Moreover, those who feel that they can affect their life events (internal source) have higher health and adaptability than those with externallocus of control and show more desirable behaviors than them at the society (Owrangi et al, 2011). On the contrary,Arazzini& Walker (2014) believe that people with external locus of control have higher self-efficacy than the people with internal locus of control. According to important role of sense of self-efficacy of teachers as a class in interaction with students, this study has investigated role of identity style and locus of control with self-efficacy of teachers.

METHODOLOGY

The research method in this study is correlation method and statistical population consists of all teachers (n=419) of Khodabande City in different educational levels in public and private schools and schools for disabled people during academic year 2014-2015. Sampling method has been in kind of systematic random sampling based on list of schools, out of which 120 individuals have been selected as sample using systematic random sampling method. All participants fulfilled demographic questionnaires and Identity Style Inventory of Berzonsky (IISI) and Lonson's multidimensional scale of locus of control and General Self-efficacy Scale (GSE-10). For purpose of data analysis, correlation test and regression analysis (stepwise regression) have been applied.

INSTRUMENTS

Demographic questionnaire: the questionnaire has been made by the author and measures demographic information of samples.

General self-efficacy scale (GSE-10): in order to measure the variable, GSE has been used. The test has been implemented for the first time in 1979 by Schwartz and Jerusalem to evaluate general and social self-efficacy including 20 items and 2 subscales of general and social self-efficacy. By 1981, Schwartz and Jerusalem revised the test and decreased its items to 10 items. The current scale of self-efficacy beliefs includes 10 items to measure level of general self-efficacy. The test is a self-reporting instrument for adults and trails should announce their agreement or disagreement with each item using Likert 5-point scale from totally false to totally true. The scale can be used in different samples such as evaluation of variations of quality of life of patients before and after surgery or patients with chronic pain or those who are on a rehabilitation schedule. Scoring method of this scale is as follows: score 1 is considered for totally false option; score 2 for hardly true option; score 3 for almost true and score 4 is considered for totally true option. In order to obtain test score, scores of 10 options are added. Range of probable values of the test is placed in a range of 1-40. Reliability coefficient of the scale has been reported to 0.88 in Canada, to 0.81 in Germany, to 0.82 in France, to 0.91 in Japan, to 0.85 in Indonesia and to 0.75 in India due to cronbach alpha. Validity and reliability of the instrument in Iran has been also reported to 0.84 in Shahid Chamran University of Ahwaz and to 0.08 in Marvdasht by Rajabi (2006).

Berzonsky's Identity Style inventory (ISI): ISI of Berzonsky (ISI-6G) contains 40 questions and 3 subscales of informational, normative and disoriented/avoidance identity styles. The inventory has been revised and

modified by White et al by 1998. White et al (1998) have tested the inventory on 361 students and have reported alpha coefficient to 59% for informational identity style; to 64% for normative style and to 78% for disoriented/avoidance style. Hence, the inventory has acceptable internal consistency. White et al (1998) have also investigated validity of the inventory using original and old version and have demonstrated that correlation between the two subscales of informational style is equal to 81% and it is equal to 85% for normative identity style and to 85% for disoriented/avoidance identity style. Ghazanfari, 2004(quoted from Seraj Khorami and Mo'azamfar, 2008) has conducted a study with the aim of validation and normalization of the inventory in Iranian population. For purpose of testing its internal consistency, they have estimated Cronbach alpha on original data and obtained results from the test of internal coefficients are as follows: informational style: 67%: 67%; normative style: 51%; disoriented/avoidance style: 62%. The coefficients indicate that Berzonsky's Identity Style Inventory has considerable reliability and consistency in Iranian population. In a study in Iranian population, Cronbach alpha is obtained to 71%, 53% and 65% respectively for informational style, normative style and disoriented/avoidance styles (Tabatabaei et al, 2011).

Levenson Multidimensional Locus of Control Scales: the scale is in kind of paper-pen type and includes 3 scales and totally 71 items focused on different roots of locus of control. In this scale, each scale is regulated in form of Likert's 5-point scale and answer range from totally disagree to totally agree. -1, -2 and -3 are related to disagreement and +1, +2 and +3 are related to agreement. Total score for each variable of I, P and C is total score of each trial in question 8 related to the subscale, which is added to number 71 to eliminate its minus sign. Therefore, in each scale, range of scores is from 6 to 18. High score in each subscale is interpreted in this manner that people have high expectation from control with desired root (Levenson, 1989; quoted from Farahani). Reliability coefficient ofKuder Richardson for variable I, P and C is respectively equal to 62%, 66% and 64%. Reliability is reported between 60 and 79% using retest with the interval of 1 week.

Results

Applied method in this study is correlation method. As manipulation of studies is impossible in this study and the purpose is investigation of relationship among several variables, regression analysis (stepwise regression) is applied for purpose of data analysis.

Descriptive data about some information of participants have been presented in table 1. Various studies data such as gender, education level and education grade desired in this study considered in data analysis are presented in table 1.

Table 1: Demographic information of participants

	Gender			Education				Grade			
	Female	Male	Total	Post-diploma	BA	MA and higher	Total	Elementary	Secondary	High school	Total
Frequency	38	82	120	29	84	7	120	42	32	46	120
Percent	31.7	68.3	100.0	24.2	70.0	5.8	100.0	35.0	26.7	38.3	100.0

According to table 1, number of female teachers is equal to 38 people (about 32%) and number of male teachers is equal to 82 people (about 68%). Largest number of individuals with BA degree is equal to 84 people equal to 70% and lowest number of individuals with MA degree is to 7 people equal to 6%. Also, the largest number of people in high school grade is equal to 46 to 38% and lowest number in secondary school grade is to 32 people equal to 27%.

Table 2: matrix of correlation coefficient of predictor variables with self-efficacy

Predictor variables	R	P
Informational identity style	0.268**	0.002
Normative style	-0.164*	0.037
Disoriented/avoidance style	-0.154*	0.047
Commitment	0.221**	0.008
Powerful people	0.207*	0.012
Chance	-0.072	0.218
Internal control	0.174*	0.029

*=p<0.05; **=p<0.01

As it is observed, except for chance, other remained predictor variables are in significant correlation with self-efficacy.

Table 3: results of variance analysis obtained from regression of 4 models

Model	Variance sources	Sum of squares	df	Mean squares	F	P
1	Regression	121.025	1	121.025	9.150	0.003
	Error	1560.675	118	13.226		
	Total	1681.700	119			
2	Regression	200.501	2	100.250	7.919	0.001
	Error	1481.199	117	12.660		
	Total	1681.700	119			
3	Regression	287.473	3	95.824	7.973	0.000
	Error	1394.227	116	12.019		
	Total	1681.700	119			

The data in table 3 preset the results of variance of 4 models. In model 1, it is obvious that obtained F value is significant in confidence level of 1% (p=0.003, f (1.119) = 9.150). Therefore, it could be found in confidence level of 99% that there is significant correlation between variable of informational identity style and general self-efficacy. Independent variable (informational identity style) has the ability to predict the criterion variable. In model 2 as it is clear, obtained F value is significant in confidence level of 1% (p= 0.001, f (117, 2) = 7.919). Therefore, it could be found in confidence level of 99% that there is significant correlation between variable of powerful individuals and general self-efficacy. Also, independent variable (powerful individuals) has the ability to predict criterion variable. In model 3, obtained F value is significant in confidence level of 1% (p=0.000, f (3.116) = 7.973). Therefore, it could be found in confidence level of 99% that there is significant correlation between variable of chance and general self-efficacy. Also, independent variable (chance) has the ability to predict criterion variable.

Table 4: coefficients of stepwise regression analysis

Model	Component	Non Std. coefficients		Std. coefficients		
		Slope coefficient (B)	Std. error	Beta	T	P
1	Constant	27.908	1.217		22.931	0.000
	Informational identity style	0.088	0.029	0.268	3.025	0.003
2	Constant	24.671	1.757		14.042	0.000
	Informational identity style	0.091	0.028	0.276	3.182	0.002
	Powerful individuals	0.103	0.041	0.218	2.506	0.014
3	Constant	26.402	1.829		14.436	0.000
	Informational identity style	0.092	0.028	0.280	3.315	0.001
	Powerful individuals	0.174	0.048	0.367	3.627	0.000
	Chance	-0.127	0.047	-0.272	-2.690	0.008
4	Constant	29.350	2.325		12.626	0.000
	Informational identity style	0.102	0.028	0.313	3.676	0.000
	Powerful individuals	0.152	0.048	0.321	3.135	0.002
	Chance	-0.137	0.47	-0.292	-2.908	0.004

According to significance level of F in variance analysis table and t in table 4, regression equation for model 1 is presented as follows.
According to slope value, the higher the level of informational identity style is, the more value it can predict for self-efficacy.
Moreover, according to obtained results from table 4, it could be observed that T-value related to variable of informational identity style (3.025) is significant in confidence level of 1%. This issue refers to direct and significant correlation between informational identity style and general self-efficacy. According to standard B related to informational identity style (0.268), it is found that per one unit variance in variable of informational identity style, variable of general self-efficacy is increased to 0.268.
According to slope value, the higher value of powerful individuals is, the more it can predict self-efficacy for teachers. Moreover, due to obtained results from table 4, it could be found that T-value related to variable of powerful individuals is equal to 2.506 and significant in level of 0.05. This refers to direct and significant correlation between powerful individuals and general self-efficacy. According to standardized B related to

powerful individuals (0.218), it could be found that per one unit variance invariable of powerful individuals, general self-efficacy is increased to 0.218.

According to slope value, the more the level of chance is, the less value it can predict for general self-efficacy. Moreover, due to obtained results from table 4, it is found that T value related to chance is equal to -2.690 and is significant in level of 0.01. This refers to direct and negative correlation between chance and general self-efficacy. According to standardized B, per one unit variance in chance, the general self-efficacy is decreased to 0.272.

Hypothesis 1: there is significant and positive correlation between informational identity style and general self-efficacy.
According to data of table 2, estimated correlation coefficient is significant in level of 0.01 (p=0.002, r=0.268) and this indicates that there is significant and positive correlation between informational identity style and general self-efficacy. In other words, the more the informational identity style is increased, the more general self-efficacy would be.

Hypothesis 2: there is negative correlation between normative identity style and general self-efficacy.
According to data of table 2, calculated correlation coefficient is significant in level of 0.05 (p=0.037, r=0.164) and this indicates that there is significant and negative correlation between normative identity style and general self-efficacy. In other words, the higher normative identity style is, the lower genera; self-efficacy would be.

Hypothesis 3: there is significant and negative correlation between disoriented/avoidance identity style and general self-efficacy.
According o data f table 2, estimated correlation coefficient is significant in level of 0.05 (p=0.047, r=0.154) and this shows that there is negative and significant correlation between disoriented/avoidance identity style and general self-efficacy. In other words, the more the disoriented/avoidance style is increased, the more general self-efficacy would be increased.

Hypothesis 4: there is significant and positive correlation between commitment of identity style and general self-efficacy.
According to the data of table 2, estimated correlation coefficient is significant in level of 0.01 (p=0.008, r=0.221) and this indicates that there is significant and positive correlation between commitment of identity style and general self-efficacy. In other words, the more the variable of commitment of identity style is increased, the more general self-efficacy is increased.

Hypothesis 5: there is significant and positive correlation between locus of control of powerful individuals and general self-efficacy.
According to data of table 2, estimated correlation coefficient is significant in level of 0.05 (p=0.012, r=0.207) and this indicates that there is significant and positive correlation between locus of control of powerful individuals and general self-efficacy. In other words, the more the locus of control of powerful individuals is increased, the more general self-efficacy is increased.

Hypothesis 6: there is negative correlation between locus of control of chance and general self-efficacy.
According to data of table 2, estimated correlation coefficient is not significant (p=0.218, r=0.072) and this indicates that there is no significant correlation between locus of control f chance and general self-efficacy.

Hypothesis 7: there is positive correlation between internal locus of control and general self-efficacy.
According to data of table 2, estimated correlation coefficient is significant in level of 0.05 (p=0.029, r=0.174) and this indicates that there is significant and positive correlation between internal locus of control and general self-efficacy. In other words, the higher the internal locus of control is, the higher general self-efficacy would be.

According to these results, it could be mentioned that type of identity style an type of locus of control can predict self-efficacy of teachers.

DISCUSSION & CONCLUSION
Obtained results from the study show that there is significant correlation between identity style and locus of control of teachers and their self-efficacy. This finding has been in consistence with study of Kasraei et al (2014) under the title of investigation of the relationship of intellectual capital, identity styles and identity commitment with self-efficacy of High School teachers of Ashnuye City. This study had found that disoriented/avoidance identity style (negatively) and identity commitment (positively) can predict self-efficacy beliefs of teachers. The finding has ben also in consistence with results of Hejazi et al (2014) under the title of the relationship between identity styles and ethnical identity with academic self-efficacy of Kurd Students the results of this study have shown that there was positive and significant correlation between informational and normative identity style and ethnical identity with academic self-efficacy. Moreover, obtained results from this study have been in consistence with study of Mohammadi Nasab (2014) under the title of investigation of the

relationship between identity styles and control of emotions with academic self-efficacy in high school students of Isfahan. The study found that there was positive and significant correlation between identity styles and academic self-efficacy. The findings have been also in consistence with results of Joe and Hens (2012) who found that people with disoriented/avoidance identity style are unable to make intimate and continuous emotional relationships with others. The findings have been also in consistence with findings of Maghsodi et al (2015) under the title of the relationship between identity style and academic situation of students of Medical University of Gilan and study of Molaei et al (2014) under the title of investigation of the relationship of 5 main factors of personality and locus of control with job satisfaction of staffs of Kermanshah Gas Company, which found that there was significant correlation between the mentioned variables. Moreover, findings of the study have been in consistence with results of Slesnick et al (2011) and Light Foot et al (2011), which were adopted separately and indicated that people with internal locus of control are exposed to social damages. The findings have been also in consistence with finings of Gharetappe et al (2015) under the title of the relationship between individual and social adaptability with locus of control and gender in clever high school students of Kermanshah and in consistence with findings of Ramdin (2011) under the title of comparing identity style and academic performance in first year psychology students, which indicated that there was negative and less significant correlation between normative identity style and academic performance of students. The findings have been also in consistence with results of Leader (2012) based on existence of negative correlation between informational identity style and academic achievement directly and indirectly. However, obtained results from this study have not been in consistence with findings ofArazzini& Walker (2014), which refer to existence of positive correlation between internal locus of control andhigh self-efficacy.

CONCLUSION

According to obtained results, it could be mentioned that identity style and locus of control of teachers can predict their self-efficacy and this finding is significant statistically.

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THE ROLE OF PERCUSSION INSTRUMENTS IN TEACHING AND IMPROVING THE MOTOR SKILLS OF MID AND HEAVY LEVEL AUTISTIC CHILDREN.

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Ağır ve Orta Düzey Otistik Çocuklarda Motor Becerilerinin Kazanımında Vurmalı Çalgıların RolüEn büyük Yunan Tanrısı Zeus'un kızı Mousa'dan adını alan müzik sanatı sesi en önemli araç olarak kullanır. İnsanlık tarihinin ve yaşantısının önemli bir parçasıdır. Güzeli amaçlayan sestir. Evrensel dil olarak da tanımlanmaktadır. Ruhsal ve duyusal hayat arasındaki dengeyi sağlayan müzik Aristoteles'in önerdiği bir arınma yöntemidir. Katharsis temizleme/temizlenme, saflaşma anlamlarını içerir. Haz veren her uğraş arınma yöntemidir. Aristoteles Poetika adlı eserinde müziğin eğitim ve katharktik amaçlar için kullanılabileceğini ifade eder. Müziğin ruhani boyutunu irdeleyen Platon da müziğin, insanın ruh dünyasındaki ve eğitimindeki rolünü yadsımaz.İfade araçları ölçü, uyum ve melodi olan müzik sadece ruhsal arınmayı değil aynı zamanda bedensel uyumun sağlanmasında da etkin rol oynar. Müzikteki ritm ve insan hareketi arasındaki benzerlikler sonucunda bu ikisi arasındaki eş zamanlılıktan faydalanılarak müzik ve egzersizler arasında uyumun olduğu tespit edilmiştir. Bunda müziksel bellek kullanılır. Müziksel bellek, işitilen, söylenen, çalınan müzik ya da müziksel öğeleri bıraktıkları izler yoluyla akılda tutmak, saklamak ve gerektiğinde hatırlamaktır. Müziksel bellek, algılama ya da algılanan duyumların niteliğine göre işitsel, görsel, dokunsal, devinimsel ya da kassal olmak üzere çeşitlilik gösterir. Sporda ve sporcuların performanslarının arttırımında müzik belleğinden faydalanılır. Müzik bireyin kendisinin farkında olmasını ve bireysel dikkati sağlar. Araştırmalar ritmik karakter ve fiziksel beceriler arasında sıkı bir ilişki olduğunu ortaya koyar. Chan ve Dernbery'in bulguları da bu yöndedir.Sporcuların fiziksel egzersizleri üzerinde olumlu etki yapan müzik ve müzik aletleri ağır ve orta düzey otistik çocuklarda da iyileştirici bir güce sahip olduğu tespit edilmiştir. Ritm çalgılarla bagetli ve elle çalma tekniği ile motor becerileri gelişmektedir. Ağır ve orta düzeydeki otistik çocuklar, dengede durabilme, yürüme yeteneğinin gelişmesinde önemli bir role sahip olduğu gibi yüksek sesli ortamlardan rahatsız olan hasta çocukların ortama daha hızlı ayak uydurdukları, müzikal faaliyetlerde uyumlu oldukları gözlenmiştir. Bu çalışmamızda ritm çalgılarla bagetli ve elle çalma tekniğiyle ağır ve orta düzey otistik çocukların motor becerilerinin kazanımındaki rolü örneklerle anlatılacaktır.The Role of Impacted Instruments in the Accomplishment of Motor Skills in Heavy and Intermediate Autistic ChildrenThe musical art of the greatest Greek god named Mousa, the daughter of Zeus, uses voice as the most important tool. It is an important part of human history and experience. A beautifully aimed cue. It is also defined as universal language. The music that provides the balance between spiritual and sensory life is a method of purification offered by Aristotle. Katharsis includes the meaning of purification / purification, purification. Every effort is a purification method. In his book Aristotle Poetika he states that music can be used for educational and cathartic purposes. Plato, who is studying the spiritual dimension of music, does not deny the role of music, human being in the spirit world and education.The means of expression means harmony and melody, but music plays an active role not only in spiritual cleansing but also in ensuring physical harmony. As a result of the similarities between the rhythm and the human movement in music, it has been found that harmony between music and exercises is benefited from the synchronicity between the two. Musical memory is used in this. The musical memory is to keep, keep, and remember when necessary, the tracks of the music, or musical items that are heard, spoken, sung, stolen. Physical memory varies in auditory, visual, tactile, kinematic, or muscular, depending on the nature of the perception or perceived sensations. The music memory is used to increase the performance of the spore and athletes. Music provides individual attention and individual attention. Research reveals that there is a close relationship between rhythmic character and physical skills. The findings of Chan and Dernbery are also in this direction.Music and musical instruments that have a positive effect on the physical exercises of the athletes have been found to have a healing power in children with severe and moderate autism. Motor skills are developing with rhythm instruments and hands-on technique. Heavy and moderate autistic children have been observed to have a significant role in the development of balance ability, walking ability, as well as in children who are disturbed in loud environments. In this study, we will illustrate with examples the role of motor skills in the acquisition of motor skills of children with severe and moderate autism by means of rhythm instruments and handwashing.

THE SPECIFIC SITUATION OF VOCATIONAL EDUCATION IN HUNGARIAN LANGUAGE IN ROMANIA: ICT VS. E-LEARNING

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ABSTRACT
Nowadays in order to succeed in the labour market it is essential to have digital competencies, this does not only mean access to IT communication technologies and their usage, but it also comprises the possession of knowledge, skills and attitudes. In order to improve these there is a need of a proper approach which would refer to the whole educational spectrum; the conscious use of digital tools and methodology for educational purposes, teachers' continuous training in digital pedagogy and the digitization of curricula. In the present research we undertook the task to assess the quality of vocational education in Hungarian language in Romania from students' (provisions with ICT tools, access to communication technologies) and teachers' perspective (teachers' overload, infrastructural facilities, problems related to the curriculum). The sample of vocational education is representative; it is comprehensive to the network of vocational educational institutions in Hungarian language (28 technical colleges, 20 vocational schools, 2857 pupils, 119 teachers who teach specific subjects). Our survey has a diagnostic aim, because it undertakes the task to reveal and analyze the present situation, and it is also a niche research because it aims to create new possibilities using the data of the present survey, and this is indispensable for the improvement of vocational training.
Keywords: technical and vocational education, digital skills, teachers' overload, ICT tools

INTRODUCTION
Nowadays competitiveness and development on the labour market largely depend on possessing new information and communication technologies (ICT), their use in an innovative and effective way. Computers, mobile phones and digital technologies constitute an integral part of our lives and in many areas of our lives they offer the solution for the challenges we face daily (EU, 2014).

In the future one of the main barriers of economic development could be the labour force who does not have digital competences on a proper level. According to prognosis by 2020 Europe could face an expected shortfall of 825.000 employees who do not have ICT skills, and 90% of the work places will require basic ICT skills (EP, 2016). For more than a decade the European Union has recognized and made further steps in order to emphasize the importance of ICT in education. Among the main objectives of the Digital Agenda presented by the European Commission we can find that by 2020 in education and educational systems digital competencies and their importance should be more acknowledged (COM, 2010). One of its elements is the strategy referring to digital skills or e-Skills, the aim of which is raising competitiveness, productivity and employability. Europe has to create more attractive background conditions for innovation, development and new digital works. Europe also has to ensure that the qualification, skills and know-how of ICT staff meet the highest global requirements, and they maintain this level through lifelong learning (COM, 2014).

The European Commission in its work of enforcing vocational education and training (EU, 2012), among the main objectives for the period between 2011 and 2020 includes the considerable increasing of attractiveness of vocational education, the growth of participating in the training, promotion of active learning, as well as the preparation of new methods of vocational training in schools and work places using ICT technologies.

In the recent years the board of Romanian Educational Ministry responsible for vocational and technical education (CNDIPT) has regarded its call making vocational education and trainings more attractive, more effective and accessible by improving the digital supply of schools and by motivating, training teachers for using ICT tools, thus promoting the importance of lifelong learning and the idea that the young should become active participants of the labour market (CNDIPT, 2013). According to international surveys at the present moment Romania is the last country on the list of possessing ICT skills of intermediate and advanced level (CEDEFOP, 2012).

In the most recent motion of the European Parliament (EP, 2015) this urges the member states to include the new technologies in the learning process, to improve the ICT trainings and the teaching of digital skills at all levels in order to motivate the young to acquire ICT skills and to choose jobs related to this domain. Furthermore, it emphasizes that proper infrastructure has to be provided in schools, and since not all students possess ICT skills, it is more important than ever to make these tools and trainings accessible for everyone. It is the responsibility of educational systems to help students to prepare for their professional career. Spreading knowledge and skills, improving competencies on individual level can assure the economical development in a longer term, competitiveness and reducing unemployment. This is especially true for vocational education because in European countries only 30% of students who take part in vocational education continue their studies. Students who graduate vocational schools try to find work on the labour market (CEDEFOP, 2015).

In the training of digitally skilled labour force the competent/qualified teachers have a fundamental role. The schools, training institutions should better support opportunities for ICT-related courses, that are efficient and of high-quality, and should stronger promote the teachers' participation at these courses or their continuous professional education/ and generally their continuous professional education.

PRESENTATION OF SURVEY

In Romania the comprehensive strategy of improving vocational education is written for the whole educational system which treats education in minority languages as a melted element. Minorities can use effectively possibilities provided by law (vocational education is granted in everyone's mother tongue) only if they have a clear picture not only about the system of vocational education in Hungarian language, but they know the aims, requirements of all those who take part in this process (teachers, students, future teachers). It must also be emphasized that we speak about a system which is still taking shape; it was just in 2014 when the three- year-long, state vocational education in minority languages became possible (Ministerial Order 3136/2014, published in Official Gazette 132/2014, it has been of legal force since 24th February, 2014).

We have accomplished two researches for exploring the situation of vocational education in Hungarian language in Romania. Our first survey was carried out in the second semester of 2013-2014 and it analyzed the situation of vocational education in mother tongue in technical colleges, its problems from students' and teachers' perspective (Pletl, 2015, 2016). Our second research was carried out in the first semester of the 2015-2016 academic year and it focused on the situation of vocational education in Hungarian language in vocational schools; the conditions of teaching, from the perspective of its participants (teachers and students) (Pletl, 2017). Both researches are of national level; because they comprise the network of vocational education in Hungarian language showing the regional rates as well (isolated regions, transitional regions and blocks).

Our research focuses on just one part of the situation of vocational education (level of technical colleges) and on just one segment of it (the circumstances influencing the process of teaching and learning). In order to work out the development strategy of vocational education more surveys would be needed: employment guidelines, of labour market, and economical.

Our survey is gap filler, because with its data we can complement the situational report on vocational education in Hungarian language in Romania, and it is also very timely because the modernization of vocational education is in the centre of reforms of public education.

We placed strong emphasis on the provision with digital tools of vocational education in both researches and on teachers'' attitude to using ITC tools during classes and on the identification of teachers' problems in the teaching-learning process. The sample was comprised of students who learn at Hungarian technical colleges (N=1892) in Romania and teachers who teach specific subjects (N=99), as well as students who study in vocational schools (N=965) and teachers of specific subjects (N=20).

In our research we would have liked to get a detailed picture about:

- which digital tools and what kind of school infrastructure ensure the access to communication technologies for vocational schools;
- what are the working conditions of teachers who teach specific subjects, which factors obstruct the fulfillment of effective education;
- which digital, educational tools support teachers' work;
- how does the use of digital tools materialize in education, and
- to what extent is the use of digital tools beneficial in the teaching and learning process?

We used questionnaires as measuring device which analyzed the access of ITC tools for technical college students (34 groups of questions, 11 lines of questions), and for students of vocational schools (30 groups of questions, 6 lines of questions). The questionnaire for teachers contained 24 groups of questions with 15 lines of questions and they referred to teachers' working conditions and ICT attitude, habits.

RESULTS
(1). ICT tools in vocational education
Analyzing the presence and roles of ICT tools in vocational education in Hungarian language in Romania, first we gathered information about what IT tools do students possess. According to the answers we can state that students' provision with ICT tools is significant. About 88% of them have a PC at home (desktop computer or laptop), and only 34% share a computer with the family, and 54% has their own computer as well. Students of vocational and secondary schools show similar results in their provision with ICT tools; they share a computer with the family or have their own computer in similar rates.

Students' internet access is also notable. 90% of them have connection via cable or wireless. Furthermore, 77% of students studying in vocational schools can connect to the internet through their smart phones or tablets. If we analyze the data as a whole, we can state that there are only 2% of the students who do not own ICT tools (computer, laptop, smart phone) through which they could have access to the possibilities provided by the internet.

There is no discrepancy between those students who own traditional mobile phones, no matter if they study in a secondary or a vocational school. There is more important difference among those who do not have smart phones or tablets, and those who have internet access through their smart phones or tablets. As long as 9% of students studying in vocational schools do not have and 77% have this tool, 24% of students who learn at technical colleges do not have and 61% have this tool. The difference may be due to the fact that the survey among those who study at technical college was one and a half year earlier, when many students did not have smart phones. According to recent surveys most of the students have smart phones.

Teachers' and students' answers are the same to the question: is there a computer room in the school. All vocational schools have computer rooms, and 95% of them have access to the internet. Analyzing the infrastructure of technical colleges, the result is similar: there is a computer room in each of them which has access to the internet, and 27% of them have wireless connection as well.

(2). Working conditions for teachers who teach specific subjects
More than 80% of the technical college teachers who took part in the research and 75% of the vocational school teachers teach more than 18 per week. 40% of technical college teachers and 30% of vocational school teachers teach between 18-22 hours per week. In both groups the number of teachers who have more than 22 hours of teaching weekly is high: in technical college 42%, in vocational school 45%. Only 17% of technical college teachers and 25% of vocational school teachers work 18 hours per week.

Apart from working at school, teachers spend much time to prepare for the classes. 70% of vocational school teachers spend more than 7 hours per week, and 59 % of technical college teachers do the same. There is only 10% in both groups who spend less than three hours per week to be prepared for the classes. [Table 1].

Table 1: Time spent for being prepared for the classes (%).

How much time did you spend on preparation?	Technical college	Vocational school
3 hours	11	10
3–6 hours	30	20
7–10 hours	35	40
more than 10 hours	24	30

The overload regarding teaching specific objects and the number of classes is similar, because technical college teachers and vocational school teachers teach 8-9 specific subjects in average in 5-6 different classes during a school year. The provision with textbooks is not proper either [Table 2], because we can see from the answers that in both groups provision with text books is just 65%, and technical manuals, which are the basic tools of high-quality vocational education are available only for half of the students. We found significant difference in the two groups in the use of workbooks and worksheets; technical college teacher have greater access to this educational tool (44%) than vocational school teachers (15%). There is a difference in the use of software needed for teaching specific subjects, in this case vocational schools proved to be better equipped.

Table 2: Teaching materials (%).

Available teaching materials for teaching specific subjects	Technical College	Vocational school
textbooks	65	65
workbooks or worksheets	44	15
visual aids	62	60
manuals	57	55
software for teaching specific subjects	36	50

Besides curriculum, textbooks and auxiliary materials used in the educational process, the quality of the educational process is highly influenced by the frequency of teachers' participation at educational courses /educational training. We grouped professional activities in three groups. Reading pedagogical literature or books related to teaching specific subjects is part of individual preparation. Results show that majority of technical college teachers usually read (57%) or often read (38%) literature related to specific subjects. Educational publications, books are read by fewer teachers, (20%) read them usually, and 50% often read them. Compilation of materials, worksheets is part of educational work: 49% usually do this, 39% often do this [Table 3]. Organizing study groups, having open classes help teachers to progress in their career, but these are not mandatory tasks, so everyone can decide on how often he undertakes such tasks. 32% of technical college teachers never organize and 16% often or usually organize study groups. The rates of open classes are similar, too: 16% never have, 56% seldom have, 26% often have and only 2% have them regularly. It can be concluded that the lack of these activities does not mean that teachers do not consider them important, but it rather means that they do not have time and energy for these extra activities. According to data the majority of teachers of vocational schools in Hungarian language in Romania participate at trainings (24% regularly, 46% often) and it is less frequent to take part at conferences (14% never, 53% seldom).

Table 3: The frequency of participating at professional activities (1-never, 2-seldom, 3-often, 4-regularly) (%).

	Technical college				Vocational school			
	1	2	3	4	1	2	3	4
Reads pedagogical literature	1	28	51	20	10	35	40	15
Reads literature related to specific subjects	0	5	38	57	0	5	40	55
Compiles teaching materials, worksheets	0	12	39	49	0	5	50	45
Leads study groups	32	52	10	6	50	40	0	10
Holds study groups	16	56	26	2	20	55	20	5
Participates at professional conferences	14	53	27	6	15	55	20	10
Participates at professional trainings	2	28	46	24	5	35	40	20

Among teachers at vocational schools the most frequent activities are the compilation of professional materials, worksheets and regularly reading specific literature and taking part at professional conferences. Presumably this way they try to countervail the lack of textbooks and auxiliary materials. However, it seems that professional activities which are not mandatory are not pursued, thus study groups are not organized, they rarely have open classes and contrary to teachers at technical colleges they do not or rarely participate at conferences.

We also asked teachers of specific subjects what they would suggest as supporting factor in order to reach effective teaching. This was an open question and one third of the teachers unanimously answered that for Hungarian vocational education there is a real need for Hungarian manuals, textbooks and computer software.

(3). Traditional versus ICT
We also measured with further questions to what extent do teachers use digital tools (computer, video projectors) in classroom activities, do they have classes in computer rooms, and to what extent are the reading materials they use digital.

Table 4 shows the utilization of digital tools in vocational education according to students. We can conclude that 11% of students of technical colleges and 21% of students of vocational schools did not experience the use of these tools during classes. The majority of them experienced the use of these ICT tools only at one quarter of their teachers during classes.

The possibility of using digital tools (computer, video projector) in classroom education is used differently by teachers. The use of these tools of teachers from technical colleges is more balanced, than in the case of vocational school teachers. There are just few (6%) who do not use digital technology at all during the classes. Most of them (44%) use digital tools in a quarter of rate and there are only 4% who regularly use ICT technologies during their classes. Compared to this 15% of vocational school teachers do not use e-learning tools, but 20% of them use only these aids during their classes [Table 4].

Table 4: The rate of digital tools (computer, video projector) used in classroom education (%)

The rate	According to students		According to teachers	
	Technical college	Vocational school	Technical college	Vocational school
0%	11	21	6	15
25%	43	38	44	30
50%	28	25	30	35
75%	14	11	16	0
100%	4	5	4	20

The use of possibilities given by computer rooms are not the best in vocational education. Despite the fact that figures show that teachers use ICT tools in classroom education, specific subjects are not taught in computer rooms using computers as educational tool. Half of the students do not acquire the knowledge, skills of ICT while learning their jobs [Table 5].

Teachers' opinion do not significantly differ from students' opinion. In spite of the fact that 85% of them use ICT tools in classroom activities in order to efficiently teach the material, only 41% of them use the computer daily or weekly in their preparation of the classes [Table 5].

Table 5: Specific subjects taught in computer rooms, using computers as educational tools (%).

	According to students		According to teachers	
	Technical college	Vocational school	Technical college	Vocational school
Daily	5	6	10	10
Weekly	29	26	31	30
Monthly	20	11	19	25
Half a yearly	14	14	26	25
Never	32	43	14	10

The rate of digital reading materials used by teachers differs a lot. 80% of technical college teachers use both digital and printed reading materials but mostly printed ones, 45% of teachers who teach specific subjects do the same and 45% of teachers choose digital reading materials only when they read anything they want not only specific literature [Table 6].

The use of digital materials related to the role of teaching also shows different rates. Most of the vocational school teachers (45%) prefer printed materials to digital ones, and most of the technical school teachers (42%) use both digital and printed materials for reading [Table 6].

Table 6: Teachers' reading habits (%).

The rate	Digital reading materials		Digital materials related to the role of teaching	
	Technical college	Vocational school	Technical college	Vocational school
0%	5	10	1	10
25%	41	25	33	45
50%	39	20	42	15
75%	12	35	23	25
100%	3	10	1	5

Analyzing to what extend are freely chosen reading materials digital, we can conclude that teachers of specific subjects use the possibilities offered by the internet. There is just a small group who demand printed materials for reading. If we compare the rate of digital reading materials we can observe that there is a difference: teachers' reading materials chosen freely are digital, whereas those related to their domain, to their teaching activity are printed. 45% of the reading materials chosen freely by teachers are totally or partially digital, and the materials connected to their educational work are 45% printed and not digital [Table 6].

(4). Teachers' e-attitude

In order to define teachers' e-attitude we analyzed different topics; which are the supporting and obstructive factors of teachers using digital tools more often, what do they prefer in classroom education e-learning or traditional methods/tools. According to teachers of specific subjects the most important factor in the effective educational work would be the access for students of the materials in digital format, too. Then, the access to computer simulations and animations related to special /technical subject were mentioned to facilitate the educational process. They considered less important the access of multimedia and auxiliary materials for the students and the access to interactive, e-learning materials were considered by them the least needed [Table 7].

Table 7: Supporting factors for using e-learning materials, ranked by teachers of specific subjects.

Ranking list technical collage	Supporting factors	Ranking list vocational school
1	The basic curriculum should be accessible for the students in digital format as well.	1
2	Computer simulations and animations connected to specific subjects should be accessible for students.	2
3	Multimedia materials should be accessible for students (sound, images, and videos).	3
4	Supplementary materials in digital format should be accessible for students.	4
5	Interactive e-learning materials should be accessible for students.	5

Ranking list done by technical college teachers and vocational school teachers referring to the facts that obstruct the use of e-learning materials in the educational work, which show differences only in the middle range [Table 8]. The most significant obstructions are that they do not have access to e-learning materials in Hungarian or other foreign languages, and the implementation of these is far too time-consuming. According to them they are good enough at computers, so they could use ready-made materials in the learning process, and they also agree on the idea that there is such motivation and support from school management. So, teachers who teach specific subjects are ready to use e-learning materials in their everyday work in order to make the teaching-learning process more effective, but there is

no time for this besides the preparation for classes. Among the listed factors it is worth talking about that fact that 30% of the teachers do not believe (technical college teachers 28,79%, and vocational school teachers 31,58%) that using digital materials would result more effective teaching-learning (Kátai, 2015).

Table 8: Factors that obstruct using e-learning materials more often, ranked by teachers of specific subjects.

Ranking list technical collage	Obstructive factors	Ranking list vocational school
1	I do not have access to e-learning materials in Hungarian language (in my domain).	5
2	Their implementation in the learning process is too time-consuming.	1
3	There are few e-learning materials in my domain (in any language).	2
4	There are no tools at home for this (proper computer, internet connection, software).	4
5	I do not believe that it would result a more effective teaching and learning.	8
6	I do not have the competency for developing my own e-learning materials.	7
7	They would need constant development because of the rapid improvement of technologies.	3
8	There are no available tools for this in the school (proper computers, internet connections, software).	6
9	There is no motivation or support from the management of the school.	9
10	I am not so good at computers, so I could include ready-made e-learning materials in the learning process.	10

Teachers who teach specific subjects prefer traditional tools / auxiliary materials to digital ones in an optimal proportion to the former. They significantly like paper-based textbooks and personal presence to online courses and interactive online materials (vocational school: $x_{digital} = 45.25$, $x_{traditional} = 54.75$, $p < 0.05$, technical college: $x_{digital} = 35.53$, $x_{traditional} = 64.47$, $p < 0.05$).

CONCLUSIONS

Labour market keeps putting pressure on our education system, so our graduate students could have up to date and improving IT knowledge. There is hardly any among the newly created jobs where there would be no need for digital skills. Students need teachers who help them to acquire several skills they will need in their future career. There are a lot of things that influence students' learning outcome, but in educational establishments teachers have the greatest impact on students' achievement. (COM, 2016). They can inspire and help students to acquire better and high level skills.

Students of vocational education in Hungarian language in Romania possess proper electronic devices (of their own or at home) that ensure their access to e-learning content. Analyzing the infrastructure of vocational secondary schools we can state that each school has a computer room with proper internet connection that can ensure students the access to communication technology. However the data of the survey also tells us that more than half of the students do not have classes in computer rooms, and they do not use computers as educational tool at school. This leads to the conclusion that students do not have the opportunity to improve their digital skills in parallel with their profession, so they could obtain better work places.

Comparing the differences and similarities of the two educational forms we can state that there are several factors that obstruct the fulfillment of the effective learning (more than 22 classes per week, 8-9 subjects, lack of student's books and teaching tools). It also became clear that teachers who teach specific subjects show a renewal in using proper tools. There are more teachers who use digital tools during the classes, compared to those who use traditional methods, and there are several teachers who use these tools in order to be prepared for the classes. The shift is significantly hindered by the fact that they do not have access to e-learning contents in the domain they teach, and the inclusion of these contents into the educational process would be too long. This can explain why many teachers do not use the computer room, as educational tool, when teaching specific subjects.

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THE STUDY OF ECO SCHOOL STUDENTS' AND ECO TEAM STUDENTS' OPINIONS ON ENVIRONMENTAL AND SCIENCE EDUCATION

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It was aimed to compare the opinions of the eco-team students in the eco-schools committee and the non-eco-team students about the environmental and science education.The study was conducted with 127 eighth grade students in 2 eco-schools in Ankara during the 2013-2014. Semi-structured interviews were held.It is desirable to understand how the Eco-School program is conducted by making a comparison between the Eco-Team students and the non-eco-team students.At the results of the analysis, it was reported that environmental education in the school positively influenced attitudes towards the environment of eco-team students more than the non eco-team students.

Close

THE TEACHING COMPETENCES OF THE UNIVERSITY TEACHER: A THEORETICAL APPROACH

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The European Higher Education Area (EHEA) has required to the university teacher a new conceptualization of university teaching. This new orientation of the meaning of teaching and learning in the university implies rethinking the teaching methodology. Therefore, the methodology has to focus more on the learner than on the teacher. A few years ago Barr and Tagg (1995) called it the shift from teaching to learning, and it has been developed in the scientific literature with other descriptors such as: student-centered, learner-centered or learning-centered (Palmer 1997, Kember, 1997; Gargallo et al., 2010; Martín et al., 2000). These approaches require fail to consider the position of sage on the stage and assume that it is as important what to learn as how to learn, and especially to consider who learns, understanding that teachers design teaching through challenging and deep learning experiences in an organized way. In this context, this contribution presents a map of teaching competencies of university professors through a review of the literature on teaching quality, teaching excellence and good practices in university teaching.The map of teacher competences, in the framework of university teaching, which emerges from the review includes planning, communication, tutoring, methodology, ICT and evaluation as essential teaching competences, together with other that several studies proposed (Medina y Domínguez, 2015; Salinas, De Benito & Lizana, 2014; Ruiz, García & Hernández, 2015).If it is intended to generate a formative horizon in the university, the university teacher must be the engine of change and quality teaching is the best way for it. It will be important to deepen in their role as facilitator, by focusing on to carry out a set of initiatives that allow to orient and to support broadly university students.A quality teaching is demanding, no doubt. For this reason, one of the great challenges of university faculty is to harmonize in their professional identity its two key functions: teaching (of quality) and research (relevant) (López, 2015).

THE TEACHING OF ANIONS AND CATIONS WITH THE EDUCATIONAL SET OF IONS

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ABSTRACT

Educational set of ions (ESI) is a card game that can be played with a group of 4. The reason why this game is designed is teaching names and formulas of anions and cations that would form a basis to write and term chemical formulas of the compounds which it is one of the most important subjects of chemistry. This game is prepared for students who study in different grades of education considering the subject on chemical compounds involving anion and cation teaching within the scope of chemistry lesson at high school and university. The game is discusses in 3 steps and these are "contents of the game set, playing the game and rules, and evaluation of the game results". Pilot scheme conducted in development step of the game was performed with 49 students in total who studied in Science Teaching, Chemical Engineering, Food Engineering, Pharmacy and took lesson of General Chemistry. As a result of the pilot scheme, ESI was put into final form by making arrangements as regards decreasing amount of students in the group, having students sitting in a round, designing answer sheets as reusable in press printed to prevent paper wastage and playing the game by gathering the cards couldn't be written by students.
Keywords: ion, anion, cation, chemical formula, training set, card game

INTRODUCTION

Compounds forming a basis in chemistry subjects can be shown as one of the subjects which students have difficulty in understanding (Demircioğlu and Demircioğlu, 2005). In the studies conducted, it is thus emphasized on the difficulties encountered in learning the subject on "terming chemical compounds". Besides, it is intended to teach the subject by using learning methods based on the game (Turaçoğlu, 2009). Chemical element and compound terming, periodic tendencies, ionic loads and electron configurations and etc. are suggested as some subjects to discuss through the game (Howe, Krone, Reiter & Verby, 2005).

Periodic table including classification and properties of elements has a quite important place in learning basic concepts of chemistry and students usually try to memorize it. For this reason, use of games is important as it facilitates learning and provides quick learning. In literature, it is seen that card game called ChemMend was developed by Centelles and Magnieto (2014) for teaching periodic table, a teaching game called Cheminoes was developed by Moreno, Hincapié and Alzate (2014) and taboo game was developed by İri and Çil (2013). It is stated that taboo game is an effective way to learn properties of periodic table, classify elements and provide permanent learning. In addition, as a result of periodic table bingo game in teaching elements in periodic table developed by Aycan, Türkoğuz, Arı and Kaynar (2002), it is stated that success will increase as practice time increase. It has been determined that high school students will learn names and symbols of elements and compose commonly used components when periodic table is explained though training card game instead of memorizing (Mariscal, Martínez & Márquez, 2012). When considering games developed for teaching chemical subjects, games developed for exploring information on periodic table using atomic and molar mass (Woelk, 2015), teaching compounds with covalent and ionic bonds (Morriss, 2011), learning names and functions of common tools of chemistry laboratory (Kavak & Yamak, 2016) draw attention. Picture Chem developed by Kavak and Yamak, (2016) is played with 30 cards and game board. Strengths and weaknesses of the game were tested quantitatively and it was stated that the game was found useful by students.

It was stated that games to use in solving synthesis problems and reviewing organic reactions related to organic chemistry are specifically effective in placement exams with low level organic chemistry courses and high level organic synthesis courses (Farmer & Schuman, 2016). Again, Carney (2015) developed a card game related to functional groups and reaction types in order to practice on organic chemistry. Wilhelm (2016) developed an appropriate game called as ReMeM:BER so that students could test their knowledge on organic reaction mechanisms. He stated that this game requires a good memory, knowledge on organic reaction mechanisms, strategic thought and chance. For Welsh (2003), it was intended with games such like "Old Maid" and "Go Fish"

that students could learn not only names of functional groups but also different ways to represent and match the groups.

Purpose of this study is to design a card game for teaching names and formulas of ions which would form a basis for writing compounds when considering that learning with game would allow students to produce an idea and it would increase their learning responsibilities and accordingly their motivations against learning.

METHOD

Names and formulas of commonly used anions and cations have been determined by asking opinions of the experts in chemistry in order to determine ions involved in the game. Pilot scheme conducted in development stage of the game was performed with 49 students in total who studied in Science Teaching, Chemical Engineering, Food Engineering, Pharmacy and took lesson of General Chemistry.

RESULTS

As a result of the research, ion cards have been developed to teach the names and formulas of anions and cations, which will be the basis for writing and naming chemical formulas of compounds which are one of the important subjects of chemistry. Pink cards shown in Figure 1 were used in order to teach students primarily how to write names and formulas of ions. These cards include both names and formulas of ions commonly used. Monatomic and polyatomic ions are presented together. Students sat in the class according to layout model of classic order. Between each other, they were separated into 6 groups of 8 persons and 1 group of 9 persons. Pink cards were given to the students. They were asked to create a list by teaching them name and formula of ion involved in each card. Figure 1 illustrates examples for ions involved in 82 pink-colored cards in total (45 anions and 37 cations) prepared according to names and formulas of 1 deck.

3. $(S_2O_3)^{2-}$ thiosulfate ion	**52.** Cs^+ caesium ion

14. $(Cr_2O_7)^{2-}$ dichromate ion	**19.** $(BrO_3)^-$ bromate ion	**61.** Cd^{2+} cadmium ion	**67.** Fe^{2+} ferrum (II) ion - (ferrous)
32. $(O_2)^{2-}$ peroxide ion	**40.** $(ClO_2)^-$ chlorite ion	**74.** Au^{3+} aurum (III) ion	**80.** Hg^{2+} hydrargyrum (II) ion - (mercuric)
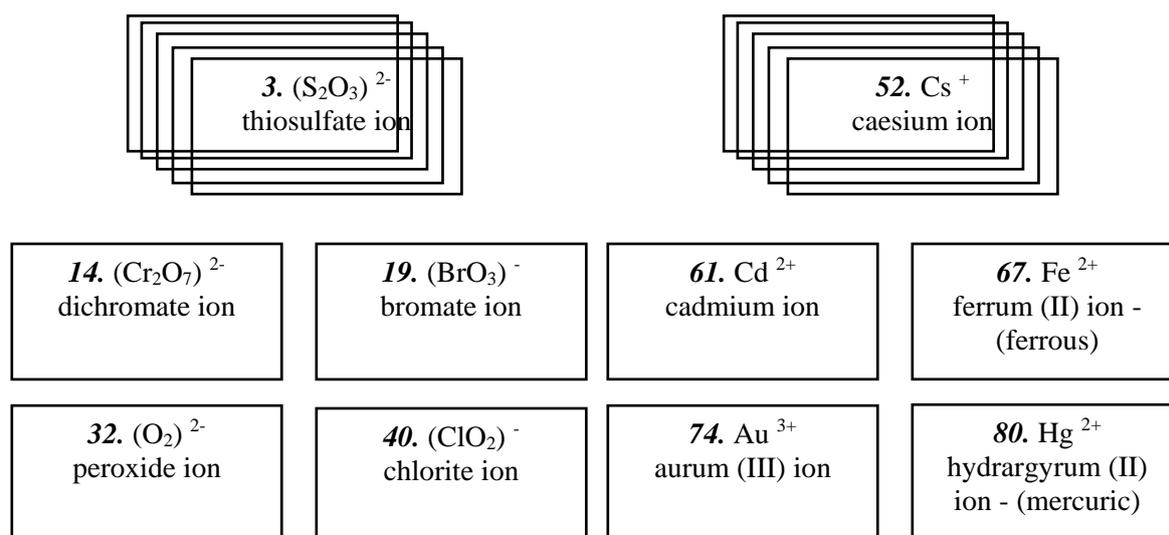
Figure 1: Anion and cation cards according to their names and formulas

After ion training conducted using pink cards, each student was given small answer sheets enumerated from 1 to 9 in the game played in order that students could reinforce the ions they learned. Among 6 groups, 3 groups were given ion set of purple by the names and other 3 groups were given ion set of orange by the formulas. Each set is composed of 82 ions and 1 student will answer 82 ions. Cards were exchanged between the groups after groups played game they ran into. After students determine the direction of card transfer between each other, each student pulls a card from the ion deck (anion and cation). Then, he writes what he sees on the card without showing the other students and puts it into the box in the middle and then he gives the card he wrote to the next friend in the direction of circle. When the card chosen by a student comes again to the student, 1st round of the game will be completed, and cards belonging to that round will be collected and put aside. After that, again everybody choose one card from the closed ion deck in the middle, and 2nd round of the game starts. This round continues until all cards in the middle ends. In this way, all cards will have been written by all students. Figure 2 presents the examples for ions involved in 82 purple-colored cards (45 anions and 37 cations) of 1 deck prepared by the names.

| **7.** hypobromite ion | **49.** magnesium ion |

| **18.** perchlorate ion | **21.** bicarbonate ion | **58.** ferrum (III) ion - (ferric) | **63.** cadmium ion |

| **37.** permanganate ion | **41.** hydrogen phosphate ion | **77.** aluminium ion | **82.** cobalt (III) ion |
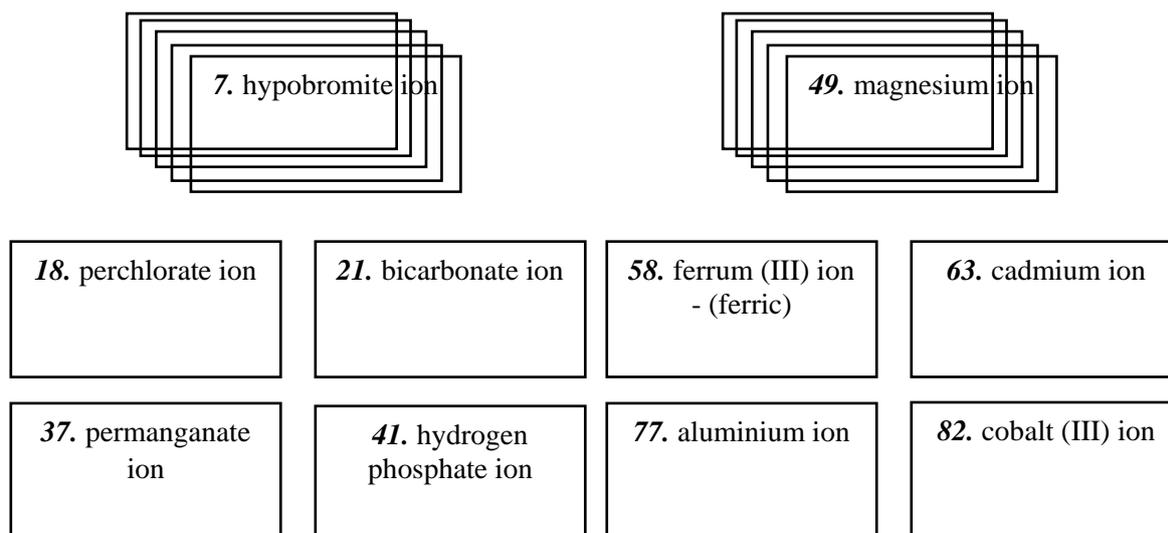
Figure 2: Anion and cation cards by name

Figure 3 presents the examples for ions involved in 82 orange-colored cards (45 anions and 37 cations) of 1 deck prepared by the formulas.

| **9.** $PO_4{}^{3-}$ | **47.** Cr^{3+} |

| **20.** $S_2O_3{}^{2-}$ | **25.** $CrO_4{}^{2-}$ | **55.** Zn^{2+} | **62.** $NH_4{}^{+}$ |

| **38.** $C_2O_4{}^{2-}$ | **45.** $MnO_4{}^{-}$ | **73.** Mn^{2+} | **79.** Rb^{+} |
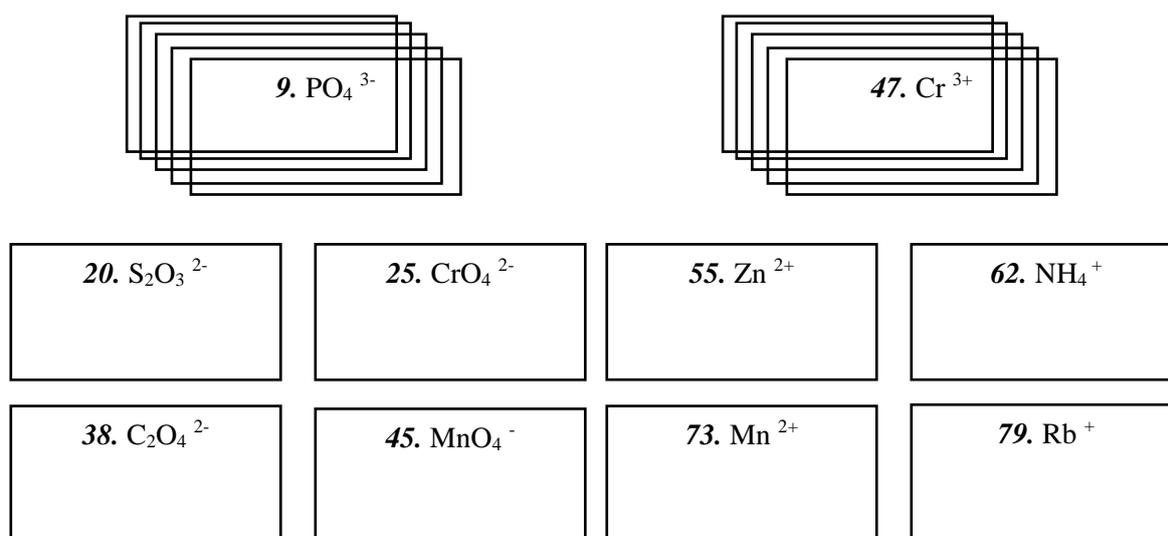
Figure 3: Anion and cation cards according to their formulas

Introduction of the game has been considered in 3 stages and these are;
1. Contents of the game set
2. Playing the game and rules
3. Evaluation of the game results

1. Contents of the game set
ESI composed of the following contents:
✓ 1 deck of purple-colored anion cards by the names (45 pieces),
✓ 1 deck of purple-colored cation cards by the names (37 pieces),
✓ 1 deck of orange-colored anion cards by the formulas (45 pieces),
✓ 1 deck of orange-colored cation cards by the formulas (37 pieces),
✓ Small square answer sheets in different colors for each player (82 pink, 82 blue, 82 green, 82 yellow) on which are coated by press print and which can be deleted and used again and again,
✓ 4 erasable marker pens,
✓ A non-transparent box in which answers would be put,

✓   4 answer controlling sheets and a small cloth for cleaning the answers at the end of game.

2. Playing the game and rules

From the pilot scheme, rules have been developed for ESI. While determining the rules, it is paid attention to prepare a limited number and functional rules in a way to keep them in mind.

✓   4 players sit in a way to create a circle.
✓   Each player chooses a color for himself (82 pink, 82 blue, 82 green, 82 yellow) and takes all cards belonging to that color.
✓   The box in which the answers written on colorful sheets would be put, is placed equidistantly in the middle.
✓   Each player is given one black-colored erasable marker pen into the contents of set.
✓   Purple-colored cards consisting of ions (anions and cations) by the names are mixed and put inversely.
✓   Each player pulls a card in the middle. He/she writes number and formula of ion over the card he/se chose (anion and cation) on the answer sheet and then put it into the box.
✓   In the similar way, orange-colored cards consisting of ions (anions and cations) by the formulas are mixed and put inversely.
✓   Each player pulls a card in the middle. He/she writes number and formula of ion over the card he/se chose (anion and cation) on the answer sheet and then put it into the box.
✓   In this way, it will be determined which answers belong to which player by the colored answer sheets and which answer is given by a player to which card by the numbering game cards.
✓   Game is completed when all ions cards in the middle end.
✓   While player gets 1 point as much as the number of correct answer, he/she gets 0 point as much as wrong or blank answers. Total net point of the player would be as much as the points obtained by the correct answers.

Figure 4 presents a representative graph with regard to playing ESI game.

Figure 4: An illustrative drawing on the playing of the ESI game

3. Evaluation of the game results

At the end of the game, players are provided with an analysis sheet prepared as numbered (anions from 1 to 45 and cations from 46 to 82). Players take the answer sheets from the box and put them on the table and then collect their own answer sheets by separating them by their colors. Players are provided with answer controlling sheets consisting of names or formulas of the ions in a numbered way. Each player calculates his/her own point by analyzing numbers of correct, blank and wrong answers and records it on Table 2. Who gets the highest total net point will be the winner. Sequences are prepared as diversified in the sets which are prepared by the names and by the formulas and by both names and formulas in case students could memorize sequence numbers of the ions. Table 1 presents the ions by the formulas on the cards, for example.

Table 1: Ions by formulas on the cards

1. $H_2PO_4^-$	2. CO_3^{2-}	3. BrO^-	4. O^{2-}	5. HPO_4^{2-}
6. OH^-	7. BrO_2^-	8. P^{3-}	9. PO_4^{3-}	10. NO_2^-
11. ClO_3^-	12. N^{3-}	13. Cl^-	14. ClO_4^-	15. O_2^-
16. SO_3^{2-}	17. Br^-	18. ClO_2^-	19. ClO^-	20. $S_2O_3^{2-}$
21. MnO_4^{2-}	22. PO_3^{3-}	23. F^-	24. HSO_3^-	25. CrO_4^{2-}
26. S^{2-}	27. SeO_4^{2-}	28. BrO_3^-	29. I^-	30. $Cr_2O_7^{2-}$
31. NO_3^-	32. IO^-	33. H^-	34. BrO_4^-	35. HSO_4^-
36. IO_3^-	37. CN^-	38. $C_2O_4^{2-}$	39. IO_4^-	40. HCO_3^-
41. O_2^{2-}	42. SO_4^{2-}	43. SCN^-	44. SeO_3^{2-}	45. MnO_4^-
46. Be^{2+}	47. Cr^{3+}	48. Au^+	49. Co^{3+}	50. Au^{3+}
51. Ni^{3+}	52. Fe^{3+}	53. Fe^{2+}	54. Cr^{6+}	55. Zn^{2+}
56. Co^{2+}	57. Ag^+	58. Cs^+	59. Cu^{2+}	60. K^+
61. Mg^{2+}	62. NH_4^+	63. Pb^{4+}	64. Pb^{2+}	65. Si^{4+}
66. Sn^{4+}	67. Cd^{2+}	68. Hg^{2+}	69. Cu^+	70. Hg_2^{2+}
71. Sn^{2+}	72. Sr^{2+}	73. Mn^{2+}	74. Na^+	75. Ni^{2+}
76. Al^{3+}	77. Cr^{2+}	78. Li^+	79. Rb^+	80. Ba^{2+}
81. Ca^{2+}	82. Au^{3+}			

When Table 1 is examined, it is seen that 82 formulas of ion are included without order. Table 2 presents evaluation of results of ESI game.

Table 2: Evaluation of results of ESI game

Number of round	Number of player	Number of correct answers	Number of wrong answers	Number of blank answers	Total net point
1	1.	62	13	7	62
	2.				
	3.				
	4.				
2	1.				
	2.				
	3.				
	4.				
3	1.				
	2.				
	3.				
	4.				

When Table 2 is examined, while player gets 1 point as much as the number of correct answers, he/se gets 0 point as much as wrong or blank answers. Total net point of the player will be as much as the point obtained by number of correct answers. For example, if a player has 62 correct answers, 13 wrong answers and 7 blank answers, then he/she will get 62 net points in total in this case.

DISCUSSION AND SUGGESTIONS

With this study, educational set of ions (ESI) has been developed in order to teach how to write names and formulas of anions and cations properly. This game is prepared for students who study in different grades of education considering the subject on chemical compounds involving anion and cation teaching within the scope of chemistry lesson at high school and university. As a result of the pilot scheme, ESI was put into final form by making arrangements as regards decreasing amount of students to 4 in the group, having students sitting in a round, designing answer sheets as reusable in press printed to prevent paper wastage and enlarging their sizes a little, and playing the game by collecting the cards couldn't be written properly by students.

The developed ion cards can be used in order to write formulas and names of commonly used compounds. It is written if card is anion or cation on the back side of the cards. Players can write, on their answer sheet, the compound to be formed by one anion card and one cation card of purple-colored cards prepared by the names, and the compound to be formed by one anion card and one cation card of orange-colored cards prepared by the formulas. An expert or class teacher plays a role in evaluating possible compound combinations as the number of them is too much in evaluating the phase to form compounds in order to reinforce anions and cations learned. For example; given that player would choose magnesium ion into the deck of cation and sulphate ion into deck of anion laid randomly from cards prepared by the names. The compound required to be written using this anion and cation by the player is magnesium sulphate. Given that player would choose Li^+ into the deck of cation and CN^- into deck of anion laid randomly from cards prepared by the formulas. The compound required to be written using this anion and cation by the player is *LiCN*.

It is considered that the game prepared would make a contribution to increase motivation and knowledge level of students in this regard. When literature is examined, indeed, it is determined that using games in education has a positive effect on success of the student. Educational games are useful pedagogical tools that make learning possible though entertainment (Bayir, 2014). Educational games allow students to develop skills such like creativity, imagination, synthesis as well as they draw catch students' attention and make knowledge permanent (Kaya & Elgün quoted from Kaptan & Korkmaz, 1999, 2015). For Lowe (1988), studies can be conducted on integration toys and games into the education by examining curriculums of primary school and secondary school. Prompting an active learning in an entertaining way out of the ordinary routine in the class and encouraging students to communicate and interact can be shown as some advantages of teaching with games (Kavak, 2012a;b). In the study by Rastegarpour and Marashi (2012) in order to study effect of educational card games and computer games prepared by the teachers on learning of university students in terms of chemical concepts, it was determined that games are effective instruments in education. Similarly, in the study by Samide and Wilson (2014), it was observed that game is a good instrument in understanding.

Some students always want to play more challenging card games (Welsh, 2003). While preparing card games pleasing majority of the class, statements from simple to complex can be put into the set, and thus students leading the class won't find the game simple and won't get bored. Indeed, it is suggested to play the game ideally in 1-3 rounds (1 round, both by name and according to their formulas, 1 round according to their names, 1 round according to their formula) since the game would last long with ESI developed within the scope of study. In addition, ESI game set can be printed and played in different languages (German, French, etc.).

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THE USES OF AUGMENTED REALITY IN LEARNING SCIENCES: A REVIEW

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ABSTRACT
The uses of emergent technologies such as Augmented Reality (AR) has changed the traditional educational paradigm by making learning ubiquitous through extending the learning environment to the extent where learners can take the ownership of their created knowledge. AR technologies are wearable systems which "sense properties of the physical world and overlay computer-generated visual, audio, and haptic signals onto real-world" objects in real time (Roesner, Kohno, & Molnar, 2014. p.88). Such an amalgamated AR system with other technologies (for example smartphones, tablets, laptops, etc.) can produce a compact environment that can offer pedagogical supports in designing dynamic learning environments (Johnson, Levine, Smith, & Stone, 2010). However, AR technologies which rely on the overlaying of data facility can prove a big threat in terms of breaching confidentiality, hacking personal information, inducing violence, identity crisis, discouraging anonymity, bullying, and respect. The central issue of this review is to navigate as to how AR enriched environment support and promote sociocultural, cognitive, pedagogical, and affective aspects of learning? To organize the review structurally, the conversation will start with a background of AR and its uses in education by reviewing AR technology in education and finally, the author discusses the potential threats regarding the uses of AR technology in education.
Keywords: Augmented reality, learning sciences, pedagogy

INTRODUCTION

Learning is an innate characteristic which is found in the human and other living organisms alike. Dillenbourg (1999) defines learning as a "biological and/or cultural process" (p.4) that takes place over several years; a joint problem solving in which learning is assumed to occur as a by-product of interactions. Learning is a process beyond the collection of factual and procedural knowledge, as it produces changes in the organism and the changes produced are relatively permanent (Schacter, Gilbert, Wegner, & Nock, 2014). Change in human behavior can be a sign of learning but this change is subject to many external and internal factors that may affect learning. For example, external factors such as learner's heredity, home culture, and physical environment are crucial to achieving the desired learning outcomes. In addition, on the other hand, the internal factors include learner's personality characteristics – attention, interest, aptitude, motivation, self-efficacy, beliefs, and persistence – are important to effect any change in learner's behavior. Learning may take any forms – formal learning (directed and organized at some formal space e.g. school), informal learning (results from personal experiences and day-to-day interactions with people), incidental learning (occurs during interactions between teacher and student which is unplanned and a kind of incidental), and meaningful learning (deep and comprehensive learning which may allow to translate and transfer the learned knowledge to other branches of knowledge). To understand the possible shape, scope, and space of learning, we need to discuss learning sciences.

WHAT IS LEARNING SCIENCE

Learning science is a science that tries to "understand the nature of learning from a broad range of perspectives, and to shape the ways that learning environments and resources are designed and used" (Nathan & Wagner, 2010, p. 329). The multidisciplinary perspectives of learning sciences range from psychology (including cognitive, developmental, and educational psychology), education, computer science, neuroscience, anthropology, social linguistics, and sociology. The intersectionality of these multidisciplinary domains has affected the theories and practices of learning in education. For example, the cognitive, socio-cognitive, social-constructivist, and socio-cultural theories of learning have stemmed from the interactions among multiple disciplines that have shifted the

educational paradigm from teacher-centered to learning-centered. Learning sciences cater to meet the needs of learners when these "investigate basic research questions about learning and learners, the role of social context and culture, and the nature of the design process itself" (Nathan & Wagner, 2010, p. 329). It is a kind of "eduneering" (Nathan & Wagner, 2010, p. 329) given its systemic approach which focuses on the design, implementation, evaluation, and redesign of innovative learning approaches and tools. Given the vast scope of learning sciences which is beyond the reach of this review, the aim of this paper is to discuss the uses and mis(uses) of augmented reality (technological learning science - ICT) in education from the lenses of socio-cultural aspects of learning. In this context, the uses of emergent technologies (e.g., AR) have been incremental to foster the learning-centered approach in education, for these technologies have offered new ways to counter the limitations of time and space by designing ubiquitous and realistic environments for learners. (e.g. eLearning, mlearning).

DEFINING AUGMENTED REALITY (AR)
The influx of varied emergent technologies in the recent years has changed the methods and tools of teaching and learning. For example, the uses of emergent technologies such as Augmented Reality (AR) has changed the traditional educational paradigm by making learning ubiquitous through extending the learning environment to the extent where learners can take the ownership of their created knowledge. AR technologies are wearable systems which "sense properties of the physical world and overlay computer-generated visual, audio, and haptic signals onto real-world" objects in real time (Roesner, Kohno, & Molnar, 2014. p.88). Such an amalgamated AR system with other technologies (for example smartphones, tablets, laptops, etc.) can produce a compact environment that can offer pedagogical supports in designing dynamic learning environments (Johnson, Levine, Smith, & Stone, 2010). The review will focus on a diachronic study of AR in education and how it will inform the educational practices in the future. The review starts the conversation with a brief discussion on the background of AR, its model, its types, and its uses in education followed by a literature review of AR technology in education, and finally the author discusses the potential dangers of using AR technology in the educational domain. The main questions that prompt the conversation include:

- *How does AR support and promote the cognitive, socio-cultural, personal, affective and pedagogical aspects of learning?*
- *What are the potential dangers of including AR in education without considering its role as affordances for the educational and pedagogical purposes?*

Klopfer and Squire (2008) define AR as a situation in which a real-world context is dynamically overlaid with coherent location context-sensitive virtual information. More specifically, Milgram, Takemura, Utsumi, Kishino (1994) have defined AR in a visual way as below (see Fig 1.):
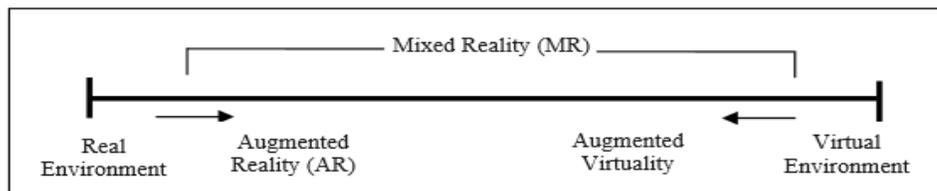
Fig.1. Milgram Reality-Virtuality Continuum

As in Fig. 1, the Mixed Reality (MR) has two main elements: one left side is augmented reality and the right side is augmented virtuality (AV). AR is a mix of the real and virtual object and consists of some amount of virtual data. In a nutshell, AR uses game-based models (i.e. based on game content and methods) in which technologies such as mobile phones (e.g. handheld devices), octopus rift (e.g. head-mounted devices) and other wearable gadgets (e.g. Google Glass) are used to create a mix of VR (Virtual Reality), AR and real-environments.

TYPES OF AR

Wojciechowski & Cellary (2013) have described three types of AR in use: marker-based AR, marker-less AR, and location-based AR. Marker-based AR uses markers. Markers are labels of colored or black and white pattern registered by the AR application captured via the camera of device. Marker-less AR recognizes the shapes of the objects. While the location-based AR superimposes information onto the geographical location of the user. Bacca, Baldiris, Fabregat, Graf, and Kinshuk (2014), have reported that marker-based AR (59.38%) is the most favorite type of its user followed by location-based types (21.88%). Chen, Ho, and Lin (2015) have offered a visual example of how markers and models work in learning as below (see Fig. 2.):
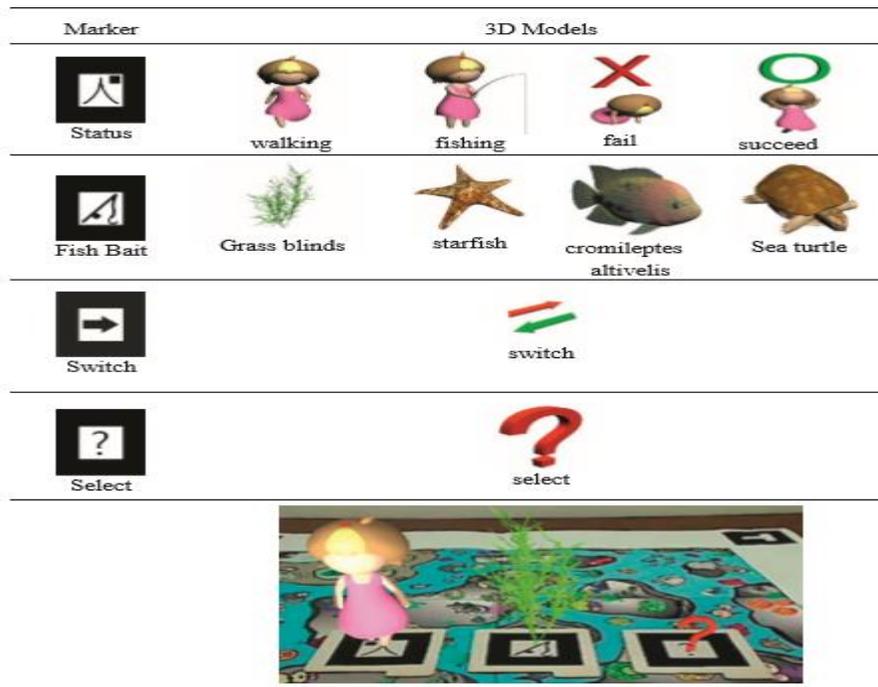
Fig. 2. Interactive markers and models (Chen et al., 2015, p. 218)

CONNECTING SCIENCE WITH EDUCATION

Education is a branch of science that facilitates the learning of knowledge, skills, values, beliefs, and habits. This facilitation is mediated through the learning sciences which incorporate the social, cultural, environmental, mental, physical, computational, and educational facets of learning and learners. In the next few paragraphs, the author will review how AR has made its ways in education, say, purposes and levels of the uses of AR education, its multidisciplinary uses in learning, and the potential mis[uses] of AR in education. Bacca et al. (2014) have conducted a systematic review of the trends of AR in education. The review enlists the following purposes of AR in education as shown below in the Fig. 3:

Purposes of the uses of AR in education

Sub-category	Number of studies	Percentage (%)
Explaining the topic	14	43.75
Evaluation of a topic	0	0.00
Lab experiments	4	12.50
Educational Game	6	18.75
Augment information	13	40.63
Exploration	1	3.13
Other purposes	0	0.00

Fig. 3. Purposes of the uses of AR in education (Bacca et al., 2014, p.140)

As indicated in the Fig. 3., AR is used primarily for the purposes of explaining the topic (43.75%) and augment information (40.63%) in educational settings. The rationale for such uses of AR to connecting with previous knowledge of the learners (as advance organizers) and to make the information more dynamic and lively for longer retention.

Levels of education AR in use

Sub-category	Number of studies	Percentage (%)
Early childhood education	0	0.00
Primary education	6	18.75
Lower secondary education	6	18.75
Upper secondary education	4	12.50
Post-secondary non-tertiary education	0	0.00
Short-cycle tertiary education	1	3.13
Bachelor's or equivalent level	11	34.38
Master's or equivalent level	0	0.00
Doctoral	0	0.00
Informal Learning	2	6.25
Not mentioned in the study	2	6.25

Fig. 4. Levels of Education AR in use (Bacca et al., 2014, p.140)

The Fig. 4. shows that at the undergraduate level (34.38%) AR is more active. The reasons for such an intensity at this level may be learners' needs for collaboration in projects, the domains of the study, and the nature of the inquiry to be investigated. At the kindergarten and post-secondary non-tertiary level, the negligible uses of AR (0.0%) signal to the lack of exposure or intent to employ the AR technology. Interestingly, at the primary and junior high school levels, the uses of AR are recognizable as to comprehend the concepts of content and processes.

AR TECHNOLOGY IN SOCIOCULTURAL LEARNING

Some studies (Tu, & Jyh Yen, 2007; Johnson, Levine, Smith, & Stone, 2010), have reported that online technologies and especially AR are capable to push the constructivist school of thought. Papert and Harel (1991) remark that design-based learning is grounded in the constructivist paradigm that posits that students' understanding of their world is best developed when they actively create real objects. Since learning is a "social" (Bandura, 1977) act, the potential of AR in fostering the transaction of ideas and interests among learners is manifold. To accommodate the socio-cultural aspects of learning in its entirety, teachers can use the affordances of AR to create learning spaces which are geared toward the learners' individual, familial, institutional, social, and cultural orientations. This notion of diversity of learners makes learning a sum of environmental interactions which is facilitated by the transactions between and among learners, teacher, and environment. Designing learning experiences include the designing of the physical, social, cultural, and psychological spaces for learners. AR offers both teachers and learners alike the potential to design teaching and learning experiences to promote diversity in the classroom. It offers viable and feasible alternatives to translate the complexity of learning concepts and turn them into an interactive, entertaining, collaborative and engaging experiences. Through AR facilitated information overlays, students can engage themselves in creative learning by making deep and lasting connections with their knowledge base (Kerawalla, Luckin, Seljeflot, & Woolard, 2006). In a way, AR offers many affordances to design such environments where learners' diversity – ethnicity, culture, class, and geography – can intersect and collaborate. As AR thrives on design-based models, it has potential to accommodate the sociocultural diversity of learners significantly. In this sense, AR can provide ample opportunities to navigate the unexplored possibilities for creating diverse content of socio-cultural dimensions which traditional pedagogical strategies often does not.

Given the diverse nature of modern classroom, teachers need to understand and accommodate the structure of classroom which consists of a variety of learners belonging to multiple ethnicity, cultures, classes, nationalities, and learning styles. When teachers use the affordances of AR, they can create simulated scenarios catering to a specific group of learners to enhance the learners' experiences about that group culture. For example, AR-based games can

be useful to make students understand how power structures work in the social and institutional milieu and what are the covert or overt superstructures (e.g. language, religion) put in place to marginalize a certain group of people in society. Consequently, a developed understanding of the socio-cultural aspects imparts more opportunities for collaboration, engagement, motivation, and cultural connection among learners in a diverse classroom.

CREATING THE CURRICULUM AND PEDAGOGY USING AR TECHNOLOGY

The curriculum is a dialogic document that mediates between a teacher and learner. Designing an interactive curriculum for diverse learners to voice their cultures, languages, classes can help them feel organically attached to it. AR can offer many possibilities to design a curriculum which may accommodate the diversity of learners. Secondly, AR can be embedded in the pedagogy of a curriculum at the designing stage. AR as pedagogy can help experiment and apply multiple scenarios to understand various aspects of equity and diversity to represent the diverse experiences of a curriculum. For example, the tools of AR in the instructional strategy can offer affordances to exploit the maximum senses (visual, auditory, neurological and tactile) in learning.

Furthermore, the mobile-based AR technologies can be used to help international students accommodate them better in new cultural settings. Similarly, AR tech-pedagogy can be more vital in a diverse classroom where teachers need to create scenarios which are, sometimes, not feasible in real-life settings given the cultural and religious restrictions. For instance, some culture, say, South Asian people are less open in comparison to European and North American people regarding the matters of sex education and other aspects related to their personal lives. In this context, AR enriched environment can create a meeting point to raise cultural awareness between students' cultures and the associated beliefs of their cultures about sex and other personal aspects of life.

AR AND COGNITIVE SCIENCE

AR embedded environments can prove to reduce cognitive load on learners. *Cognitive load* (Sweller, 1988) is the total amount of mental effort being used in the working memory. Since working memory has limited information processing space at one point of time, the cognitive load on learner increases. In this situation, AR enriched environment can reduce the extraneous load which is unnecessary (that is the way information is presented to learners). To do so the instructional/curriculum designers need to explore the alternative ways of presenting the content. For example, using visual and graphic items instead of verbal and oral narratives to explain any mathematical figures, say triangle, square among others can be helpful to teach better and longer. This change in the presentation may result in better processing of the information by offering longer retention and better compartmentalizing of information to long-term memory (germane load) of learners.

AR IN THE PERSONAL, SOCIAL, AFFECTIVE SKILLS ENRICHMENT

Engagement, Collaboration, and Motivation

Collaborative learning has taken a granted place in the current enterprise of teaching and learning. Collaborative learning necessitates that learners need to be dialogic and engaging. AR as a technology can provide tools and techniques to engage learners and then enable them to collaborate consistently. Squire and Klopfer (2007) say that AR can stimulate learners' prior knowledge and can enhance their levels of engagement in academic activities. It is so because the learners enter the classroom with their great funds of knowledge. The proper use of leaners' knowledge can help understand their levels of competence and needs. Once learners' previous knowledge is activated, the possibility to affect meaningful learning increases. For example, Ardito, Buono, Costabile, Lanzilotti, and Piccinno (2009) have presented a Mobile Augmented Reality (MAR) game called *Explore* to scaffold collaboration among learners. The findings of Ardito, et al., (2009) reported that the game *Explore* helped to support and collaborate the middle school students in groups during a project at the archaeological sites in Italy. Such a collective experience obtained in groups can help create newer group projects based on those collaborative learning. In addition, AR can enhance collaboration between students-students and student-instructors (Billinghurst, 2002) resulting in the maximum transfer of learning (Kaufmann & Schmalstieg, 2003).

Motivation is a necessary condition to achieve the desired educational goals. AR has potential to motivate learners at both content and methods levels. A study by Di Serio, Ibáñez, and Kloos (2012) has found that AR technology can have a positive impact on the motivation of middle-school students. An environment designed with AR technology can create students' interests in the content and can retain them for a longer time through constant motivation. Other studies (Radu, 2012; Radu, 2014) on comparing the student learning in AR versus non-AR applications have reported the positive effects of AR in the experimental condition. For example, AR supported groups had many benefits over non-AR groups. These included increased content understanding, learning spatial structures, language associations, long-term memory retention, improved collaboration, and motivation.

AFFECTIVE ASPECT: PERSONAL BELIEFS
Rokeach (1972) defined a belief as "any simple proposition, conscious or unconscious, inferred from what a person says or does, capable of being preceded by the phrase such as 'I believe that...' (p. 113). Teacher and students' beliefs are the valuable assets in the enterprise of teaching and learning. Both teacher and students alike hold their certain beliefs when they interact during learning discourses. AR technology can set a stage for both teacher and students to understand their mutual belief systems which are very crucial for the meaningful learning. For example, AR technology can offer help in designing games and simulators to which both teachers and students can expose their personal biases and prejudices, otherwise difficult to surface them in daily conversations without inflicting others. This exercise of playfulness will help teachers and students alike to negotiate their biases. Thus, a change in beliefs may occur and may enhance the engagement in the classroom.

POTENTIAL DANGERS OF USING AR TECHNOLOGIES IN EDUCATION
Though there are many advantages of employing of AR in education from pedagogical and environmental perspectives, it has numerous dangers of unprecedented nature with a sizable negative impact on its users and used ones. AR technologies which rely on the overlaying of data facility can prove a nightmare in the cases of breaching confidentiality, hacking personal information, inducing violence, identity crisis, discouraging anonymity, bullying, and respect (Roesner, Kohno, & Molnar, 2014). For example, the issues associated with the privacy, breach of confidentiality, and bullying, have come up with the dark side of AR. A longitudinal study is warranted to investigate the actual gains of AR technologies in this reference. In this last section, the author discusses the limitations of AR technologies in education.

CONCERNS TO PRIVACY AND THE BREACH OF CONFIDENTIALITY
AR technologies such as Google Glass (GG) have been reported for the potential dangers to individual privacy. Champion (2013) in his article, *Thirty-five arguments against Google Glass*, highlights the harms the Google Glass can do. For example, the Google Glass may keep a panoptical surveillance over the social, personal, cultural and possibly even psychological aspects of an individual. Similarly, as discussed in the same article, GG may restrict the social circles by ceasing the interactions among people. Furthermore, AR faces privacy questions that fall into two groups: the viewing of information and the information itself. Questions such as Who will be able to see the display apart from the user? What information will be posted? Are still seek answers. In the same vein, Mistry, Maes, and Chang (2009) have developed AR technologies such as WUW (Wear Ur World) that can recognize people and can display their social networking activity (Berryman, 2012) as well.

Furthermore, AR technologies have reported the negative impact on various classroom activities – attention tunneling, usability difficulties, ineffective classroom integration, and learner differences (Radu, 2012; Radu, 2014). Firstly, it is not possible for each teacher to create new learning content and use it effectively in the classroom. Secondly, the issue of paying too much attention to virtual information is another issue which may affect leaners' focus on learning process (Bacca et al., 2014). Thirdly, the designing of AR rich environments is quite expensive. For example, the Head Mount AR technologies are difficult to provide to each student. Lastly, AR technologies are quite new in the domain of education and the effective uses of these technologies need training on the part of teachers. Preparing teachers for the transition from old to new pedagogy is subject to their beliefs, attitudes, and individual resistance.

CONCLUSION

Like any new technologies, the use of AR is also surrounded by doubts and questions regarding its applicability and sustainability in education. AR has proved its mental in the fields of medical sciences, auto industries, defense, and to some extent in education. The uses of AR in education, no doubt, can extend the possibilities of learning in the areas of creating learning environments, the ubiquity of learning, and blurring the boundaries between formal and informal learning. Further, AR technologies have offered alternatives for the experimentation and change in pedagogy via employability of the newer and varied instructional methods and techniques. For example, in STEM education, the progress is phenomenal. AR has provided more options for accommodating diversity and maintaining equity in education through its collaborative and engaging approach.

Furthermore, the uses of AR in education have made possible for teachers and students alike to understand each other and change their beliefs for good. Similarly, student motivation has also been affected by AR leading technologies. With the enhanced motivation, students may increase their learning outcomes. AR may prove instrumental in reducing attrition rates via its engaging and multimodal approach.

Though there are many positives of using AR in education, the dangers of its misuse cannot be denied. There is a need to reconsider the issues of its navigability and access in education. Issues of privacy and confidentiality need to be addressed before any free play of this technology in educational corridors. On the whole, AR is a great tool to be explored in its variability in the current ICT paradigm. Though the potential of AR has offered many educational tools, the meticulous handling of this technology in classroom needs adequate education and training for both teachers and students before they apply it in the real settings. In addition, a political will is also needed to introduce this technology in schools and universities as it requires a sizable investment. Lastly, the educators must have positive attitudes and strong intent to make the transition from old to new technologies.

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THREE-DIMENSIONAL INTERPRETATION OF SCULPTURAL HERITAGE WITH DIGITAL AND TANGIBLE 3D PRINTED REPLICAS

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Abstract

The visualization and interpretation of three-dimensional objects in tactile devices and the possibility of digital manufacturing with 3D printers, offers an opportunity to include replicas of sculptures in teaching and, thus, facilitate the 3D interpretation of the sculptural heritage. This spatial interpretation features as a skill to acquire in the educational curricula. In this research, an open access 3D educational resource is created for teaching in the aim of Art and drawing subjects. Fifteen students of *High School* worked in a traditional 2D environment and in a 3D environment with sculptural heritage replicas in digital and tangible versions. The three-dimensional interpretation of the sculptures is evaluated with a 3D viewing test so as to verify whether the material used does indeed facilitate the 3D interpretation. The results show a greater difference using 3D representations compared with the 2D versions in the three ambits analysed. In modularity, the percentage of correct answers in the 3D viewing test are 84% with 3D technologies, versus 40% with 2D representations, in volumetry, 90,7% versus 72%, but in orthogonal views is where the biggest difference is with a 76,7% of correct answers in the 3D viewing test using 3D technologies versus 0% using 2D versions.

Keywords

Sculptural heritage, Replicas, Digital models, 3D printing, Spatial 3D interpretation

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TIME-MOTION AND TRAFFIC-VOLUME STUDY OF RFID GATE SYSTEM DATA IN ANGELICUM COLLEGE

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RFID gate system output data is explored using time-motion and traffic-volume type of study to generate baseline information on the pattern and trends of volume of learners arriving in Angelicum College. Results of the study identified peak hours of entrance and exit of student learners and days of the week or weeks of the month where student volume is at its peak or lowest levels. The study was also able to generate sample reports that can be basis for automatic reporting or real time reporting of information. Results of the study also provided validation on the system data.

TOWARDS A COMPLETE STRATEGY FOR E-LEARNING ADOPTION IN THE IRAQI HIGHER EDUCATION SECTOR

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Iraq starts its last wide trial with e-learning adoption at the beginning of 2015, by establishing an e-learning supreme committee at the level of the Iraqi higher education ministry, and this committee represents some of the big Iraqi universities. The committee starts its work by writing a strategy for e-learning adoption in Iraqi higher education. after three years of hard working, the general evaluation of the committee and individuals working to adopt e-learning give us that we are in the correct way and path to raise learning efficiency using blended learning in Iraq, with taking into the consideration the concept of the Iraqi universities freedom and expanding of the e-learning culture between Iraqi academics with using f the open source e-learning software's.

The main and complete adoption process started in the Informatics Institute for postgraduate studies and they adopt it completely by building the e-learning platforms and MOOCs systems. The dean of the institute was the main reason and core of the adoption successes because she was brave and have the e-learning culture and beliefs.

TOWARDS DEEPER LEARNING WITH MOBILISED LEARNING

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This paper presents various case studies for the design and use of mobile technologies in enhancing investigative learning in different subjects across Primary and Secondary levels.

The pedagogical principles discussed in the paper can be applied to designing lessons to flow from the classroom to outside the classroom, allowing students to apply their knowledge and skills in a physical real-world authentic context for engaged and deep learning. Lave and Wenger (1991) argue that learning is situated within authentic activities and context. They highlighted that learning is more likely to take place when the learners can put what they learned to use immediately in authentic situations. Literature reviews have highlighted how technology, in the form of mobile devices, have served as mediating tools, allowing students to capitalise on the situation and encouraging communication and archiving (Shih, Chuang, & Hwang, 2010; Tan & So, 2011). In this innovative curriculum, the lessons are designed to connect what the students have learned with real world contexts by situating them in an authentic environment, supported by the use of mobile technologies.

The paper highlights how schools redesigned their existing curriculum infused with mobile technologies, providing a platform to develop important 21st century competencies and skills: self-directed learning, collaborative learning, effective communication, critical and inventive thinking. Two examples can be showcased as follows. In the Primary context, the Primary Four Science students used mobile tablets (iPads) with Light sensor app, Google sites and presentation app to help them collect real world data, summarise, present findings and make informed decisions. In the Secondary context, the Secondary One students used mobile tablets (iPads) installed with Google Forms to collect data (responses) from tourists to help them make evidence-based decisions to improve their brochures on places of interest.

The paper also explores the critical success factors and challenges experienced by the schools in its implementation. The effectiveness of the use of mobile technologies was evaluated based on feedback from teacher observation during lessons, feedback from discussions between the teachers and Ministry of Education (Singapore) officers, students' surveys and engagement towards learning and the quality of the digital artefacts created.

Our findings suggested that leveraging mobile technologies, use of investigative approach and use of real-world contexts not only promoted 21st century competencies but also enhanced learning outcomes for the learning of Primary Science and Secondary Mathematics. The self-reported survey conducted from the Primary Four Science students showed significant appreciation for science lessons that included the meaningful use of technologies for inquiry. Teachers' reflections from both schools showed that as lesson designers, teachers can re-design their lessons to deepen students' learning through real-world application supported with technologies. The use of mobile technologies provided students with opportunities to collect and analyze data, construct explanations, and evaluate ideas. The paper provides insights on how the two schools' rich experiences could be applied into meaningful classroom practices.

TRAINING OF STUDENTS-PHILOLOGISTS THE METHODS OF CONDUCTING CONTENT ANALYSIS

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ABSTACT
This article is devoted to the method of teaching students-philologists to conduct content analysis by identifying ways of representing futural semantics in postmodern literature. The advantage of this method lies in the possibility of a formalized study of the semantics of the artistic text to identify ways and means of its expression, on the basis of it is possible to make valid and reliable measurements and conclusions. Training of students-philologists, whose all future professional activity is connected with the development of various kinds of texts, conducting of content analysis, requires a special developed methodology. The effectiveness of the methodology proposed by the authors of this article is achieved through an algorithm of actions that provides a clear sequence and a systematic approach of conducting content analysis. specific goal and tasks are set and solved at each stage of the implementation of content analysis. The proposed methodology, based on the principles of gradualness, formalization, semantic and statistical significance, was widely approved in the student audience. Its effectiveness is confirmed by the results of the pedagogical experiment.

INTRODUCTION
Modern technologies of teaching any language at school or university are concentrated on contextual basis of language units which is explained by the unique role of the language in the cognition of the world by a person.

Addressing to the semantic aspect of the language is actual both in the research of statements and in text study. An artistic text in this case is the invaluable source of factual material suggesting the variants of different use of language units of various levels.

In studying the plan of artistic work the content – analysis is the most effective one among numerous methods of semantic analysis widely used in texts analysis in various sciences such as sociology, polytology, history, psychology, linguistics, etc. Depending on the set objectives and studied texts the content – analysis method can vary and function in scientific literature under the various manes, which are described by the scientist D.B.Lande (2006) in details. They are: method of objective quantitative and systematic study of the content of communication means (D.Jery, Dg.Jery); systematic digital processing, evaluation and interpretation of the form and content of information source (D.Mangeim, R.Rich); quantitative – qualitative method of studying documents (V.Ivanov) and others. However, the variety of names does not change the method itself which is in the objectivity of conclusions and strongness of procedure, consisting in mathematical processing of the text with the further interpretation of results. In content – analysis quantitative description of meaningful elements of text content, counting its objective properties allows a researcher "read between the lines" and disclose the hidden meaning which is intuitively guessed by the researcher, prove it scientifically which is rather difficult to do using traditional methods of studying artistic work. That is why, it is becoming obvious that nowadays philology – students – future linguists and writers, studying at university must acquire different methods of semantic analysis, including content - analysis method as well as the habits of their practical usage fully. Basing on this lingua-didactic thesis *the aim* of this article – is teaching philology – students methods of semantic analysis on the example of content – analysis of the concrete artistic text. The object of the article – is content –

analysis method, the subject – method of using the content – analysis to identify the semantic structure of artistic text. Methods, used in the article are: descriptive, interpretational, method of qualitative characteristics, content – analysis, analysis and synthesis,

THE STUDY

Depending on the character of factual material a number of definitions of content – analysis is suggested in linguistic literature. As the material of our research is an artistic text we keep to the definition of content – analysis, given in R.V.Manekin's work" … a method, supposing the formalized study of texts content for the purpose of identifying and measuring social, cultural, mental peculiarities including in it." (Manekin, 1991).

Monitoring of scientific literature, devoted to content – analysis allows us to judge the multi-dimensionality of the given phenomenon: from the description of differences in the content of communicative processes in various countries to the definition of intentions and other features of communication participants (Berelson, 1952). This situation calls for the necessity of elaborating the algorithm of actions to use the content – analysis in every definite case of its usage. Accordingly, the following algorithm has been developed:

- ✓ concretization of the research aim and objectives;
- ✓ the choice of definite artistic text;
- ✓ the definition of units of text analysis;
- ✓ identification of language units in the text;
- ✓ analysis of the structure of the identified language units;
- ✓ structural classification of language units;
- ✓ characteristics of its semantic structure;
- ✓ the definition account unit;
- ✓ quantitative characteristics;
- ✓ construction of graphic data;
- ✓ Interpretation;
- ✓ Conclusions.

Let's consider separately each of the above mentioned algorithms.
It should be noted, that in the frames of this article the use of content – analysis is aimed to identify the future semantics in post modernistic literature.

Concretization of the research aim and objectives

Students are explained that to start any scientific work it is necessary to define the aim and objectives of the research. In our case, the aim of conducting the content – analysis is to identify all possible representatives of functional – semantic field (further FSF) of the future. To achieve the set aim the following objectives should be fulfilled:

- ✓ to identify and describe all possible representatives of future meaning in artistic text – analysis units, language (linguistic) units, directly subjected to analysis;
- ✓ to determine the frequency of using representatives being the constituents of futural field – account unit, quantitative measure analysis

The choice of specific artistic text

In realizing this point of the algorithm it is necessary to clarify the students such concepts as "general population" and "sample" in metalinguistics. Under the general population is understood a set of objects united by definite quantitative and qualitative properties, subjected to studying. All works or one work of a certain author, the literature of any epoch or chosen texts, etc. can be considered as general population. The advantage of "general population" is the possibility of full and developed study of this or that problem, and the disadvantage – is the problem of processing and analyzing extremely large volumes of texts. In this regard there is a need for reduction of research material in the way the selected artistic units could fully, objectively and reliably enough represent the properties of general population. Such system of material selection when the received results would be inherent in the phenomenon in general is called "a sample" in scientific literature (Sidortsev, 2003).

In the selection of research material the problem can appear in determining the character of a sample which can be casual, mechanical and serial, or nested; structural or non-structural, etc. K.Marten's sample typology is a bit different from the above mentioned types and is characterized by scientists as a full one (Levitskii, 2007) and includes optional and conscious (established in advance) ways of material selection (Merten, 1983). In *optional selection* the analyzed units get out of the text or the dictionary at random. In *conscious selection* it is supposed that a researcher, to some extent, is familiar with the peculiarities of the analyzed material. Standard sample is also called as "zone sample" or "typical sample" and represents preliminary grouping of texts on certain signs, for example, belonging to certain functional style, genre, epoch, etc. The following process of material sample, i.e. "selection" of analyzed texts is made directly from these groups.

We have chosen the authors' works whose creativity is related to literary direction of postmodernism to conduct the content – analysis. To narrow the volume of material we also make the selection on genres – the stories of post-modernist writers as V.Pelevin, L.Petrushevskii, A.Zhaksylykov, G.Korolyeva are the sample units (depending on the aims of research certain fragments could be selected). Such sample allows study possible representatives of future semantics in post – modernist texts, to make their quantitative and qualitative analysis, on the basis of which it is possible to determine the structure of FSF of the future with an arrangement of components concerning the center and the periphery. We suggest the content – analysis of only one work – Lyudmila Petrushevskaya's story "Night time" within this article.

Determining the units of text analysis
After determining the sample units we start the selection of unit analysis. The students are explained that in the content - analysis the unit analysis could be: 1) a word, 2) a sentence, 3) theme, 4) an idea, 5) the author, 6) a character, 7) social situations, 8) text parts, joined with some meaning, corresponding to analysis category. However, when the only method of receiving information is the content – analysis it is possible to operate several unit analyses simultaneously. In the selection of constituents FSF of futures we find out the semantic units – the meaning of the future which can be expressed by various structural elements: word, word – combination, subordinate clause and others. All the representatives of the future meaning found in the texts, which are necessary to allocate when reading by semantics, are the analysis units. On this stage of work only the units of text analysis are allocated which would be explained on the stage of analysis of language units.

Analysis of the structure of the identified language units.
To start the analysis of language units it is necessary to explain the students the meaning of each way of representation of the future meaning: morphological, lexical, lexical-syntactical, syntactical, non-verbal, modal - futural and contextual meanings.

We explain to students that grammar tense is related to morphological way, i.e. the verbs of the future forms (simple and compound) are expressed with perfect and imperfective verbs as well as with the combination of auxiliary verb with the short form of participle. For example:

Согнет или *посадит* или *положит* (*М) — как ему будет угодно (Bend or plant or put (* М) - as he pleases)

Я тебе во всем *пойду* навстречу (*М), зачем он нам? (I'll meet all your needs (* М), why do we need it?)

Друг *вынужден был удалиться* (*М) (A friend was forced to leave (*М).

Only those constructions with modal meanings which assume the future plan, i.e those statements in which a speech subject states the message as unreal, i.e. as possible, desirable, preposterous, doubtful, etc. are related to modal – future way of representation Unreal modality is divided into:

1) modality of obligation and necessity (debitive modality), for example: *Я тоже сказала, что мне надо быть (*МФ) в одиннадцать в одном месте…*= «Х говорит о том, что в определенное время после момента речи, т.е. в будущем, должен совершить определенное действие, т.е. быть в одном месте. Значение необходимости в данном случае выражено предикативом *надо*». (I also have told that I need to be *(*МФ)* at 11 in one place… = "X says that at definite time after the moment of speech, i.e. in the future he must do a definite action, be in one place. The meaning of necessity in this case is expressed by the predicative *need*").

2) modality of possibility and impossibility (potential modality), for example: *Это я, да, но это же можно приклеить (*МФ)…*= «Х-ом последующая ситуация, а именно приклеивание отломленной детали, рассматривается как потенциальная, т.е. возможная в какое-то время после момента речи. Значение возможности выражено предикативом *можно*». (Yes, it's me, but this can also be glued on *(*МФ)…*= "X considers the subsequent situation, namely the gluing of a broken part as a potential situation, possible at some time after the moment of speech. The meaning is expressed by the predicative *can*").

3) presumptive (hypothetical) modality, for example: *Он, наверное, уже не придет.*= «Х предполагает, что Y после момента речи не придет, т.е. не совершит действия, выраженного глаголом в форме будущего времени». (He probably will not come. = "X supposes that Y will not come after the moment of speech, i.e. will not act with the verb expressed in the future tense").

4) incentive (imperative) modality, for example: *Не пори (*МФ) ерунды.*= «Х запрещает Y-у совершить действие после произнесения Х-ом запрета*, т.е. после момента речи». (Do not porridge (*МФ) nonsense. = "X forbids Y to act after his prohibition, i.e. after the moment of speech").

Тимочка, давай закроем (*МФ) дверь, — ласково говорю я. — В данном предложении содержится призыв Х-а к Y-ку к совместному совершению действия после момента речи. Совместность выражена предикативом *давай,* будущее действие выражено глаголом в форме будущего времени   1 лица мн. числа *закроем .(Tima, let's close (*МФ) the door, - I say gently. –* in this sentence there is a call of X to Y to act together after the moment of speech. The jointness is expressed by the predicative *let,* the future action is expressed by the verb *close*, which shows the meaning of the future: *let us close).*

Пусть Тамарочка посидит (*МФ) в зале. — В данном примере Х выражает просьбу *пусть посидит*, выраженную сочетанием предикатива и глагола в форме будущего времени. Значение просьбы является определяющим при соотнесении со способом репрезентации, так как по формальному признаку — глагол БВ *посидит* — данный случай можно отнести и к морфологическому способу. (*Let* Tamarochka *sit* (* MF) in the hall. – In this sentence X shows the request *let sit*, expressed by the combination of a predicative and a verb denoting the future form. The meaning of the request is decisive in correlating to the way of representation, because according to a formal characteristic – the verb *sit* denoting future form – can also be related to a morphological way).

5) modality of intention (intentional modality), for example: *Тима, будешь (*МФ) мясо?* = «Х обращается к Y-ку для определения намерений последнего, а именно *будет/не будет* он *(есть) мясо*, причем ситуация будет/не будет иметь место после момента речи». (Tima, will you have *(*МФ)* some meat? = "X addresses to Y to know the latter's intension, exactly, if he will/will not have meat the situation will/will not have place after the moment of speech").

6) desirable (optional) modality, for example: *Одна дура Галина у нас на бывшей работе сказала: вот бы сумку (дура) из детских щек (*МФ), восторженная идиотка…* = «Объект речи Y высказывается о наличии   желания иметь определенную вещь (сумка) в неопределенном будущем, когда-либо, вообще».*(A fool Galina in our former job said: here would be a bag (fool) of children's cheeks (* MF), an ecstatic idiot...* = "Speech object Y says about the wish to have a definite thing (a bag) in indefinite future, in general").

The cases of representation of future semantics with such lexemes like next (week), later, tomorrow, etc. are related to lexical method. Students do not have difficulties with learning this method because of the "purity" of its exact lexeme – representatives, that is why we give some examples: *Это у меня навеки (*Л)! (*It's for me *forever(*Л)!). Мы его увидели в семье, уже когда стукнуло восемь месяцев беременности, привела его моя страдалица, моя вечная боль (*Л), моя Алена.(We have seen him in the family when eight months of pregnancy had already came, my sufferer, my eternal pain (*Л), my Alyena brought him).*

Lexical – syntactic method expressed by various constructions is characterized by the heterogeneity of the composition, the core of which can constitute the units of different parts of speech with the meanings of forecasting, planning, expectation and others,:

✓   nouns, adverbs, adjectives (forecasting, prediction, risk, dream, etc);
✓   derivative verbs;
✓   constructions with causative verbs, predicative, etc.

Students' attention should be focused on this method as it includes the signs of both lexical and syntactic methods. It is important to teach students to reveal integral and differential components in it. It is obvious that the integral component in lexical and lexical-syntactic method is the sema of the future, and the differential one is the fact that the core of the construction makes the set of units of lexical and syntactic levels, denoting the mental actions and states connecting with coming events.

Another problematic point is that the future semantics in such lexemes could often have an additional meaning and this situation causes difficulties in analysis. In this regard it is also necessary to focus students' attention on differential signs of lexical – syntactic and syntactic methods, which are in the following:

✓   presence of lexical means with future semantics (or causative verbs) in lexical syntactic;
✓   absence of lexical markers of the future in the second case, i.e. syntactic method comprises only subordinate clauses of a complex sentence.

For example: 1) *Я купила на последние и пригласила очень милого слесаря вставить замок (*ЛС) в дверь моей комнаты.* — В данном предложении Х-ом совершено ментальное действие, выраженное каузативным глаголом *пригласила,* данное действие имеет цель в отношении приглашенного *«чтобы вставил замок»*, т.е. совершил действие после момента получения им приглашения». Как видно из примера, значение будущности имплицируется каузативным глаголом *пригласила.*   (*I bought for the last and invited a very nice locksmith to insert a lock (* LS) in the door of my room. –* In this sentence X did a mental action, expressed by causative verb *invited.* This action has the aim related to an invited person "to insert a lock", i.e. acted after receiving an invitation" as it is shown in the example, the meaning of the future is implicit with causative verb *invited).*

2) *Глупец, он не подозревал, что я уже взрослая и даже готовлюсь стать бабкой! (*ЛС)*= «Х описывает свое настоящее, выраженное глаголом в настоящем времени *готовлюсь*, в семантике которого заключено значение «делать приготовления к чему-нибудь». В данном случае Х *готовится* к тому, чтобы *стать бабкой*, а именно готовится к выполнению социальной роли, которая возможна только при наличии определенных условий, то есть при наличии внука (внучки),) что еще в жизни Х-а не произошло, но предстоит произойти. (*Poor him, he didn't suspect that I was already a grown-up and even getting ready to become a grandmother! (*ЛС)=* "X describes her present state, expressed by the verb in the

present tense *getting ready,* the semantic of which has the meaning of "to make preparations for something". In this situation X is getting ready *to become a grandmother*, exactly is getting ready to fulfill the social function which is possible only under the certain conditions, i.e. conditions of having a granddaughter (grandson), whom she doesn't have now, but she will have).

3)   *Теперь из этих тогда приобретенных лоскутов я все <u>намереваюсь что-то сшить</u> (*ЛС) Тиме, но рубашечку я не осилю (*М).* = «X декларирует свое намерение осуществить определенное действие (*сшить*), которое предполагает   произвести в какой-либо отрезок времени после момента речи». Семантика будущности заключено в слове *намерение,* которое имеет значение «осознанная цель, решимость, смысл желания или действия; неотъемлемое всепоглощающее ожидание четко сформулированного события с полным отсутствием сомнений в его необходимости». (*Now, out of those then acquired flaps, I still intend <u>to sew</u> something (* LS) to Tim, but I cannot cope with the shirt (* M). = "X declares her intention to do a definite action (sew), which she supposes to do at some definite time after the moment of speech". The future semantics is in the word "intention" with the meaning of "conscious aim, decision, meaning of desire or action; inalienable all-consuming expectation of clearly formulated event with the full absence of doubt in its necessity"*).

Syntactic method is expressed by circumstantial – temporal subordinate clauses, and mainly by subordinate clauses of purpose and condition, where the meaning of future actions is more expressed. For example: *Он меня накрыл как на фронте своим телом от опасности, <u>чтобы меня никто не увидел</u> (*С). В данном примере придаточное предложение цели относится ко всему главному предложению и соотносится с будущей ситуацией «чтобы никто не увидел». (*He covered me with his body from danger as at the front, <u>so that no one would see me</u> (*C). In this sentence the subordinate clause of purpose is related to the main sentence and is correlated with the future situation "*so that no one would see*"*).

*Он не знает, что я ничего не получаю, <u>а ежели бы узнал (*С), ежели бы узнал</u>... Данный пример также иллюстрирует наличие ситуации в будущем (=если узнает), которое выражено условным придаточным предложением.(*He does not know that I do not get anything, <u>but if he knows (* C), if he knows...</u> This example also illustrates the situation in the future (= if he knows), which is expressed by the conditional subordinate clause*).

The non-verbal method is expressed by the non-verbal syntactic constructions with the future tense meaning correlated with constructions including the form like *will be*. For example: *Але-на! Иди сюда. — У меня <u>экзамен (*БГ)</u>, мам. —* В данном примере семантика будущности выражена эллипсисом глагола *будет* (*предстоит*). (*Alye-na! Come here. – I have an exam (*БГ),mother. –* In this example the semantic of the future is expressed by the ellipsis of the verb *have*).

In *contextual way* of the future meaning representation the semantics of the future tense exists implicitly, it is implicated by other meanings. The transposition of the tense form we relate to this way; the presence of the future meaning expressed by means of word formation, etc. For example: *В результате <u>веду</u> его в ванную <u>умываться</u> (*К) ослабевшего от слез, истерика в чужом доме!* В данном предложении семантика будущности имплицируется инфинитивом *умываться,* выступающим целью предыдущего действия (веду)= «веду для того, чтобы умыть Y», т.е совершить действие, отдаленное от действия *веду,* определенным промежутком времени. Как видно из примера, значение будущности формальных показателей не имеет, а вытекает из контекста. (*As a result, I <u>lead</u> him to the bathroom to <u>wash</u> (* K) weak with tears, hysterics in a stranger's house!* In this sentence the semantics of the future is implicit with the infinitive *to wash* which shows the purpose of the previous action (lead) = "lead Y to wash", i.e.to do an action separated from the action of *lead* by definite period of time. The example demonstrates that the future meaning does not have any formal signs but it is clear from the context).

Все, <u>больше</u> нам сюда <u>дороги нет</u> (*К), этот дом я держала про большой запас, на совсем уже крайний случай. Данный пример содержит выражение «*больше дороги нет*», которое можно переформулировать как «в будущем сюда нельзя будет вернуться», т.е., как видим, значение будущности в безглагольной конструкции выражено имплицитно.(*That all, there is <u>no road</u> for us here <u>anymore</u> (*К), I kept this house for a big stock, for the case of least emergency. There is such an expression in this example as "no road any more" which can be paraphrased as "we cannot come back here in the future", i.e. as we see the future meaning is expressed implicitly in non-verbal construction*).

These theoretical commentaries will contribute to the conscious fulfillment of the following tasks by students, directed to the formation of skills of eliciting the ways of expressing the future meaning and semantic analysis of the representatives units in combination with illustrational materials.

Structural classification of language units

At this stage of analysis the students must learn to correlate the elicited constructions of future meaning with one of the methods of representation of the future semantics, given in table 1, which contains not only the correlation of theoretical FSF structure of the future with the practically identified ways of expressing the future meaning, but also the related texts coding and analysis category. To conduct a structural classification of language units analysis in the context we highlight in a specific colour each way of representation of the future semantics: for example, lexical – in orange, morphological – in red, lexical –syntactical – in blue, elliptical – in grey (see table 1). In front of each method we specify a symbol, for example: (*L) – lexical, (*M) – morphological, (*LS) – lexical – syntactical, (*C) – contextual, (*MF) – modal – future, (*E) – elliptical. Further we pass to the following step of our algorithm.

Determining the account units

In conducting analysis we admit the constructions or lexemes found in artistic text, representing the future semantics, as an account unit. We notice that homogeneous parts of the sentence, expressing by one way of representation, are considered as one account unit. The cases of using different methods of representation within one sentence are considered depending on heterogeneity of means of expression.   For example:
Не плачь, я на тебя выйду (*М), пиши мне до востребования, я всегда там получаю, ты меня не теряй (*МФ). (Don't cry I'll go out on you (*M), write to me on demand, I always receive there, don't lose me (*MF).

As the markers show homogeneous parts of the sentence *не плачь, пиши, не теряй (don't cry, write, don't lose)* are expressed by the verb in imperative mood are considered as one case of modal – future method, while the verb in the future tense *выйду (will go out)* is the separate case of representation of the morphological method.

Table 1

The structure of the future according to A.V.Bondarko (from the center to perifery)	Means of expressing the future semantic	Method of of representation the future semantics	Coding
Perfect and imperfective verbs (simple, complex, future)	Perfect and non-perfective verbs in future tense, imperfect verbs + infinitive, combination of auxiliary verb + past participle	Morphological	M
Syntactic constructions with modal meanings	Constructions with modal meaning, which suppose the future plan: incentive (imperative), conditional constructions (subjunctive mood), constructions of desirability, obligation, possibility (potentiality), necessity	Modal - future	MF
Non-verbal syntactic constructions	Non-verbal constructions with the future tense meaning correlating to constructions denoting the form of *will*	Elliptical	E
Lexical circumstantial indicators	Lexemes with temporal meaning like next week, next year, later, etc.	Lexical	L
Constructions with conjunctions	Circumstantial – temporal subordinate clauses of purpose and condition	Syntactic	S
✓	Constructions, consisting of words with forecasting, planning, expectation meanings – with nouns, adverbs, adjectives (forecast, prediction, risk, etc.) + verb; constructions with derivative verbs; constructions with causative verbs, predicative, etc.	Lexical – syntactic	L S
Contextual means of transforming the temporal relations, which do not have some definite and homogeneous structural feature.	Future semantics is implicit. For example, in constructions with transposition of tense forms; in lexemes with secondary meaning of essence, conditioned with the means of word formation.	Contextual	C

As the table shows, there is a small non-coincidence between theoretical structure of FSF of future and those representation methods which have been identified in the process of text analysis. Thus, we allocated the lexical – syntactic method, which according to A.V./Bondarko's theory is absent in the structure of FSF of the future, on the basis of consolidation of lexical and syntactical units in one unity, while constructions with conjunctions in

such sentences do not relate to the whole sentence but to one word denoting mental actions and states in the future. Consequently, we relate all constructions with subordinate clauses of purpose and condition to the syntactic method. It is important to note that we isolate the structure of FSF of the future from the FSF of the temporary which has been described in A.V.Bondarko's theory of functional grammar in details. We isolate the future field from the general field of time on the basis of the fact that the temporary field is a hyperonim towards the field of the future.

FINDINGS
Quantitative characteristics
Further in the instruction "To find" in "Search" line we write the language units codes and get the quantitative characteristics on each method of representation of the future semantics. For example: we enter the code of morphological method of representation - *M in the search line, then the number of this marker which is met in the text, lights up. However, such way of counting the number of suggested methods is convenient only in working with electronic version of artistic work. While working with the printed variant it is necessary to make a table, where all sentences (or the part of them, where one of the methods of representation is visually demonstrated) met in the text are being written with codes. (see below)

Table 2

Method of representation	Sentence (or its part), having in composition the representative of the future semantics	Coding	Note
Morphological	…I report, that you get alimony from Timka's father	*M	
	… I go on foot/	*M	
Modal - future	Go up the stairs, call the lift…	*MF	Homogeneous parts of sentence are as one case

As we worked with electronic version of the text we continue counting with further process of filling the table. We fill the table with quantitative characteristics and percentage of each method in the order of its decrease (see Table 3).

Table 3

Method of representation the future semantics	Quantity	%
Modal - future	211	38,5
Morphological	201	36,5
Contextual	57	10,5
Lexical-syntactic	51	9,3
Syntactic	17	3
Lexical	6	1,1
Elliptical	4	0,7
Total	**547**	**100%**

The fulfillment of this stage of algorithm develops the skills of effective use of computer technologies in semantic analysis of language units.

Construction of graphic data (tables, diagrams)
The quantitative characteristics got at the previous stage we round to the full number and transform it to the diagram with the help of Excel programme (see Picture 1. Correlation of representatives into FSF of the future).

Picture 1

Correlation of representatives into FSF of the future

- Modal - future
- Morphological
- Contextual
- Lexical – syntactic
- Syntactic
- Lexical
- Elliptical
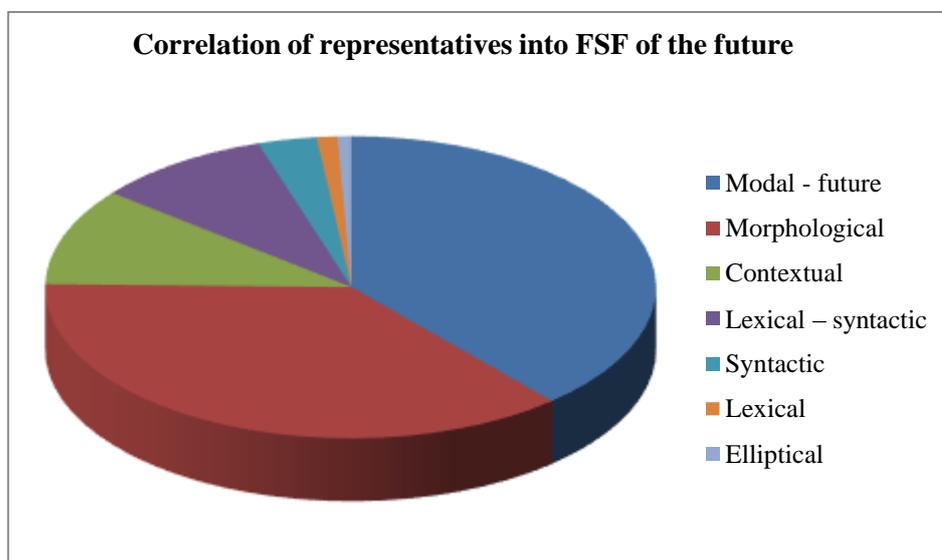
INTERPRETATION

As quantitative data show future semantics mainly represents by modal – future method (38.5%) in an analyzed text. This is explained by the variety if modality, correlating to future plan as well as by the abundance of imperative sentences in an analyzed text. Besides, the peculiarity of modal verbs is the ability to express the inner state of a character, which should be describes fully in diary entry which is the story under analysis.

According to the frequency of usage in the text on the second place is the morphological method, and besides the difference in the number of representatives is only 2%. Indicative is that the analyzed text is a diary entry; consequently, the past tense form is mainly used in the text. The fact of functioning of great number of grammatical forms of past tenses in the text confirms our hypothesis about the FSF of the future which represents the field with predicative core.

Constant use of contextual method is also observed in an analyzed text – 10.5% of general number of representatives that promotes its position to the center according to the results of analysis of the given text. We note the non-typical character of such closeness of implicitly expressed future meaning to the core of FSF of the future which is confirmed with our previous study, where the contextual method of representation was far from the center of the field taking one of the last places on quantitative characteristics. Different number of functioning means of contextual method in various texts confirms the correctness of the sample, as further summing up of all representation methods will allow make objective conclusions on the structure of FSF of future on post modernistic texts.

Lexical-syntactic method takes the fourth place on the number of representatives, identified during the analysis, which is 3 times more that the number of representatives of syntactic method and 9 times more than lexical method. Such picture witnesses that integrative constructions used in building a text as well as lexical-syntactical method, is characterized by rather regular functioning because of great possibilities of expressing meanings.

The other 5% of general number of representatives are related to syntactic, lexical and elliptical methods from which we can conclude that in describing future situations the preference is given to the constructions of grammatical character where there are different verb forms as a material representative of the future semantics.

CONCLUSIONS

1. Nowadays, training of the future linguists must be carried out on scientific dominant of philological sciences of the XXI century within the anthropological scientific paradigm which supposes to study the mechanisms of a person's cognition of conceptual picture of the world. This situation actualizes an address to the plan of realia content of an environment, called language units.
2. An address to the contextual side of language units causes the necessity of formation in students the skills of semantic analysis of texts of any typology, including artistic texts.

3. Teaching students the methods of semantic analysis must be carried out on the material of definite artistic texts

4. Within this article we suggested the algorithm of semantic analysis of an artistic text - content – analysis – with further description of each stage.

5. As a result of using the content – analysis the students form the skills of:

✓   eliciting and describing all possible representatives of future meaning in an artistic text – analysis units, language (linguistic) units;

✓   determining the frequency of using the representatives, which are the constituents of the future field – account analysis, quantitative measure of analysis;

✓   distributing the field constituents to the center and periphery on the basis of language units frequency in the text and the formation of FSF structure.

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Changing Role of Faculty Members in Technology Enhanced Learning Environments: Faculty Members 4.0

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ABSTRACT

The rapid and significant developments in technology are leading to different ways of doing industrial work. As a result, 'efficient' and 'smart' use of technology and Internet environments transformed business to the fourth industrial revolution introducing the term 'Industry 4.0'. In this study, in order to satisfy the needs of industry, the workforce of the future is discussed. Besides, in this global transformation, the role 'Faculty Members 4.0' of the faculty in higher education to develop themselves for using Technology Enhanced Learning (TEL) Environments is analyzed. Related research works have been gathered through a literature review; recommendations are advanced in carrying this important issue to the higher educational institutes' agenda in order for them to develop local and international strategies.
Key words: Faculty Members 4.0, technology enhanced learning, faculty professional development, teaching and learning, industry 4.0

ÖZET

Teknolojideki hızlı ve önemli gelişmeler endüstriyel işlerin farklı şekilde yapılmasına yol açmaktadır. Bunun sonucunda, teknoloji ve İnternet ortamlarının 'verimli' ve 'akıllı' kullanımı iş hayatını dördüncü endüstriyel devrime dönüştürerek 'Endüstri 4.0' kavramını ortaya çıkarttı. Bu çalışmada endüstrinin gereksinimlerini karşılayacak geleceğin işgücü tartışılacaktır. Ayrıca, bu küresel dönüşüm sürecinde yüksek öğrenim kurumlarında öğretim elemanlarının Teknoloji ile Zenginleştirilmiş Öğrenme (TZÖ) Ortamlarını kullanmaları için kendilerini geliştirmeleri için 'Öğretim Elemanı 4.0' rolü irdelenecektir. Alan yazın taraması yapılarak ilgili çalışmalar derlenmiş ve bu konuyu yükseköğretim kurumlarının gündemine taşıyarak örgütsel yapıların yerel ve uluslararası stratejiler geliştirmesine ilişkin önerilerde bulunulmuştur.
Anahtar Kelimeler: Öğretim elemanı 4.0, teknoloji ile zenginleştirilmiş öğrenme, öğretim elemanı mesleki gelişimi, öğretme ve öğrenme, endüstri 4.0

INTRODUCTION

Technological enhancements in industry facilitate access and dissemination of information, ensure efficient production which could be explained by implications of the knowledge-based economy. In knowledge-based economies, production and efficient usage of information increase the social well-being and living standards of the society (Özsağır, 2013). Today's agenda is the fourth industrial revolution, where 'effective' and 'intelligent' use of information is provided via Internet rather than sole use of information technologies for achieving identical goals. The concept of Industry 4.0 was first used in Germany to refer to the fourth industrial revolution with the term "Industrial Internet". It is an innovative change in industrial scene; where all tools and machines used in the production process interact with each other over the Internet to provide simultaneous production (Alçın, 2016).

Thus, production efficiency and reliability increase using intelligent software and systems in all stages of industrial production. Karataş (2017) also stresses that Industry 4.0 should be evaluated solely as technology usage.

The need for transformation becoming assertive in various areas such as education, health, finance, art, etc. makes Industry 4.0 expand to include wider areas beyond the industry. For this reason, 'Pedagogy 4.0', 'Teacher 4.0', 'Education 4.0' and 'Higher Education 4.0' are new terms introduced in the same context. And, researchers have begun to study how this undertaking can affect different 'life sectors' (Abdelrazeq, Janssen, Tummel, Richert & Jeschke, 2016). The task of preparing the new workforce for Industry 4.0 is a demanding issue that concerns not only the industrial organizations but also higher education institutions.

Higher education institutions should organize their academic programs, courses and its contents, focusing on the new areas of required expertise and competence for students (Gürsoy, 2016). In Turkey, facilitating these requirements in universities, there needs some institutional work be done in connection with faculty members due to their significant role in education. In this context, faculty development is essential for faculty members to follow these changes in technology, and to learn and apply innovative teaching and learning methods and environments.

In this process, the concept 'Faculty Members 4.0' can be suggested as an academic scholarship, ready for teaching and learning using technology enhanced teaching and learning environments to virtualize real industry environments. Briefly, this concept is expanded to include higher education and its stakeholders. This study addresses the changing role of the faculty members affected by global transformation due to the fourth industrial revolution, and the importance and ways of developing for this role.

Industry 4.0 and Workforce Competences

Industry 4.0 brought a new perspective to not only industrial processes, but also to the expectations on the work done by workforce, and their required skills and competencies. Developments in areas such as artificial intelligence, robotics, nanotechnology, 3D printing, biotechnology, and genetics are forming a platform to support each other. Such innovations introduced by Industry 4.0 brought up some new professions where others are expected to emerge. Some possible professions to mention are; industrial data scientist, robot coordinator, IT and IoT solution architect, cloud solution expert, network development engineer, 3D printer engineer, industrial user interface designer, and wearable technology designer (Eğer, 2016). World Economic Forum (WEF, 2014) notes that some existing jobs will be endangered, some new jobs will rise, and to do other jobs there will be a need to change the required skillsets. Therefore, these rapid developments have become very important to educate the generation which will make change and adapt to changes without difficulty. This change is proportional to their adaptability, their ability to think critically, and their creative problem-solving skills (Özkök, 2005).

Turkish Industrialists and Businessmen Association - TÜSİAD (2016), mentioned in its report that Industry 4.0 will increase the manufacturing productivity and thus create more need for highly educated and qualified workforce. The importance of raising well-equipped, analytical and competent individuals is emphasized. Elçi (2016) compiled the technical and social competences needed today. These include technological and disciplinary knowledge, analytical and critical thinking, ability to design and implement IT solutions, experience, ethical understanding, teamwork, collaboration, presentation and writing skills, attitude and based on human relations, being able to have both virtual and face-to-face connections. In another study Özdemir (2007) listed required skills as understanding and thinking in; broad perspective, interdisciplinary, complex, contextual, intuitive and numerical and economic issues within the framework of certain 'systems'. Being responsive from distant and independently, independent decision making, behavioral and active planning, multi-faceted perception and experience, integration and structuring, empathy building, solidarity and agreement are desirable tenets. The same study defined the student qualifications for these abilities as creativity, research and methodological, cautiousness and skepticism. Kaplanoğlu (2016) mentioned expected workforce qualities required for industry 4.0 as: lifelong learning, interdisciplinary thinking, effective problem solving, IT competency, network dependent change, process knowledge, complex business structure expertise, communication control, innovation process participation and work coordination.

Industry 4.0 workforce needs to be equipped with the formerly itemized skills, competencies and qualifications. However, there is need to consider their differences from the previous generations. Jeschke (2014) summarizes

'learning of digital natives in Society 4.0' as having new mental models (scanned reading, fast response, picture oriented), new learning styles (game-based learning, direct feedback usage), new competencies (multi-tasking, non-linear approach, tech-savvy) and new structures (networked, community oriented social life). It is necessary to prepare the workforce to adopt the necessary approaches to create a career roadmap and design future changes in industry (Töremen & Pekince, 2011). As it may be conjectured through analysis of the literature, the main and most important competence for achieving Industry 4.0 is to be able to adapt to changes as fast as possible.

Transformation to Industry 4.0

The emphasized changes are means to transition to new industry. "Fourth Industrial Revolution will create many new *cross-functional roles* for which employees will need both technical and social and analytical skills." (WEF, 2014, p. 32). A study by Schuster, Groß, Vossen, Richert and Jeschke (2016) characterizes the transformation to Industry 4.0 by mentioning that production processes are highly individualized and cross-linked, physical reality and virtual reality are more 'melted' together, international teams collaborate globally within 'immersive' virtual environments, complex virtual learning environments (VLEs) replace purely document based educational management systems, more interactive and collaborative components within higher education such as e-learning, but still not state of the art change.

Baena, Guarin, Mora, Sauza and Retat (2017) specify a transformation model: 'From manufacturing lab to learning factory'. The model stages are value creation, creation of the value chain, development of Information and Communication Technologies infrastructure for the learning factory, convergence of the real world and cyber-physical systems. They further add that "Learning Factories (LF) have shown to be effective for developing theoretical and practical knowledge in a real production environment." where consumers are included in the production process. With similar goal, Siemens has developed 'The Digital Factory' (Ersoy, 2016). Before the physical establishment of a factory all components are designed with appropriate software in the computer environment, which seems as the virtual operation of the factory and the evaluation of its results. These studies stress the need of a big change in the way of workforce teaching and learning for transition in industry. Lorenz, Rüßmann, Strack, Lueth & Bolle (2015) found that the lack of qualified personnel is one of the biggest challenges mentioned by the companies they have investigated. Another important point in professional sectors is that since the quantity needed for unskilled workforce is descending, a well-educated high-skilled workforce is an important concern.

The Role of Higher Education

The Council of Higher Education (YÖK), which determines the higher education strategy in Turkey, states in its 2016-2020 Strategic Plan that higher education institutions will support the transformation in the industry (YÖK, 2015). Both, Özdemir (2007) and Şahin and Alkan (2016) commented on the importance and role of higher education for disseminating quality knowledge and of qualified workforce during Industry 4.0 transformation period. This role of higher education has become a driving force in the economy where demands and expectations from higher education have gradually increased (Çetinsaya, 2014). Accordingly, 2016-2017 Higher Education Strategic Plan (YÖK, 2015) dwells on adjusting the curriculum integrity in order to prepare the quality workforce by practical training.

Studies examined the impact of Industry 4.0 in higher education; and, the importance in computer and industrial engineering education is revealed (Baygın, Yetiş, Karaköse & Akın, 2016; Sackey, Bester & Adams, 2017). There will be an increased need of workforce with design and digital competencies who will be responsible in the diffusion of these areas. So higher education needs to concentrate more on raising the skills needed in the workforce to begin with network systems, statistical analysis and programming. At the same time, it is expected that universities need to comply with global standards by taking a more active and effective role in other areas, especially research and design (Şimşek, 2017). As a result, contribution to economic and social development is added as a third mission, besides teaching and research, to higher education (Şahin & Alkan, 2016). They add that this mission makes them a global information center where multi-disciplinary, entrepreneurship, innovation,

research and problem-solving are leading characteristics. In addition, there is a need to make boundaries between learning, research and practice 'permeable' (Jeschke, 2014).

To take a giant step for Industry 4.0, these should be considered when a new department, program opens and during course syllabi are written. They should be strengthened to embed new jobs and new work competences. When program changes are made, it should be taken into consideration that Industry 4.0 is still emerging from various systems and processes, and it should be emphasized that changes must be multifaceted and complement each other (Gürsoy, 2016). New education programs with multidisciplinary approaches that bring together electrical, electronic, mechanical engineering and computer science like mechatronics in science discipline should be created (Şimşek, 2017). To be a part of the industrial revolution and to be able to gain competitive advantage, the suitable transformation at the level of education must be organized and the workforce must be trained for such environments. These changes in the higher education should empower involvement of the locomotive of teaching and learning, namely, the faculty members.

The Role of Faculty Members
Faculty members will have the role of developing the new workforce in the industrial transformation. The rapid change of information will foster the importance of 'continuous learning'. Bozkurt (2016) claims that the seventy more years of traditional human resources management contemplation will change and emphasizes to invest on 'sustainable knowledge' and 'continuous learning'. Faculty member's aim should be not only to provide information to the students but also to teach them how to access and use the information when needed. Since, in the past more narrow and profound knowledge was concerned as higher expertise, now there is a need to know and understand the whole process (Kaplanoğlu, 2016). The faculty members need to support students' creative, innovative and entrepreneurship capabilities. Balay (2004) makes an important point by saying that "In the Information Society, it has become important for the teachers to take action towards the possible consequences of the change process in the globalizing information society, and to prepare the man and society for the future in such a way that they can cope with change".

Bayğın et.al. (2015) suggest three teaching and learning steps for engineering students: conveying Industry 4.0 design principles theoretically, then lab practices and finally real workplace projects. Jeschke (2014) details 'the new way' of higher education for lab practices as using virtual labs as simulation environments, remote access to real experiments and augmented realities by 3D simulators. Many research supports that younger students think and learn in a unique way, although using Personal Learning Environments (PLEs), informal and formal teaching integrated with tools and technologies, can be difficult to implement since there are significant concerns about the readiness of faculty (Davidson, 2017). He suggests a solution merging newer digital technologies with traditional teaching methods. For learning augmented realities and virtual worlds, Jeschke (2014) suggests the needs of having new teaching and learning models and scenarios, new approaches to IT infrastructures in higher education, close the experience gap between faculty members and students. Collis (1999) mentions the benefits of classroom in cyber-space and Davidson (2017) is concerned about higher education institutions modifying their online learning system infrastructure.

We would like to call the academic authority which is ready to teach in Technology Enhanced Learning (TEL) Environments as 'Faculty Members 4.0'. They need to develop themselves in teaching and learning for Industry 4.0. The use of these environments shows that learning can increase satisfaction from the point of view of both the lecturer and the student besides the student can be more active, participative, committed and motivated (Elçi, Abubakar, Özgül, Vural &Akdeniz, 2016). Thus, only using technology will not be an objective; high technology production process such as technology for intelligent systems, robots, unmanned factory will be taught and practiced. In this case, it is the responsibility of the faculty members to design, develop and use these TEL environments in the process of teaching and learning. It will be useful for the instructors to follow the innovations in TEL and apply them in practice for the effective use of this environment.

CONCLUSION
It is inevitable that moving to Industry 4.0 will require big investment, radical changes and technological development. Since the possibilities offered by Industry 4.0 will benefit the nation, it is necessary to develop the

required workforce while preparing the infrastructure. In that connection, this study discussed the changing role of faculty members, referred as 'Faculty Members 4.0', and the importance of development in the Technology Enriched Learning environments.

Turkey can take an active role in this transformation process by first determining the required workforce skills and competencies. The main identified competencies are creative, analytical, critical, interdisciplinary, systematic, contextual thinking, innovation, entrepreneurship, problem solving, multi-faceted perception and experience, integration and configuration. In particular, the provision of appropriate infrastructure and training is emerging as the main factors that will enable transformation.

Faculty member's multifaceted development for Industry 4.0 may first start with learning and eventually mastering the technology Industry 4.0 uses. In that connection, learning is preferred to be on-site learning merging theory and practice.
 Secondly, capturing suitable innovative teaching and learning methods faculty members are to share this knowledge with their students. Finally, they can design and develop courses that allow their students' learning in digital environments. This is expected to include simulations and immersive virtual learning environments.

Faculty members might not affect mentioned development on their own. Higher education institutions need first to upgrade their technological infrastructure including e-learning, at the same time revamping organizational structure including enhancing faculty development centers. This center should design and develop programs for supporting faculty members.

Higher Education has an important task to develop faculty members for the situations likely entailed by Faculty Member 4.0. For this purpose, the teaching academics must develop themselves in parallel to industrial workforce; so that, they can equip their students by practicing using TEL environments.

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TÜRKİYE'DE LİSE ÖĞRENCİLERİNİN BİLGİSAYAR (PC) VE İNTERNET TEKNOLOJİSİNE SAHİP OLMA, KULLANMA DÜZEYLERİ VE BU TEKNOLOJİLERİ KULLANIM AMAÇLARI

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Günümüzde bilgiye hızlı bir şekilde ulaşmak son derece önemli hale gelmiştir. Bu duruma paralel olarak bilgi ve iletişim teknolojilerine sahip olmak ve bu teknolojileri kullanmak da son derece önemli olmuştur. Çünkü bu teknolojiler bilgiye ulaşmada günümüz dünyasındaki en hızlı araçlardır. Bilgiye hızlı bir şekilde ulaşma konusunda yaşanan eşitsizlikler, kişiler ve hatta toplumlar arasında bilgi ve teknolojideki gelişmeleri takip edebilme açısından önemli farklar meydana getirmektedir. Hatta bilgiye hızlı bir şekilde ulaşanlar ile ulaşamayanlar arasında gittikçe artan bir uçurum meydana gelmektedir. Toplumsal olarak bakıldığında bilgi ve iletişim teknolojisine sahip olan ve kullanabilen toplumlar bilgiye çok daha kolay ulaştıklarından bu teknolojilere sahip olmayan toplumlar ile arasındaki farkı da gittikçe arttırmaktadır. Ortaya çıkan bu durum dijital bölünme olarak adlandırılırken, sayısal kopuş, sayısal uçurum, sayısal bölünme, dijital uçurum gibi kavramlar ile de ifade edilmektedir.Dijital bölünme bilgi ve iletişim teknolojilerine erişim ve kullanımında yaşanan eşitsizlikler olarak tanımlanmaktadır. Birçok ülke dijital bölünmeyi engellemek amacı ile k12 okullarında çeşitli projeler geliştirmekte ve uygulamaktadır. Türkiye'de 2012 yılında hayata geçirilen FATİH projesi de bu amaç ile gerçekleştirilen bir proje olarak kabul edilebilir. FATİH projesi çok geniş kapsamlı olmakla birlikte, proje kapsamında öğrencilere tablet bilgisayarlar da dağıtılmıştır. Ancak bu proje hayata geçirilmeden önce öğrencilerin büyük bir çoğunluğunun evlerinde masaüstü veya dizüstü bilgisayarlarının bulunduğu da çeşitli araştırmalarda ortaya konmuştur. Bilgi ve iletişim teknolojilerine sahip olmak bilgiye her an ulaşılabileceği anlamına gelmemektedir. Bu teknolojilere sahip olmanın yanı sıra teknoloji okur-yazarı olmak ve bu teknolojileri doğru kullanmak da son derece önemlidir. Bu nedenle araştırmanın amacı FATİH projesi kapsamında tablet bilgisayarlar dağıtılmadan önce lise öğrencilerinin bilgisayar ve internet teknolojisine sahip olma düzeyleri ve bu teknolojileri hangi amaç doğrultusunda kullandıklarını belirlemek amacı ile gerçekleştirilmiştir. Bilgi ve iletişim teknolojilerinden masaüstü bilgisayar (PC), dizüstü bilgisayar ve internet teknolojisi ile sınırlandırılmış olan araştırma, Türkiye'nin Sakarya ilinde öğrenim gören lise öğrencileri ile gerçekleştirilmiştir. Amaçlı örnekleme yöntemine göre belirlenen örneklem, altı lisede öğrenim gören toplam 1950 öğrenciden oluşmaktadır. "Dijital Teknolojilere Sahip Olma Ve Kullanma Ölçeği" kullanılarak 1950 öğrenciden elde edilen veriler tasnif edildikten sonra, bazı öğrencilerin ölçekteki sorulara içtenlikle cevap vermediği belirlenmiş ve bu ölçekler kapsam dışına çıkartılmıştır. Nihai olarak 1608 öğrenciden elde edilen veriler SPSS'e aktarılmış, betimsel istatistiklerin yanı sıra, k kare, t-testi ve One-Way ANOVA istatistiksel analiz işlemleri gerçekleştirilmiştir Elde edilen bulgulara göre, öğrencilerin hemen hemen tamamına yakınının masaüstü veya dizüstü bilgisayara sahip oldukları, yine tamamına yakınının evlerinden bu bilgisayarlar aracığı ile internete bağlanabildikleri belirlenmiştir. Ancak yarısına yakının bilgisayarları her yönü ile kullanamadığı da araştırma sonuçları arasında yer almaktadır. Diğer taraftan ulaşılan bir diğer bir sonuç ise öğrencilerin bilgisayarları ve interneti oldukça az olarak dersleri ile ilgili çalışmalarda kullandıklarıdır. Öğrenciler bu teknolojileri daha çok sosyal medyada arkadaşları ile iletişim kurmak amacı ile kullanmaktadırlar.Araştırma sonuçlarına göre öğrencilere derslerinde bilgi ve iletişim teknolojilerini kullanmalarını sağlayacak eğitimler verilmesi, öğretmenlerin öğrencilere bu teknolojileri kullanarak bilgiye ulaşmalarını (ve dolayısı ile araştırma yapmasına) fırsat verecek çalışmalar vermesi önerilmektedir. Kısacası öğrencilerin bu teknolojileri en doğru şekilde kullanmalarını sağlayacak çalışmalara acilen ağırlık verilmesi gerektiği düşünülmektedir.

TYPES OF BEHAVIOR IN BUSINESSES AND RESISTANCE TO INDIVIDUAL CHANGE

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ABSTRACT

In businesses, shyness, aggressiveness and assertiveness are important types of behavior. Shyness is to be overly sensitive to being negatively assessed by others. Aggression is to be insensitive to the rights and feelings of others. The aggressor violates the rights of other individuals by improper means. Assertiveness makes it possible for us to exercise our rights without violating the rights of others. The assertive behavior is the type of behavior most desired. Change takes place through learning. Individual change begins with awareness. But even positive changes create stress. It is necessary to struggle with the resistance within us to change habits. Both shy and aggressive behavior are incompatible behaviors. For this reason, these two behaviors must be the aim of the business management to turn into the assertive behavior. Employees with incompatible behavior show resistance to change. For this reason, business management should facilitate individual change of employees.

INTRODUCTION

Individuals are behaving in three ways while communicating. These; aggressiveness, shyness and assertiveness. In businesses, shyness, aggressiveness and assertiveness are important types of behavior: Shyness is to be overly sensitive to being negatively assessed by others. Aggression is to be insensitive to the rights and feelings of others. The aggressor violates the rights of other individuals by improper means. Assertiveness makes it possible for us to exercise our rights without violating the rights of others. The assertive behavior is the type of behavior most desired.

Galassi and Bastien (1974) emphasized the multidimensional nature of assertiveness by defining it in terms of three response classes, which include positive assertiveness, negative assertiveness, and self-denial. Positive assertiveness is said to consist of the expression of positive feelings such as agreement, affection, and admiration. Negative assertiveness, on the other hand, is defined as the expression of negative feelings such as anger, annoyance, and disagreement. Self-denial includes excessive interpersonal anxiety, unnecessary apologizing, and exaggerated worry about the feelings of others.

Shyness is the fear of interacting with other people, a natural state of mind among many people. Fear is an emotion which is mostly triggered by the release of hormones or neurotransmitters like adrenaline and noradrenaline. The reason fear exists is mainly evolutionary for self-preservation. Feeling scared in dangerous situations keeps you alive. Social anxiety is a commonly occurring phenomenon in our postmodern society. The pathological shyness discourages many people from showing their whole potential in front of other people in school, at work or in general social situations. People who are shy often also have difficulty in being assertive.

This is often a source of serious distress. Being unassertive can sometimes lead to further anxiety and even depression. Wolpe (1968) argued that shy individuals often experience inhibitory anxiety that prevents them from responding assertively. Cognitively, lack of assertiveness can be influenced by self-depreciation (Rich & Schroeder, 1976). Individuals with a low sense of worth may experience difficulty in standing up for themselves because they view others' thoughts, feelings, and rights as more important than their own. The cognitive interpretations of social situations are guided by core beliefs, which are developed from childhood experiences with attachment figures and influence how we view our self, others, and the relationships between them. Individuals who fail to speak up for themselves may easily be ignored or disrespected by others, which may lead to depression and a higher susceptibility to stress. Self-Expression Scale indicated that non-assertive individuals tend to experience excessive interpersonal anxiety, feelings of inferiority, and engage in negative self-evaluation.

Lefevre and West (1981) also found an inverse relationship between assertiveness and fear of disapproval. Watson and Friend (1969) defined fear of negative evaluation as one cause of social anxiety, which involves apprehension about being negatively evaluated by others in any social context that calls for judgment. Individuals with high levels of fear of disapproval expect to be negatively evaluated by others and therefore tend to avoid evaluative situations. The proposition that failure to assert oneself is connected to certain affective personality variables, such as social anxiety, was further supported by Orenstein, and Carr (1975). Their correlational study showed that assertiveness is inversely related to interpersonal anxiety. Individuals with high social anxiety may fail to assert themselves in social contexts due to their fear of doing or saying the wrong thing. Accordingly, it was hypothesized for the current study that students' level of assertiveness would correlate negatively with their levels of social anxiety or more specifically, fear of disapproval. The fact that assertive students reported higher self-esteem and lower fear of disapproval than nonassertive students, lends further support to the view that non-assertive response patterns are influenced by interplay of certain covert cognitions and emotions.

Assertive individuals are capable of acting in their own best interest without experiencing excessive anxiety or disregarding the rights of others. Assertiveness was a subdimension of dominance which was subsumed under extraversion, and extraversion became part of the well accepted personality trait measurement known as the "Big Five" factor for studying individual differences and used extensively in the leadership research. A meta-analysis on the "Big Five" personality dimensions found that extraversion (traits such as: sociable, gregarious, talkative, assertive, and active) was predictive of job performance, but only for certain occupations that involved social interactions such as: managers and sales (Barrick & Mount, 1991).

Assertiveness is a learned fundamental interpersonal communication skill that helps individuals to meet the social demands of society. Being a sub-dimension of other constructs like extraversion and dominance, assertiveness is often regarded as a personality trait and not as behavior in the leadership literature, although researchers have argued that personality traits can manifest into behaviors given the right situations (House & Aditya, 1997). Because leadership is the ability to accomplish goals by exerting influence over others. Much of the clinical research defines assertiveness in terms of being able to stand up for one's rights and gained momentum with the civil rights movement and women's rights.

CHANGE
Change is, under certain circumstances, a transition from one state to another. Change is the transformation of any system from one state to another (İleri & Güven, 2003, 88). It is inevitable and an organization has to manage change. Businesses are now operating in a rapidly changing markets and conditions. Pressure from competitors and various external changes is forcing businesses to respond to change and make changes to their existing operations.

All changes depend on people. Mentioned change is mental change. The desire for change must first begin within the person himself. Internal motivation is essential for change. Change is a continuous process before anything else. Individual change is a plan to change himself/herself through learning. Vision is required for individual change. You may want to change one or more of your Life Space boundaries. It depends on your vision, which boundaries you want to stretch and expand.

RESISTANCE

A known fact is that change creates resistance. Fear of the unknown, habit, inertia, lack of trust, fear of failure, incomplete training, business status hazard, business security hazard, uncertainty is some of the sources of individual resistance to change.

Timing, surprise, peer pressure, self-interest, misunderstanding, different assessment, threat to established resource allocations, structural inertia, limited focus of change, group inertia, threat to expertise, threat to established power relationships are some of the sources of organizational resistance to change. Inertia is the tendency to remain unchanged. The old way of doing things is comfortable and easy, so people do not want to change or try something new. Poor timing may cause resistance. When employees and managers are in bad relations, the time to introduce change is not fit. Resistance may occur when the change is unexpected surprise or sudden for employees. Individuals may resist a change when the team resists. Individuals may resist a change if they feel it will cause them to lose something. Employees may resist a change because they do not fully understand its purpose or benefits even if it will benefit them. Employees and management may see the change and its advantages in a different way. Management may the change as increased efficiency while employees may see only the costs of it.

DEAL WITH RESISTANCE TO CHANGE

Education, communication, participation, involvement, facilitation, negotiation and rewards, simplification, guidance, force, discussion and financial support, forcing and coercion are some solutions against resistance to change. Extraversion, dominance, aggressiveness and pro-social influence facilitate individual change.

The first study on change models was carried out by Kurt Lewin. According to Lewin, change takes place through processes of unfreezing, change and refreezing (Çankır, 2017, 116). Basic stages of implementing resistance to change as follows:
Stage one: Unfreezing: Breaking from the old ways of doing things, unfreezing the old organizational culture by communication.
Stage two: Moving: Instituting or establishing the change, establishing a vision for change direction, and directing people to the change.
Stage three: Refreezing: Reinforcing and supporting the new ways, strengthening and supporting the change by providing new control and rewarding systems.

ASSERTIVENESS AND CHANGE

As an interpersonal trait, assertiveness has had a long history in the psychology and management research. In the 70s, when the civil rights movement in the U.S.A. was rising, a number of psychologists paid attention to assertiveness as a means of protecting individual rights. Alberti and Emmons (2008), Jakubowski and Lange (1978), and Smith (1985) emphasized that the ability to protect own human rights in a humane and democratic way, without prejudice to the fundamental rights of others, was among the important characteristics of assertive conduct. Being assertive means being able to express your own needs while at the same time acknowledging the needs of others (Rapee, 1998, 98). Assertiveness, which is the recommended form of behavior for an effective and healthy communication, was first described by Wolpe and Lazarus (1966). in English "assertiveness" is used as a counterpart of the concept. (Uzuntarla, 2016, 98). In relation to the motive to influence, assertiveness is "needed to direct group activities and advocate for desired changes to the organization" (Hoffman et al., 2011, p. 351). Assertiveness is like a dish with too much or too little salt: too much salt and the taste is ruined, too little salt and the dish lacks flavor, just the right amount of salt and the flavor of the dish is enhanced. A study by Lefevre and West (1981) found a significant positive correlation between assertiveness and level of self-esteem in undergraduate students.

Assertiveness is positively associated with extroversion. Extraversion has played a major role in the study of what makes leaders effective. Generally, assertiveness in the management and psychology research is a key characteristic of extraversion. Extraversion is usually defined as being ambitious, sociable, and having the tendency to experience positive emotions such as joy and pleasure (Lazenby, 2015). It incorporates characteristics such as being active, energetic, upbeat, talkative and optimistic, and is viewed as a main dimension of the trait paradigm in the personality research on leadership. A study by Bouchard, Lalonde and Gagnon (1988) explored correlations between assertiveness and personality factors in undergraduate students, which revealed a significant positive correlation between overall assertiveness and extraversion. Extraverted individuals are said to be more talkative and comfortable around people than are introverted individuals.

Assertiveness increases self-efficacy and decreases perfectionism. Self- efficacy also facilitates change. It is a key for the relationship between man and others and is a method for proper and correct self-expression. Some persons don't learn assertive behaviors and don't have "say no" power, and can't interact with the others in an assertive method, the reason is resulted from the family and their characteristics. These persons fed guilty and

non-confident in their social relationship with the others and express fear, anxiety and depression in their behavior (Pirooz, 2014, 14). Bardon, Cone, Abramson, Hiterton and joins (2006) in an investigation studied the relationship between idealism and self-efficiency in a sample comprising of 406 females' studies showed that there is a negative correlation between induced social idealism and self-efficiency. Most people like doing their tasks perfectly and if they commit a small mistake, they will be disappointed, leave their work and start criticism and negative evaluation about themselves. Today, there are many obstacles toward normal psychological processes of the person which can create some problems in the trend of their development. Idealism can be considered as one of these obstacles. As a psychological concept, idealism is actually a personality structure. The results of a research by Pirooz's show that there is a negative and significant relationship between assertiveness and parent's idealism. Based on the findings, the relationship between assertiveness of the students and parent's idealism was negative and significant.

Individuals with positive core beliefs about the relationships (e.g., "In my relationships with others I don't let them dominate me and also don't try to dominate them") may find it easier to assert themselves than individuals with negative core beliefs (Kirst, 2011, 7). According to Lange and Jakubowski (1976), people high in assertiveness are more self-actualized than people low in assertiveness because assertive behavior leads to one's needs being respected and fulfilled. Individuals high in openness to experience tend to have a wide range of interests and welcome new experiences.

CONCLUSION
Avoidance and aggressive behaviors lead to disconnections in communication. The concept of aggression has been described in many sources as " any kind of disturbing and irritating behavior towards objects. Change takes place through learning. Individual change begins with awareness. But even positive changes create stress. It is necessary to struggle with the resistance within us to change habits. Both shy and aggressive behavior are incompatible behaviors. For this reason, these two behaviors must be the aim of the business management to turn into easygoer behavior. Employees with incompatible behavior show resistance to change. For this reason, business management should facilitate individual change of employees. Communication is vital in the process of change, as it often help balance the mixed feelings staff may have. Through communication, the management of organizations gain support from staff to participate in the process of change. If change is not communicated to all the parties involved and affected it will be regarded as a one-sided process and staff may become resistant to it.

Resistance to change decreases if assertiveness increases. Dominance, extraversion and leadership are related to assertiveness. Dominance, a motivation toward achieving positions of power, status, and control, arguably entailing a willingness to be interpersonally assertive. Extraversion, associated with verbal assertiveness, has been linked with leadership as well. Assertiveness has received extensive attention in research literature and has become a desirable goal of therapy due to its link to healthy personality adjustment in Western cultures. Although research literature to date proposes numerous definitions, assertiveness generally has been conceptualized as standing up for one's personal rights and communicating thoughts, feelings, and beliefs in a sincere, straightforward, and appropriate manner without violating others' rights. Assertive behavior is commonly associated with the ability to initiate and maintain rewarding interpersonal relationships in the business world and personal life. As a result, assertiveness is related to communication and leadership. Therefore, resistance to change is reduced by assertiveness.

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UNIVERSITY FACULTY CONFIDENCE AND ATTITUDE TOWARDS TECHNOLOGY INTEGRATION

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Advances in technology are motivating higher education institutions to use technology as a core delivery system of educational courses. This paper reports the findings of examining university faculty confidence and attitude towards technology integration in teaching. The study aimed to identify the faculty self-efficacy, attitude towards teaching with technology and actual utilization of technology. Faculty confidence in their ability to use and integrate technology in their pedagogy influences their utilization and use of the universities technological tools and resources. The findings of the study indicated that the faculty had high levels of confidence in their ability to integrate technology in their teaching which was a reflection of their positive attitudes towards technology. Additionally, the results of the Chi Square test indicate a high correlation between all variables.

USE OF DİGİTAL TECHNOLOGY İN THE DEVELOPMENT OF THE COMPETENCE OF THE TEXTUAL PRODUCTİON OF SHORT STORİES İN CLASS OF LİTERACY

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ABSTRACT

We witness an age where modern communication technologies (ICT) have all but taken over the school environments; moreover advances in digital learning environments, using different technologies, such as the Internet, iPads, and/or tablets have shown us new perspectives on education. Using the simple transposition of content and methods from conventional teaching to modern technologies, this study seeks to analyze whether the incursion of technology, that being iPad use, may favor the development of children's competence in written textual production of short stories in literacy classes. Moreover, is it possible to state that the innovative use of ICT in schools interferes in the written textual competence of students in literacy class in comparison to the use of paper? I have selected three research methods to conduct this study, literary, field research and analytical. The first is necessary since I have dealt with textual genres theories, specifically theories regarding the story or tale, and the short story or short tale. Furthermore, I have used field research by proposing a short story writing assignment to two second-grade-elementary-school classes, with 39 students altogether, from a private school in the city of Londrina-PR, Brazil, and finally analytical research since I thoroughly analyzed and reflected upon the results of the field studies. The results have showed that children in literacy phase - and we may apply these results to a considerable portion of Brazilian children of the same schooling cycle - show facility handling digital tools, which provides security in the writing process. Manual writing presents difficulties, such as hypersegmentation and oscillation in handwriting and letter size. These difficulties do not occur using the digital tool. I have noticed that virtual writing is optimal; moreover, it is associated with other communication resources, such as orality. Furthermore, new modalities of writing are new possibilities of evolution in the literacy process, through the simple action of "typing/clicking" on the iPad's screen keyboard and thus, literacy takes on a new garment through the "navigation", making it easier for children to read and interpret.

Keywords: Literary Genre. Literacy. Technology

INTRODUCTION

The challenge of literacy is to comprehend what children need to achieve; and the skills they consciously develop. This process demands arduous, constant and properly planned work. Teaching letters, syllables, forming words and realizing that the student is suddenly writing, transforms the act of learning into moments of pleasure, setting new architecture in the school environment. Signs transformed into alphabet, gradually become significant until they act considerably in the context of reading. Therefore, the school becomes an instrument of social promotion, allowing the propagation of new knowledge. Thus, literacy is the core content of school life whose function is to incorporate social culture into children's daily life.

Nowadays, we increasingly use new technologies optimizers for writing in literacy classes aligned with the methodological proposals that go beyond the sole use of paper in counterpoint to the inclusion of technological resources. Technology has made possible the experience of being a student in the virtual world, facilitating and making the teaching and learning process pleasant. When inserted in the school context, Information and Communication Technologies (ICT) have brought new possibilities for interacting and building knowledge.

Thus, this article seeks to analyze if a technology can favor the development of the competence of written textual production, using short stories in literacy classes. It also analyzes if it is possible to consider that the ICT used in schools with innovative purposes interfere in the competence of written textual production of students in literacy class in comparison to the use of paper. I chose the textual genre short stories because it encourages students to write in the literacy stage, once, as the name itself implies, it is a short story of approximately 200 characters. This genre presents other numerous traits; however, on this research I only analyzed the narrator, the characters, space and time.

LITERACY AND READING SKILLS TEACHING

The renovating movement of education - called Escola Nova (new school), began in the late nineteenth century, and valued reading, libraries and the taste for books. It brought an important contribution to literacy educators: the defense of the global method, and according to it, the child has a global vision, as the name itself refers to, perceiving the context, the entire set, before dwelling on details.

Decroly emphasized the understanding of the meaning from the earliest stage of literacy, not the ability to decode or say the text aloud, according to Carvalho (2014, p. 31). He considered that traditional methods of spelling and syllabication contravened the globalization function characteristic of the infantile mind. One of the

earliest global methods is to begin teaching reading from small stories adapted or specially created by teachers. He believed that literacy educators should start by reading stories or phrases to reach the recognition of letters or sound, contrary to synthetic methods, that is, the fastest, simplest and oldest literacy methodology. This method establishes a correspondence between oral and written comprehension.

According to Carvalho (2014, p.32), after presenting the complete story, the text is broken up into sentences, which children learn to recognize and repeat, in a kind of pre-reading. The next step is recognizing words (in general, certain words appear repeatedly, which facilitates memorization). Only after that, it is possible to reach the stage of the division of words into syllables and finally the composition of new words with the syllables studied.

This method, called global, came became popular in the 1920s to 1970 as the most suitable for children's learning to read and write. With the process of implementation of the entry of children with the age of 6 in Elementary School, in 2006, adjustments were made in Basic Education, as well as the expansion and intensification of the time for the development of learning aimed at literacy over the first three years.

This way, the concern with the literacy process is a topic of discussion among literacy teachers, becoming more and more a challenge due to the methodological issues extracted from the practical experiences, the way of thinking and acting from observations made in the school.

In the literacy stage or pre-literacy, children make contact with children's literature full of curiosity and willingness to listen, playfully engaged with poems, tongue-twisters and folk songs. Through the mediation of adults, they hear stories and follow them through illustrations. In possession of the reading codes, it modifies its status, immersing in the universe of the written word. The domain of reading and, consequently of writing, allows them to appropriate a knowledge that throughout their life qualifies, that is, increasing to make them autonomous and free to make her own choices.

When it time to introduce the systematic teaching of reading, the theme of the text chosen is decisive. According to Breda (2009, p. 1), it is necessary to offer texts to children already in the first activities of literacy, because understanding their uses and their functions favors the reflection on the writing system. Learning to read presupposes learning that letters have sounds. Children are able to read when they understand how the letters work to represent the sounds of the language, perceiving what the word means, and gradually interpreting the sentence they read.

Piaget states that the determinant of learning is the learner himself, that is, the learner constructs his own knowledge, proposes to reflect on the fact that it is more important to understand how children learn than to know how to teach children to read and write.

Understanding the central role of reading is a basic and fundamental condition for quality teaching and learning in school. However, while most of the activities applied in school are related to reading, it is not always read to learn how to read, but rather to an end that is unique and therefore may be different for each individual.

Carvalho (2014) states that in order to learn to read, one must know the letters and sounds they represent, but it is also fundamental to seek their meaning, to understand what is written. As a subject of their own learning and interaction with the other subjects, children begin to relate reading to their reality, making it meaningful. In this way, we can use texts to focus on both facets of learning: literacy and initial reading instruction.

From literacy to digital literacy

Nowadays, the pedagogical action that corresponds the most to the social reality that we are living is the one that contemplates in an articulated and simultaneous way the process of teaching children the letters, once they are processes of different nature, with specific abilities and competences, that imply forms and differentiated procedures, yet interdependent and inseparable.

Soares (2012, p.47) considers literacy as *"a state or condition of those who not only can read and write but cultivate social practices that use writing".* By understanding how the writing system and its conventions work, children begin to analyze and recognize the sonorous segments of words. In this way, literacy is a condition of those who not only can read and write, but the one who can participate in varied experiences with reading and writing, interacting with different textual genres. Digital literacy, for the same author, is understood as a "state or condition acquired by those who embrace the new digital technology and practice reading and writing on the screen, different from the state or condition of literacy of those who practice reading and writing on paper "(SOARES, 2002, p.151).

Comprehending the difference between literacy in the perspective of the initial reading instruction means to equip children to be able to use multiple languages, including digital literacy, in order to allow them to integrate the technological processes incorporated into the routine of the classroom. With the advancement of technology, the representation of the act of writing, from the manual artifact to the intellectual becomes modified:

[...] Writing is an intellectual activity carried out by means of a manual, printed or electronic graphic artifact to record, communicate, control or influence the conduct of others, which enables the production not only of reproduction, but also supposes both an effect of distancing and aesthetics (TEBEROSKY, 2006, 24).

Based on this premise, the use of the literacy as in initial reading instruction overlaps and is often confused with literacy. Soares (2012, p.17) considers that literacy as in initial reading instruction brings social, cultural, political, economic, cognitive and linguistic consequences to either the social group in which it is introduced or to the individual who learns to use it. In other words, for individuals and groups who appropriate writing, making it become part of their lives as a means of expression, communication, and interaction. Therefore, he considers literate the individual who has sufficiently grasped writing and reading to the point of using it with competence, with specificity to account for their personal, social and professional responsibilities.

In order to literate, there must be an intentional work of sensitivity, as Carvalho points out (2014, p.69), through specific communication activities. At this stage, teachers should help children to understand the requirements of writing variations, according to the genre of text, the potential reader, and the author's goals.

The author also emphasizes that becoming a literate, or forming a reader, is a complex process that involves learning about authors, their ways of thinking, intentions, interlocutors, ideas and values; it is also to learn about genres, about how texts are organized, from the title, obey certain conventions, and unfold paragraph to express ideas (CARVALHO, 2014, p.70-71).

Children progress in their literacy and initial reading when they are exposed to activities in which they need to combine oral and written language, when stimulated to participate in activities with texts and words, which go from simple to more advanced activities. Digital literacy considers the need for individuals to master a set of intellectual skills and information that is necessary in any school in order to empower children as quickly as possible, making writing more effective. According to Frade (2011), digital literacy implies both the appropriation of a technology and the effective exercise of writing practices that in the digital environment.

Ferreiro (1994, p.41), a renowned researcher in the field of literacy, questions: "When it comes to the new technologies that are emerging, who will be the reader of the XXI century?". Creating textual narratives in the digital format is part of the current literacy process. Digital narratives in literacy can be worked with different educational technology, information and communication resources. Digital literacy enhances and contextualizes the literacy process by helping the learner to create the narratives more easily.

New tools besides the conventional manual ones (paper, pencil, pen) are necessary to develop different ways of literacy. According to Rojo (2012, p. 13), the concept of multilevels points to two specific and important types of multiplicity present in our societies, especially urban ones, in contemporaneity: the cultural multiplicity of populations and the semiotic multiplicity of texts, which informs and communicates. In the same way, texts are losing their linear characteristic, nowadays we seem them as hyper: hypertexts, hypermedia, interactive, collaborative and hybrid, and once reading them, the reader wanders through different media while in cyberspace. According to the socio-interventionist teaching and learning conception, the formation of critical, reflective and active students is a priority, expanding the possibilities of education. Thus using information and communication technologies, we expanded the student's protagonism, making him or her in control of their own learning process.

According to Xavier (2002), digital literacy considers the need for individuals to master a set of information and mental skills that must be urgently addressed by educational institutions in order to enable students to live as real citizens in this new Millennium, increasingly surrounded by electronic and digital machines. Soares (2002, p.151) states that the screen is considered a new space of writing and brings significant changes into the forms of interaction between writer and reader, between writer and text, between reader and text and even between human being and knowledge.

Soares (2002, p.155-156) further states that this need for pluralizing the meaning of the word literacy and, therefore, the phenomenon that it designates has already been recognized internationally. It now designates different cognitive, cultural and social effects according to the contexts of interaction with the written word, sometimes because of various and multiple forms of interaction with the world - not only the written word, but also visual, auditory, spatial communication. A digitally literate person needs the ability to construct meanings from texts that make up words that connect to other texts, through hypertexts and links, pictorial and sound elements. He also needs to be able to locate, filter and critically evaluate information made available electronically, and be familiar with the rules governing communication with other people through computer systems. In other words, a shift from alphabetic to digital literacy is now well-known. New times require new literacy. For Xavier (2007), the alphabetic is serving as support for the learning of digital literacy. In the age of information the variety of knowledge that is generated in the networks, the acquisition of alphabetical literacy becomes a means to achieve citizenship. This means that an individual can only fully utilize the advantages of the digital age to his needs if he has mastered the alphabetical system to the point of being qualified to critically and socially appropriate digital literacy. literacy becomes a means to achieve citizenship. This means that an individual can only fully utilize the advantages of the digital age to his needs if he has mastered the alphabetical system to the point of being qualified to appropriate the digital literacy critically and socially.

TEXTUAL GENRE – SHORT STORIES

The textual genres are linked to the cultural and social life of a people. They contribute to organize, organize and establish the communicative activities of the day to day. There is an explosion of new textual genres that exist today in relation to the written communication of previous societies. By multiplying themselves, the textual genres present themselves with new characteristics, but old bases, both in orality and in writing, facilitating the communication interfaces. Technology emerges to favor the emergence of innovative forms and to be a social, historical and cognitive activity that have characteristics determined by style, content and properties that qualify the human communicative activities.

Working with textual genres is a way of putting into practice the official proposal of teaching of the National Curricular Parameters that insist on this perspective as Marcuschi (2003, p. 3) states: "the appropriation of genders is a fundamental mechanism of socialization, of practical insertion in human communicative activities ". In a comparative study, the author defines textual genres as:

[...] 1. concrete linguistic achievements defined by socio-communicative properties; 2. They constitute empirically accomplished texts fulfilling functions in communicative situations; And finally, 3. Its designation covers an open and virtually limitless set of concrete designations determined by the channel, style, content, composition, and function (MARCUSCHI 2003, 23).

Digital communication has created new genres and perfected others, proving that they are increasingly at the service of the speakers and the needs of their time. For example, long ago people sent letters; they currently send e-mail and messages through whatsapp, which are now virtual adaptations of the handwriting card where paper and pen were used. Despite the modernization of the media, communication and the way in which we express ourselves continues to follow preexisting parameters that establish themselves in a dialogical relation, preserving their genuine characteristics.

According to Santos (2013), "within a given discursive domain, each person constitutes, identifies himself and is socially prestigious for the text he produces and for the demonstrated competence for such activity. Considering the variety of discursive domains that form the society, a particular discursive domain is constituted, identified and achieved social valorization by the quality with which it produces its set of texts. In this way, we realize that the digital writing has increasingly impacted the identity of the subject / author, causing even a revolution in the linguistic area, providing the appearance of new textual components.

Tales or short stories, according to their historiography, are the oldest literary textual genre of all, originated from orality, from the simple act of telling something to a group of people. We see below what a renowned author states that the tale is.

[...] the narrative genre that most closely followed technological innovations in the last twenty years. Today, short stories, (...) and although their contributions have been substantial, other authors have rewritten the story of the tales and put their names in the fictional foundations and the theorization of the short narrative (MARTINS , 2011, pg. 274)

One of the characteristics of contemporary literary production is the propagation of one of the simplest narrative forms: the tale. Because it is a short narrative, it presents the following characteristics: few characters, conciseness, and linearity - that does not allow complications in its plot to briefly develop the focus of the story.

To work the literary textual genre "tale", in the literacy classes of the second grade of elementary school, I used the version "short stories". This is a genre of typically narrative and extremely short texts that must contain in it all the techniques of the tale, in other words, few characters, conciseness, and linearity, which does not allow complications in its plot in order to briefly develop the focus of the story.

By listening to a short story, children begin to expand their vocabulary, expressing themselves initially with the context that comes close to their reality, and then broadening it to subjective or imaginative dilemmas and problems.

[...] Short story readers are primarily narrative readers. People who find, in fictional narratives, a space for reflection on reality, which seek scenarios created by the imagination of others as a way of escaping the stressful reality in which they live or who read for the pleasure provided by the fictional texts (ABAURRE; PONTARA; FRANCO, 2013 , P. 10).

The inspiration for short stories is the same for longer texts, life, routine, a look, a smell, a fear, a hope, an image. This way, the introduction to the universe of reading via short stories, appear as a facilitator of the ability to interpret phrases, in this case small texts full of charms or mysteries, amusing and instigating children for creativity and the pleasure of reading.

A short story contains endless possibilities for learning, especially nowadays when children easily lose focus. The achievement of the reader between the ages of 6 and 8 years old is based on the delightful relation that short stories presents, where dream, imagination and fantasy take over, mixing with reality, experiencing emotions from the recognition of the characters, of the time and space expressed in the implicit context of the text.

METHODOLOGY

This study intends to analyze the development of children producing "short stories" through the inclusion of digital / technological tools as a facilitator of the writing process and a new methodological approach. Therefore, the types of research selected for this study were: the bibliographical one, since it crosses the theory on genres, regarding to tales and short stories, the literacy process, the comprehension of literacy and the advance for digital literacy. The field research, since it was applied in two second-grade-elementary-school classes of a private school, in the city of Londrina, Paraná. Finally, analytical research, once the results obtained are object of reflection and analysis.

With the aim of producing short stories genre with the aid of digital / technological tools in the writing process, I selected two classes in Elementary School. The following activity proposal was presented: the oral presentation of the textual genre short stories, and different written examples to 39 students from two second-grade-elementary-school classes, from a private school in the city of Londrina-PR. Sixteen students were part of class A and produced their short stories using the app *"caderno"* (notebook) on their iPads, available in the app store. Twenty-three students from class B produced in the conventional form of writing - paper and pencil. The activity was divided into two parts: firstly, the textual genre **short stories** was presented orally to students so that they understood the constituent elements and managed to construct the mental representation of the focused communication situation, in order to make explicit their initial ideas as an attempt to also produce the studied genre orally. Secondly, I requested the textual production of a **short story** individually.

I arranged the students in a circle so that I could I initiate the activity in a playful way. At this moment, I presented the concept of tale and short stories and its difference, and then I instructed the students on the structural requirements that a short story should present. Once they understood the structure, I presented them reports of short stories created in determined time, using common situations of the school life to which they are inserted. After that moment, I showed them simple images, such as the cover of a history book, which would help them create a short history. After each short story telling, I invited the children to answer interpretive questions, for example, what do you see in this picture? What is the character doing? Always focusing on the structure of the invented short stories. Finally, I invited the children to think of a brief story and, when they were ready, they would tell their classmates. I also offered them images with drawings, for example, storybook covers, among others, and then I projected them in a projector to facilitate the creation from the same short stories. I presented to both groups several short stories with the intention of motivating them to participate in the activity that would require of them the development of intellectual abilities, as well as creativity.

Before beginning the written production, I had to evaluate the level of alphabetical knowledge in which the students were, to arouse the interest by the storytelling and, finally, to insert them in the process of writing. According to Santos (2001), it is important to present to the students a copy of the genre that is about to be read and understood, to promote questions for reflection. Only after that, we should request the production of the genre studied, which in the case of the sample group, when using the iPad technology, it was necessary to verify if they knew the order that the letters appeared on the virtual keyboard. I also presented them the notebook application that allowed them to make notes using keyboard or handwriting and drawing insertion. For the group that used paper, I distributed an A4 type paper with lines so that they could write, and I did previously the production, the alphabetical survey.

RESULTS AND DISCUSSION

In this section I have analyze the text productions of the short stories of the 39 students that participated in the research. According to the application of the proposed activity - model annex - I noticed that the students presented some situations such as:

In manual writing: excessive use of the eraser, hypersegmentation of words, oscillation between uppercase and lowercase letters; oscillation between the cursive letter and the upper case letter; In their process of creation, they were able to use tales characteristics, such as: few characters, conciseness, and linearity. These characteristics do not allow complications in plot to briefly develop the focus of the story and the inviting title. Nine out of twenty-three students, (in 39.1% of the cases) could not understand the plot of the story due to writing in the literacy process; 60.9%, or 14 students, were able to accomplish the basic characteristics of the short story such as: few characters, conciseness and linearity. These characteristics do not allow complications in the plot of the story and the inviting title, despite the oscillation in the letters typeface and hypersegmentation.

In digital writing: 16 students participated in the activity using a digital iPad, with the notebook application. 13 students out of 16 16, (in 81.3% of the cases), were able to finish their textual production using the genre short stories; 18.7%, 3 students deleted the activity without saving. It is possible to observe great ease in handling the equipment, including inserting capital letters, spacing and accentuation. Therefore, 13 students were able to accomplish the activity by using the characteristics of a short story such as: few characters, conciseness and linearity. These characteristics do not allow complications in the plot of the story. However, they forgot to add a title to the text.

Short stories written by the students from 2th grade-class A
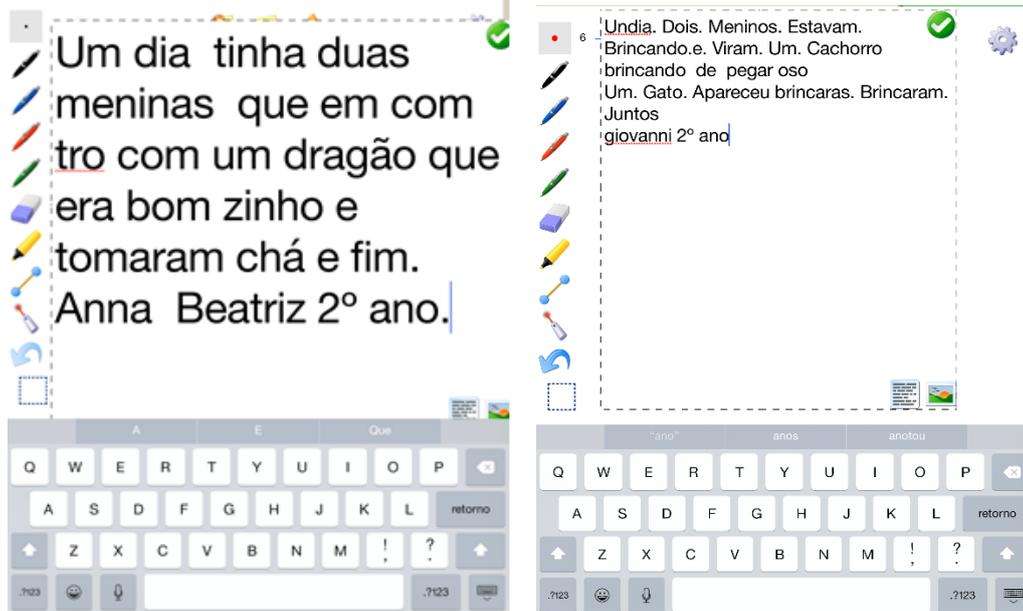
Short stories written by the students from 2th grade-class B
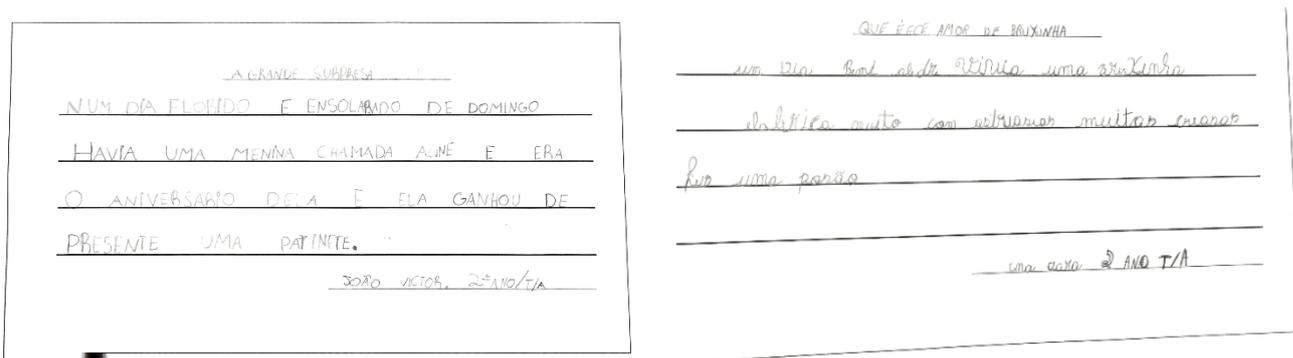
The data analyzed show that when using ICT in the classroom, with the supervision of the teacher, the students found a motivating element of learning, expanding the creative process, once they did not have to worry about the writing process , that is, what type of letter to use, upper case or cursive.

The results obtained indicate that, among the general characteristics expected, the adequacy to the genre was easily achieved, that is, they were able to describe actions, events and situations highlighting with fidelity the presented themes, even if a title does not appear as in the case of students who used the application on the iPad.

Therefore, I concluded that the children in this study in the literacy phase presented an ease in digital management, providing security in their writing process. The characteristics presented in the manual process such as hypersegmentation and oscillation between the letters does not occur in the digital tools. I also noticed that in the children used in the study, the writing is benefited when they used the keyboard, since the student uses the fingers to type, instead of drawing spelling, simply choosing the letters available to compose a word, that is, a finite set with a different order other than the alphabetical, presented in the conventional method. Therefore, the new forms of writing are now configured as new possibilities of evolution in the literacy process, through the simple action of "typing / clicking" on the screen of the keyboard of the iPad and that the literacy takes on a new garment through "navigation" facilitating reading and interpretation.

In these new technological supports, the contemporary apprentice writes on the screen to express his thoughts, his ideas, builds his characters and gives meaning to his experiences, extrapolating the geographical and temporal limitations.

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USING A SMART HOME AUTOMATION FOR EDUCATION OF SENSORS AND TRANSDUCERS COURSES

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It is so difficult for students to comprehend vocational courses like Sensors and Transducers lesson which includes many abstract contents. In this study, all Sensors and Transducers lesson' contents have been lectured to students by using a smart home automation system which is applied on a 1/20 scale model house. In addition to that, it has been enabled the students to try and experience their own control algorithms on the model house. The study has been applied on thirty students at the Mechatronic program in Technical Sciences of Vocational School. The students' academic achievements and attendance to the lesson has been examined though the previous years. As a result, the students elaborate their technical science understanding at relatively high levels of abstraction. It has been also enabled to increase of student's attendance and interest of the course.This study was supported by the Ahi Evran University Scientific Research Projects Coordination Unit. Project Number: TBY.A3.17.001

USİNG ACTİVİTY WORKSHEETS TO UNEARTH 10TH GRADE STUDENTS' PERCEPTİONS ABOUT WORD CHEMİCAL EQUATİONS

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ABSTRACT

An in-depth constructivist and interpretive study was carried out with 31 students from a Ghanaian High School over a period of three weeks in order to elicit their interpretations, concerns, and constructions of word equations. This was a qualitative research to generate, analyse, and interpret data from individual narratives and translate ideas belonging to a community to represent discourses of that community. Results indicated that psychological, cognitive and language issues affected students' conception. Their capacity to reason was linked to both concept, structure and strategies for presenting analysis.

INTRODUCTION

School chemistry has been an uphill task for students' whose basic principles about chemical phenomena are misconstrued. The foundations of such students have been built on faulty beginnings either from their interactions with their environment before the introduction of authentic formal science or from text books and teachers. In addition, most chemical principles are abstract and as such would require concretisation to enable students to form mental models in order to alleviate their abstractness (Hanson, 2016).

In this study an emerging interpretive qualitative investigation into students' own ideas was adopted. An interpretive constructivist inquiry paradigm can provide rich contextual information and provide insights into human behaviour as it uncovers emic views and avoids ambiguity (Akatugba & Wallace, 2009). The constructivist philosophy asserts that students should be able to experience what they learn in a direct way so that they will have time to think and make good reason of what they learn. Thus, this study aimed to elicit and understand students' meanings, claims, concerns, constructions, deconstructions and interpretations of their difficulties with representations of word equations from their own perspectives through the use of tasks on worksheets. Worksheets are effective learning materials that apply constructivist principles. They are defined as fundamental tools which contain required process steps and help students to configure knowledge while providing full engagement of whole class activities. Worksheets have been used in chemistry classrooms to assess achievement and permanency in learning (Celikler, 2010). They provide easy steps to follow and offer solutions to problems (Kirschner, Sweller, & Clark, 2006).

Cartoons, video animations, concept maps, and activity worksheets have been employed to help students build mental models.

DESIGN AND PROCEDURES

The study, which followed a case study approach, involved thirty-one (31) 10th grade students. In the Ghanaian educational system these students are described as first year senior high school students. The crop of participants were a cosmopolitan group of males and females who had converged at this secondary school from all over the country and have learned about chemical equations in grades 8 and 9, called Junior Secondary in Ghana. Nevertheless, they were required to write a pre-test (Appendix A) so that their true entry level could be assessed. They were then given work sheets (Appendix B) to fill in missing spaces in word chemical equations. They were further required to describe and explain their answers and extend them in follow up interviews to place them within contexts of their beliefs about chemical reactions and word equations. The semi-structured focus interview schedule is presented as Appendix C. Final sets of issues based on constructivism, written works and responses would be linked to their high school chemistry contexts and references.

DATA COLLECTION AND ANALYSIS

The text that follows is constructed from observations and interpretations of direct quotes of students' responses. Many of the identified issues which arose intersected and overlapped. Some responses were observed to go beyond the representation of chemical reactions. The post-task or activity sheets were used to probe and analyse students' constructions, deconstructions, and re-constructions. The analysis was integrative as it arose from the interactive process and its temporal structural context (Charmaz, 2000). No external influences were underpinned as Roth and Lucas (1997) purport. Following their examples, discourses were extracted from students' language. Thus, presentations of narratives and successive transformations were transparent while essential discourses were unearthed. Pseudonyms have been used for the participants. Narratives have been composed from the interviews as they give an in-depth view (Taber & Watts, Learners' explanations for chemical phenomena, 2000; Taber, Exploring student learning from a constructivist perspective in diverse educational contexts, 2008). One of the ways to probe students' ideas about a concept is through interviews. Roth and Hsu (2010) claim that from each interview, a researcher may learn not only from one person but the culture (school community) as a whole. Both general and particular observations are therefore equally concrete. The particular realises the possibilities embodied in the general. This is also the way in which we can understand the individual member of a culture, who concretizes the possibilities that exist in the culture as a whole so that the general exists in the possibilities that individuals realise.

FINDINGS AND DISCUSSIONS

Upon analysis of the bulk post-task data and interview, various misconceptions and themes emerged. Some of the misconceptions that were evident from the worksheets were:

1. Sulphate, sulphide and sulphite as descriptions for the product that can be formed from the reaction of sulphuric acid with another substance
2. Nitrate, nitrite and nitrile as representative of any anionic nitrogen atom in an anionic part of a substance
3. Wrong presentation of IUPAC nomenclature
4. Incorrect representations of coefficients, subscripts and superscripts

Some of the emergent themes from the interview were:

1. Non-familiarity with word equations
2. Familiarity with formula/symbolic equations
3. Fear of writing the indescribable
4. Lack of confidence
5. Type of questions and responses required in school assessments and national examinations
6. Language of task and requirement
7. Cognitive ability
8. Underlying chemical principle
9. Diverse misconceptions

Documentary analysis

Although an overview of students' task/activity sheets showed that though their entry level about chemical equations was about the same for all of them, critical analysis showed a lot of differences. About 50% of the students did not assign any reasons to their answers. A higher proportion made wrong submissions with wrong names for anionic parts of binary compounds. For example, item 1 was:

Sulphuric acid + sodium hydroxide → …………………… + water.

Students supplied the name for the cationic part of the binary compound correctly by writing 'sodium'. However, the anionic part had names like 'sulphate', 'sulphide' and 'sulphite'. A similar observation was made for item 5, which was a reaction between calcium and nitric acid, to result in calcium nitrate. Products such as calcium nitrite and calcium nitrile were given by students. Majority of them who attempted to write the IUPAC names of missing products failed. The formation and names of binary compounds from given reactants are taught in Junior Secondary

schools (grades 7 to 9) in Ghana. Thus, students are expected to have mastered the underlying principles that govern the formation of compounds- whether their common or IUPAC names are required.

The task assigned in this study comprised the formation of binary compounds with some the first 20 elements in the periodic table, copper, and zinc, which students are already familiar with. It appears that students had little knowledge about valences, the combining power of elements and how anions with specific numbers of oxygen were named. Thus, sulphate and nitrate ions were named wrongly, irrespective of the fact that they contained the maximum number of oxygen atoms. With respect to the use of IUPAC nomenclature, students were expected to work out the oxidation numbers of the central atoms and use them as part of names of compounds. However, they failed in their mathematical prowess and got the values for the central atoms wrong.

There were a few odd observations. In the reaction of sulphuric acid with sodium hydroxide, a student wrote the product as sodium sulphide and assigned a reason that acids react with bases to produce salt and water, which was conceptually correct. However, he went on further to add that 'since a salt was produced, like sodium chloride (from sodium and chlorine or hydrochloric acid) this new salt would be called sodium sulphide'. This student has a wrong conception that all salts must have the ending –ide. A similar observation was made with item 2:

…………… acid + Magnesium carbonate → magnesium chloride + water + carbon dioxide

A student got the answer (hydrochloric) correct, but made an overgeneralisation in the reasoning part of his answer that 'an acid reacts with a base to produce water, carbon dioxide and a salt', which was non-scientific misconception. The student here is referring to magnesium carbonate (a salt) as a base, which is conceptually wrong. Wrong identification of substances could imply that students have conceptual misunderstanding, preconceived notions and factual misconceptions about matter and chemical phenomena. Possibly, general principles or rules were learned in earlier studies by rote and so application of 'forcefully' acquired knowledge could lead to wrong deductions with no conceptual basis. If such misconceptions are not challenged they could become entrenched.

Emergent themes from interviews

Non familiarity with word equation/Familiarity with symbolic representations

Students said that they were not familiar with word equations. In the junior secondary schools they were told by teachers that chemical equations could be represented in that way but were cumbersome representations and so the symbolic representation was what was preferred by scientist. Thus, they did not practice nor were assessed on that kind of representation. Ellen, Akos and Martin commented on the challenges they faced with the word equation task.

Our teacher said that writing chemical reactions like this is too long and so we must learn the symbols type (Ellen).

When you have to write the full name of a product it is more difficult because you know the formula but not how to read or write it in words. Just the element names would be fine or if not, …… or something like sodium chloride is simple (Akos).

I am not familiar with these equations in word form. I prefer the symbols because it is easier to remember them. Those ones can be recalled with ease; it is shorter and simple (Martin).

Fear of writing the indescribable (Psychological influence)

Martin's assertion is unfounded because before one can remember and write a symbol of an element (correctly) they would have to remember its full name. Perhaps writing the name out in full could pose challenges to some students; hence their preference for the symbolic form. This latter challenge with understanding the principle for naming complex species may be why some students wrote sulphite and sulphide for sulphate, and nitrite and nitrile for nitrate. A further probe into Martin's answers indicated that he was not aware of this kind of representation, though that kind of language 'sodium hydroxide plus hydrochloric acid' for example had been heard several times over. Having the equation written out in word form in full was hardly done in class. Majority of the attempted IUPAC presentations were incorrect. Working out the oxidation numbers of central species posed problems. Indeed some did not even know which element in the complex formula unit to choose as the central atom whose oxidation

number should be worked out. This study was basically conceptual; nevertheless knowledge of these basic mathematical computations were expected of the grade 10 students. It was becoming apparent that they had preconceived, factual and conceptual misunderstandings. Cecelia intimated that she had not been taught in the past about central atoms. The term, entire idea and explanation were new to her as indicated.

Central atoms, I can imagine are in the centre of a compound but how does that happen? Which element must be selected or which one chooses to be the middle atom? Is there a rule … pattern? (Cecelia)

Berthold, another student, was familiar with deducing the oxidation states of 'supposed' central atoms but sometimes he didn't know which one to choose.

The choice of that central atom is the problem for me. When I know it then I can deduce it. Sometimes I get confused which atom to attach the defined number to (Berthold).

Sally said that she didn't want to write anything that could make her look silly. It was not the prescribed representation.

I did not want to fill in the portions I didn't understand or write reasons I was not sure of. Such things make you look foolish. Besides, it is not the prescribed thing we learned from our school (Sally).

Solomonidou and Stavridou (2000) found out in a study that students have warped ideas about the characterisation of matter. Johnson (2000) also found that mistakes and communication problems between teachers and learners arise from semantic problems in the use of names and notions which arise from misinterpretation of the relationship between matter and its particles. This often leads to challenges that students have in ascribing the correct subscripts, superscripts and moles (or multiples) to chemical species. These challenges led to the emergence of 'fear of writing what one does not understand' and perhaps 'making a fool of one's self' on the students' activity sheets. About 37% of the worksheets had missing spaces and no reasons assigned to spaces that had been filled in at the end of the task period. The implication here is that students lacked confidence in completing their tasks. They had difficulties with language representations and multiple psychological influences. These driving forces were the result of their observed performance.

Lack of confidence

Students admitted and exhibited lack of confidence, as was observed with Sally who didn't want to appear silly through her submissions. Most students did not appreciate the importance of word equations as they said that it was hardly used in everyday life. Most of their responses were similar to their answers about non-familiarity with word equations.

I have difficulty in expressing chemical equations in this form. I kept wondering whether it was a new thing WAEC (the national examination body) was about to introduce in our final 12th grade examination (Ohene).

I am more familiar with simple equations. I hope this 'new' type is not introduced into our examination (Betty A.)

Back in our former school our teacher never accepted this kind of expression. I mean the word type. She said that the symbols was what was common (Sally).

Sally was quite vocal in her group, and among other things added that:

Madam, we do not see such names on many household items. We see symbols instead.

As a follow up she was asked if she ever read through medicine leaflets or descriptions on medicine boxes and food packages, but she responded in the negative. It was pointed out to her that most of the active constituents/ ingredients of medicines and foods were in the word form and often had contraindications and their outcomes in word form as well. At this point the students were told that it was important that they appreciate the word form of representing chemical equations. Psychologically, the exercise was a good opportunity to foster change in students, as they were confronted with events that challenged their prior knowledge and confidence.

Disconnection with real life

Other group members (3 out of 5) expressed similar views as Sally, that, formula/symbolic expression were more common in everyday life than word representations. Thus, they did not find much use for the word equations. The implication here is that teachers have neglected this form of representation for chemical reactions, so that students no longer see its importance in everyday life.

In real life, at home and even in the lab we mostly see formula units, symbols, ….. (Joojo).

Writing these many words, though interesting, is not typical of the Ghanaian classrooms or environment; maybe in Europe or America. This is all new to me….. it looked foreign….alien. (Betty M.)

School and National modes of assessments

During interactions with the students in focus groups of six students each, it came to light that word equations were hardly taught or examined in class or national assessments. The students therefore had little exposure to word equations, their interpretations and presentations. In fact, in the column where reasons for choices had to be written, a few students interpreted the word equations into symbolic forms and worked out the missing parts- though some interpretations were wrong. Students said that the best impressions that they had about word representations were when they were required in examinations to write symbolic representations of specific unit compounds and vice versa, but never full word/sentence equations. According to Emma and Dora, sometimes making those interpretations were difficult enough. They could not imagine how they would have worked on full word equations.

Most of the time I get the symbolic representations wrong because my teacher said that I had written a letter in capital when it was meant to be small and vice versa. I also got the coefficients, subscripts and superscripts wrong most of the time. I think I didn't understand the combinations of the symbols too well. The proportions never matched most of the time (Emma).

Huh! A struggle! Sometimes you haver to join some of the words or names of the substances and other times you have to separate them. Sometimes too you simply get marked down because you have spelt the name of a substance wrongly by missing out on a letter or two. It was always tough and not any much easier now. I am cool with the symbols though (Dora).

These discourses explain why perhaps most students left the reason portion of their worksheets blank or translated the word equations into formula equations. It appears that human beings do not adapt quickly to change and even if they did, would revert to that which they first know and makes them comfortable. According to Gooding and Metz (2011), the brain files new data by making connections to existing information. If the new information does not fit the learner's established pattern of thinking, it is refashioned to fit the existing pattern. In this way, misconceptions are unknowingly created and reinforced as the learner files new data on faulty reasoning. To think that some of them did not want to 'disgrace' themselves by venturing into territories that they were not familiar with, says it all. Some did not want to make any attempt at configuring data. This also implies that teachers will have to avail to their students as many different ways by which assessments can be presented. If students get these exposures they will be able to fit in easily in all academic environments and put up their best. Often in the school or learning community, most teachers are set in the ways that test items and assessments are conducted. In this changing and technological world, there are many assessment options of which some are already available, while others could be customised from existent ones by innovative and creative teachers who want the best from and for their students. Thus, teachers must be up to the task. Developers of national assessments should also depart from their set ways which they hide behind and call 'standard' and set more minds-on innovative test items for assessing student. Diversification of test items in national and school examinations would expose students to possible assessments and get them to be more open-minded.

IUPAC representation of chemical compounds

Wrong presentations of IUPAC names could be traced to students' inabilities to identify the central atoms and work out their oxidation numbers mathematically because of weak computational skills. A question was asked as to why an anion such as trioxonitrate was written without the oxidation number of the central atom. Some of the responses were:

I didn't know that in pure word equations you have to indicate the oxidation number. I mean figures or numbers. I worked it out mentally (Sally)

I could not figure out the one that should have the number because we had both oxygen and nitrogen. I thought it was oxygen but then, there were many of the oxygens to choose from (Bob).

William also had this to say:

There were two atoms of the nitrogen (when I converted to formula form) so that made it difficult to choose a central atom to assign the oxidation number. The oxygen was also more than one (William)

William didn't have to attempt to convert to the formula for at all. He was simply to name the compound given in word form also in word form. Thus, he had to note the reacting elements and apply the principle required for the formation of binary compounds and name the resulting compound. There was a mix up or application of unwarranted principles all in one. Note how he analyses that there were many oxygen and nitrogen atoms; like Bob. It is obvious that unchallenged misconceptions have already become entrenched.

In item 5, the IUPAC name for calcium nitrate was written as calcium trioxonitrate. Calcium trioxonitrate (VI) calcium trioxonitrate (IV) calcium nitrite and many other presentations. Again, a reason assigned was that the reaction was between and acid and a base. Students' understanding and identification of acids and bases were not well grounded and would require remediation to correct the identified factual misconception. In an earlier instance magnesium carbonate had been described as a base. In this other instance, calcium was also described as a base. At the time of this study, students had not been taught yet about elements in the S-block having the ability to form basic compounds. Thus, it couldn't be said that students were experiencing cognitive conflicts. The best reason that could be deduced from their responses could be that they were merely guessing and basing their answers on the familiar truth they knew about acids and bases- that these supposed acids and bases reacted to produce some of the products that they found on their worksheets. If they were able to identify an acid, then its corresponding reactant was adduced as a base and vice versa. This was an exhibition of preconceived notion as well as conceptual and factual misconception.

Language and spelling

The names of most of the reacting substances and products formed that had to be supplied in the blank spaces were wrongly spelled. Students admitted to the fact that because they hardly wrote names of elements and compounds they were not familiar with their spellings. That was surprising for grade 10 students. Words like copper were spelt as 'cupper', and calcium as 'calsium', as pronounced in the Ghanaian dialect. The researcher has personally observed that a few students and many teachers pronounce those words as have been wrongly spelt by these students. Teacher-made misconceptions might have contributed to these students errors. When again, students in various groups were asked about some of these lapses, they responded that their text books basically contained chemical symbols and formula and not many word names of species and so they were not familiar with their spellings. Though their teachers mentioned the names sometimes, they almost always wrote them in symbolic form on their writing board. At other times their teachers said something like; 'when I add H_2O to NaOH what observation will be made'? In such a case only symbols and not whole words were used by the teacher.

Our teacher often uses symbolic language such as 'come for your HCl with 50ml beakers'; 'add 2g of $CuSO_4$' (John).

Damoah supported what John said by adding that he got confused a few times when the teacher used symbolic language as he was more aware of their word names.

Gina said that she preferred it if the teacher mentioned the real word names of chemical substances such as water, iron, sodium and sulphuric acid.

Sometimes I get confused with the symbolic or formula names, especially when they are stated in IUPAC form, like tetraoxosulphate (VI). I do not know if he means an ion, acid or a salt. Chemistry is really confusing and difficult (Gina).

Instructional language

Many students wrote the reactant and product names in symbolic instead of word forms. Their reasons were that they did not understand the language because they almost always write out equations for chemical reactions in symbolic form. There was no reason for them not asking for clearer directives if they did not understand since the classroom climate did not appear as an authoritative or strict type. Ama and Kuu said that they understood the instruction given but thought that they could be presented in the short form used by scientist and that would be more acceptable.

I read the instruction that asked for the names, but I thought the short form with symbols was okay (Ama, Kuuku)

Narteh did not read the instruction at all.

Oh, I did not see the instruction. I understood the work when I looked at it so I did some of them with symbols and some with words; whichever was easy and best (Narteh).

On the whole, they said that the instruction was clear but still did it their way as it was simpler that way. Students must learn to follow instructions as unrequited presentations could be unacceptable in some cases.

Cognitive ability

Judging from the participants' entry performance on the pre-test it could be discerned that most of these students performed only averagely, expressing many misconceptions. Prior to the task, many students expressed lack of confidence with,

'Can you give us the other type with symbols'? 'Can we have the exercise in the usual way?'

Errors identified in the diagnostic worksheet were similar to those which they had expressed earlier on in the pre-test.

CONCLUSION

An interpretive study of the students' responses on their worksheets and in the focus interview revealed that grade 10 students in Ghana have a lot of misconceptions about word equations in particular and chemical equations in general, regardless the form of presentation. Remediation would be required to enable them overcome their misconceptions and to enhance their conceptions about chemical equations.

The findings go beyond enhancing students' skills in writing word equations to reveal some of their deep-seated difficulties and experiences. It was found that a few students had poor knowledge about compound formation. These findings reinforce the importance of exposing students to multiple and varied tasks that incorporate several cognitive and reflective activities and require an exhibition of such skills. Heavy reliance on algorithmic processes pose conceptual problems that eventually lead to the development of preconceived notions, conceptual misunderstandings and factual misconceptions. Some amount of vernacular misconceptions were also identified. It was interesting to note that a simple task could unearth and diagnose many concerns about students' challenges with chemical equations. It is evident that worksheets with constructivist undertones have the ability to improve students' conceptions about chemical changes and their representations and make all learners participate actively in class.

The apparent alien nature of word equations arose because of their assumed non-relation to practical life. Teachers must therefore make an effort to use word representations more frequently. Emphasis on questioning and justification of answers must be a daily norm during lessons as they will engage students in constant critical reflections. Again, teachers would have to promote and stimulate deep cognitive processes, situations and strategies.

It is hoped that the findings of this study would form a platform for further studies into using basic simple diagnostic tools to unearth students' conceptual challenges in chemistry. Tools such as concept cartoons, concept maps, conceptual change texts, discussions webs, and inquiry approaches are suggested.

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Appendix A: Pre-test diagnostic items

1. Write the chemical symbols of the following elements:
   a. Lithium   b. Iron   c. Sulphur   d. Oxygen   e. Sodium
2. Write the names of the following chemical symbols:
   a. Si   b. Al   c. Mg   d. Cl   e. Ca
3. Write the names of these chemical compounds in full:
   a. NaCl   b. CO_2 c. HCl   d. MgO   e. NaF
4. Write the chemical formula of each of these chemical compound:
   a. Copper oxide   b. Sodium carbonate   c. Aluminium chloride   d. Zinc chloride   e. calcium sulphate

Appendix B: Activity worksheet

1. Sulphuric acid + sodium hydroxide →……………….. + water
   I think this is the answer because ……………………………………………………………………………..

2. Iron + ……………………………. → iron chloride + copper

    I think this is the answer because …………………………………………………………………………..

3. ………………. + calcium carbonate → calcium chloride + water + carbon dioxide

    I think this is the answer because …………………………………………………………………………..

4. Zinc + nitrogen →……………………

    I think this is the answer because …………………………………………………………………………..

5. Calcium + nitric acid → ………………………… + hydrogen

    I think this is the answer because …………………………………………………………………………..

Appendix C: Semi-structured focus group interview guide

1. Could you distinguish between sulphates, sulphites and sulphites? Kindly represent the differences diagrammatically.
2. How familiar are you with word equations? How different are they from the symbolic form?
3. How comfortable were you with the word equation activity sheet task? / Was the activity familiar?
4. Which mode of representation would be preferred?
5. Has this study in any way exposed you to other kinds of presentations for chemical reactions? How?
6. What can you say about the difficulty level of the instruction given? Was it clear?
7. How difficult/easy was it to write the names of elements and compounds in word form? Explain further.
8. What benefits have you gained from the word equation activity?

USING BLENDED LEARNING TO ENHANCE STUDENT LEARNING İN AMERICAN LITERATURE COURSES

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Using Blended Learning to Enhance Student Learning in American Literature Courses Abstract This study taps the English learners' interest in and attitudes toward the use of technology in English literature classes. It also investigates the influence of integrating the blended learning approach on the English literature students' learning and on the changes in their attitudes and behavior toward computer technology usage. Questionnaires as well as the recordings on the platform dedicated to the course were employed to gather the required data. The Modular Object-Oriented Dynamic Learning Environment (MOODLE) platform had been used as a tool for applying the experiment. In addition, the online program; the Text Content Analyzer had been used to analyze the learners' participations on the forum. The results showed the learners' positive attitudes toward using CT in learning English literature courses. They also highlighted the main obstacles impeding application, and the proper strategies that could be taken into consideration for efficient integration of CT components in the learning process. The results also showed the effectiveness of using the BL in the American Literature Course for developing and improving the learners' performance in quantity and quality; and its effect on the students' learning and behavior toward using CT.

USİNG ELECTRONİC INFORMATİON RESOURCES CENTERS BY FACULTY MEMBERS AT UNİVERSİTY EDUCATİON: COMPETENCİES, NEEDS AND CHALLENGES

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ABSTRACT

This study aimed at investigating the factual situation of electronic information resources centers to faculty members at university education. Competencies that faculty members should possess regarding this issue were determined. Also their needs for (scientific research skills and teaching) were assessed. In addition, problems that hinder their use of electronic resources centers were identified. Data obtained were analyzed statistically using SPSS in measuring reliability of instruments. Participants of the study were **(655)** faculty members at Saudi Universities (**412** males & **243** females). Results indicated that there were significant differences between male and female at **(α ≤ 0.05)** level. Results also revealed significant differences between members of different ranks at **(α ≤ 0.05)** level, and between academic areas of specializations at **(α ≤ 0.05)** level. Significant differences were also found between faculty members in terms of years of experience in using electronic information resources centers at **(α ≤ 0.05)** level. This study recommends that most Saudi Universities are in need of establishing electronic information resources centers and offering training courses to provide technical support in a way to solve some of faculty members' problems.

Keywords: electronic information resources; faculty members; competencies; needs; challenges**.**

INTRODUCTION

Quality of education offered to students is the success key of any educational institution. Since every student need to be provided by ways to facilitate the essential responses for learning, the educational environment should consist of knowledge, competencies, abilities, motives, teaching methods etc. These aspects are related and greatly affect the whole environment. Thus, the use of electronic information resources centers is a high level individual activity initially assures the provision of many of faculty members needs at universities and help them achieve their competencies.

Surveying the educational developments shows that a number of policies are set to maintain that educationalists need to get along with innovations in the field **(Fahad et al. 2013)**. However electronic information resources centers witnessed many changes until reaching the current level, making development of these centers a continuous process. The history of these centers goes back to classroom library then universities libraries that were developed to include media and non-printed materials where they used to be called comprehensive libraries. Finally, the electronic information resources centers that include all resources and the focus they make to the learning process rather than the teaching process.

Electronic resources centers are characterized by the electronic material they contain which allows access to the biggest possible number of periodicals, reports and statistics in academic fields. They also allow continuous updating to these materials **(Hughes 2013)**. Searching electronic information centers is much easier for faculty members as they enable them to be in continuous contact with the international databases around the world.

Thus, these centers offer a service that facilitates gaining information in a few moments unlike traditional methods that used to take weeks and in some cases months **(Hostager 2014)**. Not only in terms of time, these centers facilitate the direct access to the materials by printing, downloading or sending them by email. Electronic information recourses centers offer a big number of digital information for their users quicker than doing this manually through printed materials **(Andrews and Eade 2013)**. Furthermore, electronic searches help discovery of some information that could not be obtained through traditional methods. The field of scientific research makes good use of these electronic ways as they help facilitate continuous communication among researchers

and gain updating to new discoveries (**Taffs and Holt 2013**). Also, the use of electronic information resources centers improves many learning and teaching processes in addition to extra curricula activities.

Currently educational processes face many problems and challenges due to the so many continuous and competitive developments we witness today. These led to the need of establishing electronic information resources centers to help educationalists get along with new developments. Use of these centers help improve teaching and learning processes in a way to prepare a generation able to face challenges, find solutions using scientific ways based on new and multiple resources. More important, these centers offer better ways of how to employ educational technology effectively to achieve educational goals as they consider learners to be participants unlike traditional methods that consider them only receivers (**Davids et al. 2014**).

The current study considers investigating the use of electronic information centers in universities and institutions of higher education and finding solutions to problems theat may suffer as prerequisites for distinction in all fields of knowledge. The study investigates also the way faculty members use electronic information centers in conducting scientific research and in their teaching. In addition to the identification of problems that may hinder their effective use of these centers and their needs for better practice. These are for the purpose of developing a framework for helping the faculty members to obtain competencies that maintain their effective use of these centers. This framework will offer electronic educational environment that allow opportunities for practicing self-learning skills and reinforcing research and discovery skills that help faculty members to employ modern ways in designing, developing, implementing and evaluating the courses they teach (**Akaichi 2014**).

This study seems important in helping faculty members in identifying competencies they need to posses in order to effectively use electronic information resources centers. It will help also identifying types of electronic information resources centers that could be of benefit to the educational process. The current study tries to orient those in charge of Saudi universities towards the importance of establishing electronic information centers in terms of faculty member's needs. This study will provide those in charge of electronic information resources centers with challenges that hinder the use of electronic information resources centers (**Solomou et al. 2015**).

The current study matches the contemporary focus all over the world on the use of electronic information resources centers in universities and all educational institutions. The study tries to identify the way faculty members use these centers at Saudi Universities in conducting their scientific research and in their teaching. The study identifies types of electronic information resources that help faculty members to practice self-learning skills that support research and discovery skills.

Given the important role electronic information resources centers play in improving the work of faculty members (**Wang 2014**), this study asks the following main research question:

What is the factual situation of the use of faculty members at Saudi universities to electronic information resources centers?

This entails a number of sub-questions that can be summarized as follows:

1- What are the competencies faculty members at Saudi universities should posses in order to be able to use electronic information resources centers?

2- What are the needs of faculty members to use electronic information resources centers for?

3- What are the challenges that hinder faculty members at Saudi university from using electronic information resources centers?

Hypotheses of the study

1- There are significant differences at ($\alpha \leq 0.05$) level regarding the use of faculty members at Saudi universities to electronic information resources centers in terms of gender.

2- There are significant differences at ($\alpha \leq 0.05$) level regarding the use of faculty members at Saudi universities to electronic information resources centers in terms of academic rank.

3- There are significant differences at ($\alpha \leq 0.05$) level regarding the use of faculty members at Saudi universities to electronic information resources centers in terms of academic area of specialization.

4- There are significant differences at ($\alpha \leq 0.05$) level regarding the use of faculty members at Saudi universities to electronic information resources centers in terms of number of years of experience.

Aims of the study

1- Identifying competencies faculty members should possess in order to be able to use electronic information resources centers.

2- Identifying how far faculty members' needs are fulfilled regarding the use of electronic information resources centers.

3- Identifying the challenges that might hinder the use of faculty members in these centers.

Review of literature

Electronic information resources centers enable faculty members to use multiple resources at the appropriate environment provided by the university. The use of these centers helps faculty members to better attracting students' attention and increasing their interest during learning **(Yessad et al. 2011)**. These centers offer a modern economic model different from traditional one in terms of offering an alternative to provide all classrooms with educational technology. They also contribute to organizing and classifying learning resources which facilitate access of staff members to them **(Thompson et al. 2014)**.

Use of electronic information resources centers helps faculty members in planning and implementing their teaching activities. They allow faculty members access to use them whenever they find appropriate and search for the needed materials without any restrictions. They help to shift from the traditional schedule into a more flexible one in terms of time, teaching methods and media.

Electronic information resources centers aim at the following:

Supporting study course with related electronic materials. **(Hockings et al. 2012)**

- Developing research skills and helping faculty members to encourage research and problem solving skills to their students.
- Supporting students with skills and tools that enable them to adapt with and make use of the quick competitive development in the field of information system**. (Lau et al. 2015)**
- Helping faculty members to use varied teaching methods.
- Helping staff members to exchange their experience for the purpose of developing study courses.
- Allowing opportunities for self-learning.
- Catering for individual differences and meeting students' needs.
- Identifying real attitudes, preferences and aptitudes and potentials of faculty members.
- Helping staff members to guide their students on better ways to obtain information from multiple resources **(Chang et al. 2012)**.

Types of electronic information resources:

First: electronic information resources in terms of coverage and objective manipulation: classified as:

- Electronic information resources related to particular areas of specialization
- Electronic information resources of comprehensive specialization or sometimes known as non-specialized **(Leibowitz 2009)**.
- Electronic information resources general (news, political, informative and televised)

Second: electronic information resources in terms of institution concerns, may be classified as following:

- Electronic information resources belong to commercial institutions **(Hani et al. 2013)**.
- Electronic information resources belong to non-commercial institutions (universities, scientific centers, international and national organizations and projects financed by government or other bodies) **(Tripp 2003)**.

Third: electronic information resources in terms of type of information classified as follows **(Lim et al. 2007)**:

- Bibliographical database.
- Textual numeric database (online, CD-ROMs- magnetic tapes).

Competencies of using electronic information resources centers:

- Identifying electronic information database needed in terms of areas of specialization of faculty members (general and specialized research engines to search websites of publishing of database of electronic information – visiting the location of a university library to view the list of database of electronic information) **(Levy et al. 2011)**.

- Identifying the differences between database of electronic information and the traditional ones: method of setting research variables- identifying number of variables used by faculty members for research- methods of presenting research findings-identifying if the documents are numerated within the database or not-method of presenting summaries of documents **(Al-Busaidi 2013)**.
- Identifying methods of entering database of electronic information according to the following use of acronyms; abbreviated names- of database- use of the term databases and full address of electronic databases- entering websites of universities libraries.
- Identifying the main page of databases of electronic information: name of database- searches-advanced searches-glossary of terms used in storing documents and in giving commands **(Noguerón-Liu 2014)**.
- Identifying strategies of research in electronic information databases: identifying the type of research in electronic database, selection of research terms, typing the research terms in the appropriate columns-choosing the right conjunctions for research terms-choosing the field of research from the list-selecting the date of publication to the needed document-selecting the language of the document-identifying the needed electronic information about the document- selection of the type of document- selections of other options and identifying type of pictures and needed drawings **(Moreno et al. 2009)**.
- Evaluating results of researching electronic information resources
- Centers: reviewing literature and researching using new terms-
- Quick viewing to titles of articles in order to decide how far they are related to the topic under investigation-saving and printing research results and sending them via email.
- Authorization of references obtained on line: this could be through understanding the abbreviations used in quoting- understanding abbreviations that point to the title of the document under investigation, name of author, date of publication and type of source.
- The ability to use the technical support via the internet and use the guidebook of topics **(Cornelius & Gordon 2009)**.
- Referring to the bibliography in order to select a new document and start searching using different strategy.
- Referring to the main page to perform a new search and using different variables to reach the target information.

Needs of faculty members to use electronic information resources centers:
There are a number of needs and motives that make faculty members use electronic information resources centers. These needs and motives differ from one user to another in terms of the type of electronic information needed **(Abouel enein 2016)**. Needs could be for educational or research purposes, or could be personal or resulting from the surrounding environment. Examples of these needs are: coping with modern developments taking place in academic fields- solving problems regarding academics and conducting scientific research, **(Davids et al. 2015)**. Also, publishing articles - supporting teaching and learning –participation in forums and conferences. There are also professional needs related to taking decisions related to work besides personal needs related to learning or entertainment **(Norman & Siminitus 2006)**.

Reasons for establishing electronic information resources centers
There are a number of tasks for electronic information resources centers some of these are: providing electronic information resources related to educational needs, they are useful in developing thinking skills to faculty members and students **(Fahad et al. 2013)**. They are also helpful for faculty members and students as they facilitate reaching required information inside or outside their universities **(Basha et al. 2013)**. Appropriate use of electronic information resources centers acts as a guide to faculty members to help them select and use needed resources **(Dalveren 2014)**.

Factors affecting the use of electronic information resources centers
There are a number of aspects affecting the use of electronic information resources centers. Some of these are: their use, surrounding environment and faculty members. Results from research identified factors affecting the use of these centers related to faculty members as follows: they provide for electronic information and facilitate access to it **Park et al. (2010)**. They allow access to updated information and provide for multi forms of information. There are also some personal factors affecting the use of these centers by faculty members in terms of age, academic rank, area of specialization, years of experience and professional needs **(Cegarra-Navarro and Rodríguez 2012)**.

In sum to what has been mentioned above, there are a number of factors affecting the use of electronic information centers which can be classified into two categories. First, factors related to the use of electronic information resources centers. Second, factors related to the personal traits of the user and surrounding environment **(Korobili et al. 2006)**.

A) **Factors related to the use of electronic information resources centers these are:**
- The availability of using electronic information resources centers and the range of their modernity (simple or complex- available or unavailable- inside the center or via network- traditional or electronic) **(Pineda-Herrero et al. 2011)**.
- Form of electronic information in the electronic resources centers and easiness of use.
- Cost of using electronic information resources centers.
- Increase of electronic information centers as a result of the revolution of published knowledge **(Hartnett & Koury 2012)**.
- Time: information requires long time to obtain its value.
- Faculty members rely on the ability of these centers to get information and retrieve it afterwards.

B) **Factors related to faculty members (personal factors**) **(Adnan 2014) These are as follows:**
- Age,
- Academic discipline,
- Academic rank,
- Number of years of experience,
- Desire to use electronic information resources centers,
- Problems hindering the use of electronic information resources centers, and
- Ability, comprehensiveness and appropriateness for conducting deep research **(Marković and Jovanović 2012)**.

Challenges that hinder use of electronic information resources centers
There are a number of problems hindering faculty members from using electronic information resources centers. Some of these challenges and problems are: lack of well-prepared electronic environment **(Sidgreaves et al. 1987)**; lack of cadres of trainers who can train faculty members on using electronic information resource; the rare electronic material that server the university; there is no updating system that could inform about changes and development if different area of specializations; some tools cannot work using Arabic language and require specialized people in language; lack of sills of using electronic information resources centers**;** lack of electronic information resources centers in most Saudi governmental universities, lack of sufficient time for researching electronic information resources centers, lack of electronic information in Arabic and lack of incentives that encourage faculty members to use electronic information resource centers. In addition, lack of appropriate places for conducting scientific research activities, lack of technicians who can provide support to faculty members, lack of needed electronic information **(Dalveren 2014)**, on line information cannot be guaranteed to be there all time and slow downloading is expected **(Abel et al. 2004).**

RESEARCH METHODS AND PROCEDURES
Population
Population consisted of a group of male and female faculty members in some Saudi universities. Participants included professors, associate professors, assistant professors, lecturers and demonstrators. Questionnaires were administered to (721) faculty members from governmental Saudi Universities. Out of this (66) participant were eliminated as they provided incomplete data. Final number of participants was (655) faculty members from governmental Saudi universities (412) males and (243) females who were selected from different areas of academic disciplines (medical sciences, applied science and humanities) and from different academic ranks. Data collection lasted for one academic year 2015. Numbers of years of experience was also a factor considered in selecting population as shown in the following tables.

Table 1

Distribution of population in terms of gender and academic rank.

						Scientific Degree	
Gender	prof	Co-professor	Assistant Prof	lecturer	Teaching Assistant	Total	%
Males	52	98	116	69	77	412	%62.91
Females	33	38	64	53	55	243	%37.09
Total	85	136	180	122	132	655	%100
%	%12.98	%20.76	%27.48	%18.63	%20.15	%100	%
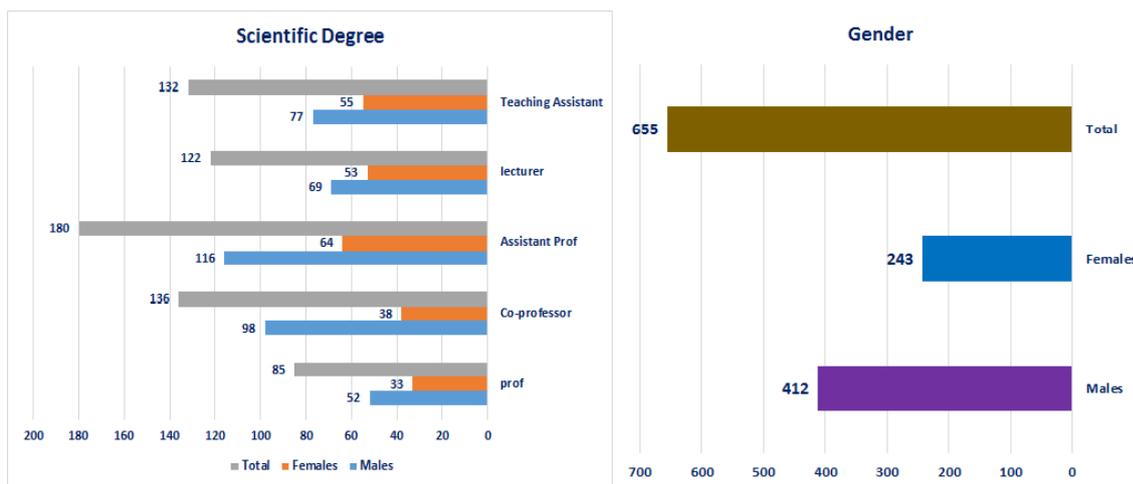
Figure 1. Distribution of population in terms of gender and academic position.

Table 2

Distribution of population in terms of area of academic specialization and number of years of experience

	Years of Experience							Academic Specialization					
Gender	Less than 5 years	From 6 years to 10 years	From 11 years to 15 years	From 16 years to 20 years	From 21 years to 25 years	Total	%	Gender	Humanities Sciences	Applied Sciences	Health Sciences	Total	%
Males	138	114	98	31	10	391	%59.69	Males	133	119	104	356	%54.35
Females	95	77	61	23	8	264	%40.31	Females	105	108	86	299	45.64%
Total	233	191	159	54	18	655	%100	Total	238	227	190	655	%100
%	35.57	29.16	24.27	8.24	2.76	%100		%	36.33	34.5	29.17	%100	
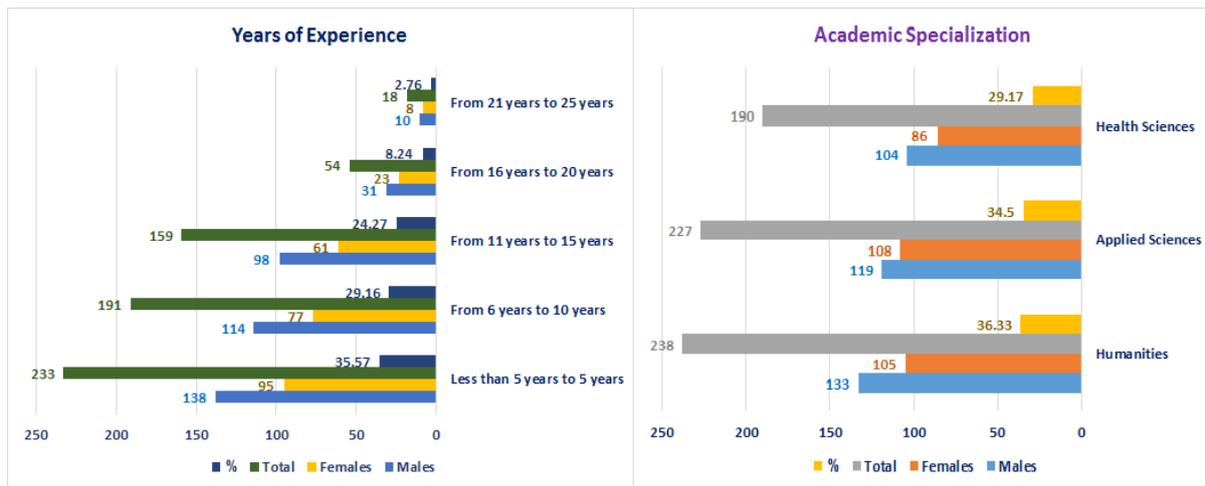
Figure 2. Distribution of population in terms of area of academic specialization and number of years of experience.

Research method

Descriptive analytic method was used to obtain data from research related to the problem of the current study. This is for the purpose of investigating the factual situation of electronic information resources centers in Saudi universities and identifying problems facing them.

Research instrument

Procedures of preparation of a questionnaire of investigating the factual situation of the use of faculty members of electronic information resources centers at Saudi universities.

- Review of literature related to electronic information resources centers and types of electronic information in general.
- Review of findings of research from international journals and conference related to electronic information resources centers in particular.
- Interviewing a number of faculty members in the field of educational technology and electronic learning in order to obtain their views on types of electronic information, problems, competencies, roles, needs of faculty members and affecting factors. In terms of these steps a questionnaire was developed under three categories as follows:
- **Category one:** dealt with competencies that should be possessed by faculty members to use electronic information resources centers. These competencies were phrased in (10) items with brief explanatory details. Reponses were guided by a scale of five options (strongly agree, agree, neutral, disagree and strongly disagree).
- **Category two:** Dealt with assessing needs of staff members of using electronic information resources centers, these were phrased in (23) items. Reponses were guided by a scale of five options (often, always, sometimes, rarely, never).
- **Category three:** This part dealt with the problems that hinder faculty members from using electronic information resources centers phrased in (11 items). Reponses were guided by a scale of five options (often, always, sometimes, rarely, never).

Validity of the questionnaire was measured, procedures are as follows

- **Face validity:** the questionnaire was presented to (23) faculty members specialized in educational technology in some Saudi universities to obtain views on appropriateness and any required modifications.
- Reliability of the questionnaire was measured in terms of a number of procedures as follows. The questionnaire was administered to a group of (23) male and female faculty members in some Saudi universities. Alpha Crookback formula was calculated and reliability reached (0.88).
- **Application of the questionnaire:** it was administered to (655) faculty members from some governmental Saudi Universities.

- **Statistical analysis:** the researcher used SPSS program to measure (mean scores- frequencies- deviations from mean scores- standard of error estimate- differences between mean scores) and Alpha Crookback formula and (Chi square) variables of (gender, degree- number of years of experience- academic areas of specializations) were considered.

Data analysis

The viewpoints of research population from faculty members of some Saudi universities were investigated through the use of a questionnaire in order to verify hypotheses of the research and answer its questions.

First: presentation of data: This study aimed at verifying a number of hypotheses through statistical analysis to data obtained from participants. Views of participants around most important competencies needed by faculty members to use electronic information resources centers, how far faculty members are in need for these centers in their teaching and problems hindering the use of these centers were investigated. Results in terms of the research hypotheses are as follows:

First hypothesis: there is a significant difference at **(α ≤ 0.05)** level in the use of faculty members of electronic information resources centers at Saudi universities in terms of gender.

Results related to the first research question 'What are the competencies faculty members at Saudi universities should posses in order to be able to use electronic information resources centers?

In order to answer the first question, statistical data analysis for mean scores, standard deviations and variance for (10) main competencies. Views of participants (412 males and 243 females) were investigated regarding the importance of competencies of using electronic information resources centers through a five scale identifying their responses to questionnaire items. This included (strongly agree- agree- neutral- disagree- strongly disagree).

Table 3
Shows mean scores and standard deviations for competencies of faculty members in using electronic information resources centers.

			Competencies : Male & Female									
Male & Female			**1.**	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**
Males	N	Valid	412	412	412	412	412	412	412	412	412	412
	Mean		4.135	4.017	4.114	4.092	3.990	4.143	4.186	4.029	4.080	4.031
	Std. Deviation		.910	.980	.911	.949	1.015	.931	.954	1.000	1.114	1.148
	Variance		.828	.961	.831	.901	1.032	.868	.911	1.002	1.242	1.320
Females	N	Valid	243	243	243	243	243	243	243	243	243	243
	Mean		4.181	3.987	4.148	4.131	4.323	4.020	4.205	3.983	4.142	4.024
	Std. Deviation		.833	.933	.839	.837	.8339	.9290	.7917	1.003	.7291	.9488
	Variance		.694	.872	.705	.702	.695	.863	.627	1.008	.532	.900
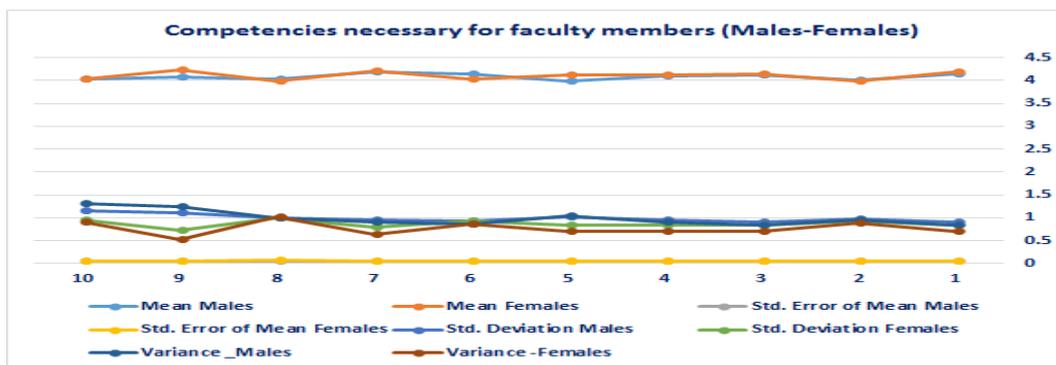
Figure 3. Shows mean scores and standard deviations for competencies of faculty members in using electronic information resources centers.

Results indicated that mean scores of females were (4.110) with standard deviation of (1.113) and a range of variance of responses at (1.241) in terms of the total score of responses. This revealed that there are significant differences **(α ≤ 0.05)** level in favor of females. Variance came in favor of females as results of variance were low regarding males. The competency of setting strategies of researching electronic databases was considered the most important one followed by authorization of references obtained on line, then using specialized research engines for searching electronic information resources centers. Degree of variance in males responses were higher than females responses.

Results related to the second question: 'What are the needs of faculty members to use electronic information resources centers?'

In order to answer this question, views of participants (412 males and 243 females) on the needs of faculty members for using electronic information resources centers were investigated through (23) questionnaire items requiring respondents to choose out of five scale measuring system (often- always- sometimes- rarely- never).

Table 4

Shows mean scores and standard deviations for the needs of faculty members to use electronic information resources centers.

Needs : Male & Female																								
Male & Female		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.
Males N Valid		412	412	412	412	412	412	412	412	412	412	412	412	412	412	412	412	412	412	412	412	412	412	412
	Mean	3.735	3.708	3.679	3.684	3.689	3.895	3.939	3.919	3.808	3.788	3.898	3.9903	4.0097	3.8519	3.7354	3.7621	4.0146	4.1214	4.1092	4.1044	4.1311	4.2087	4.186
	Std. Deviation	1.2012	1.1911	1.1166	1.2488	1.2446	1.0779	1.0007	1.0116	1.0369	1.1001	1.0304	.92539	.94104	1.06670	1.17116	1.19106	1.05332	.97153	.92556	.9339	.90272	.84871	.913
	Variance	1.444	1.419	1.362	1.560	1.554	1.164	1.016	1.030	1.080	1.213	1.070	.856	.886	1.139	1.373	1.418	1.109	.944	.857	.872	.815	.720	.834
Females N Valid		243	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243	243
	Mean	4.0322	4.1223	4.057	4.1977	4.2922	4.0445	3.995	3.658	3.271	3.234	4.024	4.053	4.032	4.070	4.152	4.362	4.312	4.246	4.222	4.053	4.131	4.160	4.123
	Std. Deviation	.948	.798	.785	.740	.6174	.858	.860	1.103	1.276	1.294	1.075	1.037	.9743	.8902	.9433	.7219	.8346	.8046	.9181	.9366	.9046	.8689	.9052
	Variance	.900	.638	.617	.548	.381	.738	.740	1.218	1.628	1.676	1.156	1.076	.949	.793	.890	.521	.697	.647	.843	.877	.817	.755	.819

Figure 4. Shows mean scores and standard deviations for the needs of faculty members to use electronic information resources centers.

Results indicate that there are significant differences between males and females at **(α ≤ 0.05)** in favor of females as their mean score was (4.036) with standard deviation of (0.942) and degree of variance of (1.031). Mean score of males was (3.902) with standard deviation of (1.015) and degree of variance of (0.903). Thus, the degree of variance between males was higher than degree of variance between females. This resulted in the significant differences in favor of females. Needs related to teaching could be classified in terms of importance as follows: questionnaire item stating 'allowing opportunities for self-learning' came to be of most important, followed by 'catering for individual differences and meeting students' needs, then continuous support of teaching and learning and authoring, followed by discovering students' potentials and finally developing students' abilities to reach information using various resources.

Results related to the third question' What are the challenges that hinder faculty members at Saudi university from using electronic information resources centers?

In order to answer this question, views on participants (412 males and 243 females) were investigated regarding challenges facing them in using electronic information resources centers through (11) items to investigate the challenges facing faculty members in using electronic information resources centers, with five scale measure requiring a choice among: (often- always- sometimes-rarely- never). This is illustrated in Table 5 & Figure 5 below.

Table 5

Shows mean scores and standard deviations for challenges facing faculty members (males and females) in using electronic information resources centers.

Challenges : Male & Female													
Male & Female		M & F	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
Males	N Valid	412	412	412	412	412	412	412	412	412	412	412	412
	Mean	1.000	3.927	4.002	4.101	3.915	4.014	4.068	3.747	3.893	3.941	3.737	3.686
	Std. Deviation	.000	.951	.926	.822	.998	.946	.9308	1.096	1.061	1.056	1.145	1.192
	Variance	.000	.905	.859	.676	.998	.895	.866	1.201	1.127	1.116	1.313	1.422
Females	N Valid	243	243	243	243	243	243	243	243	243	243	243	243
	Mean	2.000	3.642	3.679	3.831	3.802	3.790	3.860	3.613	3.818	4.041	3.975	3.786
	Std. Deviation	.000	1.232	1.176	1.098	1.053	1.072	1.115	1.167	1.164	1.007	.966	1.169
	Variance	.000	1.520	1.384	1.207	1.110	1.150	1.245	1.362	1.356	1.015	.933	1.367

Challenges faced males and females
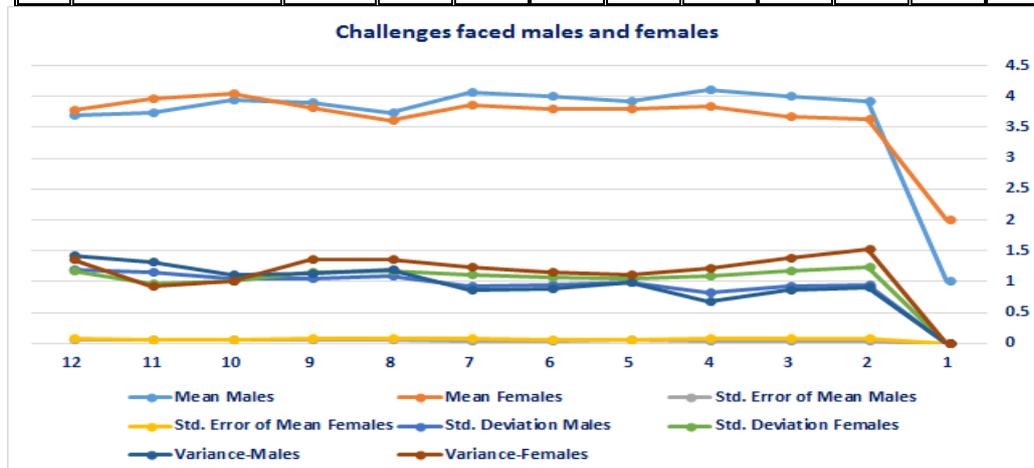
Figure 5. Shows mean scores and standard deviations for challenges facing faculty members (males and females) in using electronic information resources centers.

Results indicate that there are significant differences at **(α ≤ 0.05)** in favor of males as their mean score was (3.911) with standard deviation of (0.995) and degree of variance of 0.994. For females, their mean score was (3.803) with standard deviation of (1.153) and degree of variance of (1.323). This shows that there are significant differences in favor of males as their mean scores representing the challenges facing them as follows: there are no electronic information resources centers in their universities. Furthermore, it was revealed that there are no electronic information resources centers serving their universities. Then, the poor use of electronic information resources centers, lack of specialists to train faculty members to use these centers and finally faculty members are not encouraged to use these centers.

D- Results related to the variable of gender (male and female) and its relationship with variables of the study: academic rank, academic area of specialization and number of years of experience. In order to examine this relationship, data were treated statistically to investigate correlation of gender, differences between males and females in terms of academic rank, academic area of specialization and number of years of experience. as shown in Table 6 & Figure 6

Table 6
Shows mean scores and standard deviations for the variable of gender and its correlation with variables of the study: academic rank, academic area of specialization and the number of years of experience.

Comparison between the study variables : Gender				
Gender		**Scientific Degree**	**Academic Specialization**	**Years of Experience**
Males	**N** **Valid**	412	412	412
	Mean	3.3471	1.9466	2.3010
	Std. Deviation	1.30446	.82660	1.16381
	Variance	1.702	.683	1.354
Females	**N** **Valid**	243	243	243
	Mean	2.0823	1.8930	1.8519
	Std. Deviation	.84392	.76929	.83978
	Variance	.712	.592	.705

The above table shows that differences between mean scores related to academic rank, academic area of specialization and number of years of experience came in favor of males and were significant at **(α ≤ 0.05)** level**.**
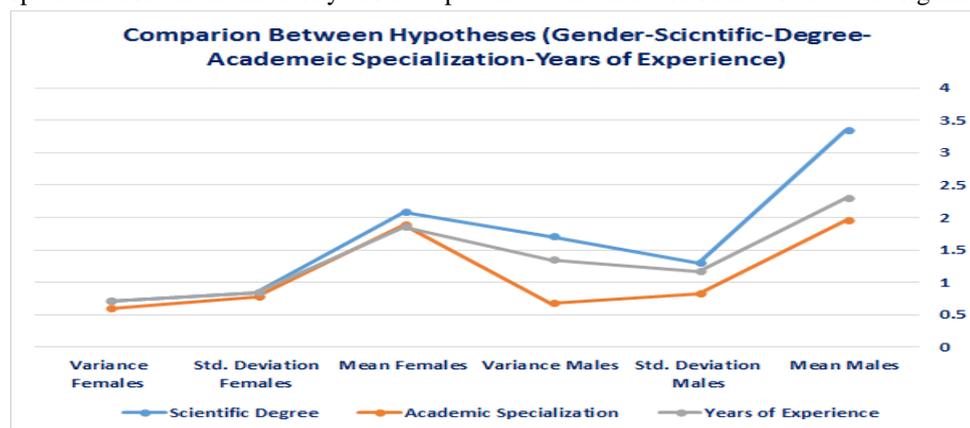
Figure 6. Shows mean scores and standard deviations for the variable of gender and its correlation with variables of the study: academic rank, academic area of specialization and number of years of experience.

Comparisons of standard deviations to the mean scores between males and females show that deviations were higher to males than females. This indicated the correlation between gender and the variables of the study:

academic area of specialization and number of years of experience. Degree of variance is higher regarding males more than females.

Second hypothesis: There are significant differences at **(α ≤ 0.05)** level regarding the use of faculty members at Saudi universities to electronic information resources centers in terms of academic rank. In order to verify the second hypothesis data were treated in three stages related to the question of the study (competencies- needs- challenges) and details are as follows:

Results related to the first question: What are the competencies faculty members at Saudi universities should posses in order to be able to use electronic information resources centers?

Results of investigating views of faculty members participating in this study in terms of academic rank (132 demonstrator- 122 lecturer-180 assistant professors-136 associate professors and 85 professors) regarding competencies needed for using electronic information resources centers. They were asked to respond to (10) questionnaire items and were asked to select among five scale measure (strongly agree, agree, neutral, disagree and strongly disagree). As shown in Table 7 & Figure 7

Table 7
Shows mean scores and standard deviations of academic rank and its correlation with competencies needed for using electronic information resources centers.

Competencies : Scientific Degree											
Scientific Degree			1	2	3	4	5	6	7	8	9	10
Teaching Assistant	N	Valid	132	132	132	132	132	132	132	132	132	132
	Mean		4.121	3.916	4.053	4.098	4.090	4.045	3.992	3.833	4.075	3.886
	Std. Deviation		.9493	.9888	.9909	.8636	.8948	.9639	1.022	1.140	.9777	1.109
	Variance		.901	.978	.982	.746	.801	.929	1.046	1.300	.956	1.231
lecturer	N	Valid	122	122	122	122	122	122	122	122	122	122
	Mean		4.163	4.032	4.065	4.065	4.049	4.172	4.311	4.106	4.295	4.163
	Std. Deviation		.8367	.9615	.9157	.9769	.9778	.9332	.8037	.8889	.8099	.9565
	Variance		.700	.925	.839	.954	.956	.871	.646	.790	.656	.915
Assistant Prof	N	Valid	180	180	180	180	180	180	180	180	180	180
	Mean		4.244	4.011	4.222	4.050	4.056	4.133	4.288	4.138	4.211	4.088
	Std. Deviation		.7953	.9092	.7212	.8734	.9497	.8548	.7873	.9499	.8906	.9819
	Variance		.633	.827	.520	.763	.902	.731	.620	.902	.793	.964
Co-professor	N	Valid	136	136	136	136	136	136	136	136	136	136
	Mean		4.125	4.080	4.198	4.220	3.992	4.022	4.117	3.808	3.985	3.897
	Std. Deviation		.9304	.9031	.7680	.8665	.9698	1.007	.9741	1.078	1.161	1.194
	Variance		.866	.816	.590	.751	.941	1.014	.949	1.163	1.348	1.426
prof	N	Valid	85	85	85	85	85	85	85	85	85	85
	Mean		4.035	3.976	4.011	4.117	3.988	4.117	4.258	4.211	4.117	4.141
	Std. Deviation		.9315	1.123	1.117	1.016	1.005	.9182	.8612	.8031	1.127	1.166
	Variance		.868	1.261	1.250	1.034	1.012	.843	.742	.645	1.272	1.361
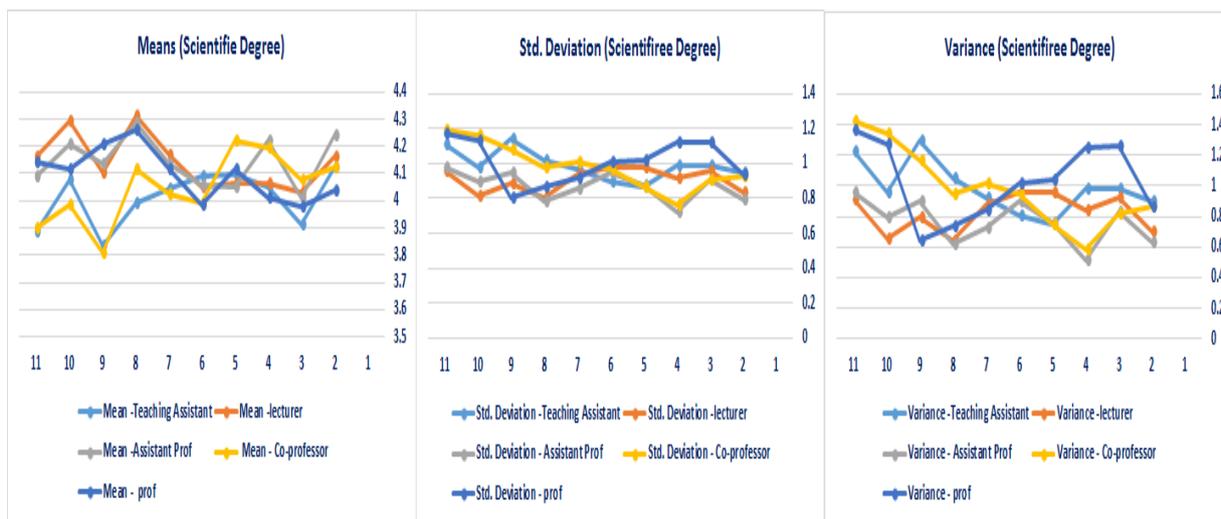
Figure 7. Shows mean scores and standard deviations of academic rank and its correlation with competencies needed for using electronic information resources centers.

Statistical analysis of data shows significant differences among academic ranks at **(α ≤ 0.05)** as mean score of demonstrators was (4.010) with standard deviation of (0.893) and degree of variance of (0.801). Mean score of lecturers was (4.142) with standard deviation of (1.64) and degree of variance of (1.362). Mean score for assistant professors was (4.132) with standard deviation of (0.942) and degree of variance of (0.928). Mean score for professors was (4.088) with standard deviation of (0.904) and degree of variance of (0.816). The above results indicated that there are significant differences among different academic ranks in terms of: (demonstrators- lecturers- assistant professors-professors). This result is assured since the competency of identifying electronic information databases in terms of the academic area of specialization came on top, then authorization of on line references followed by evaluation of search results, after that identifying components of main page of electronic databases and finally, the ability to use direct technical support and topics guide on line.

Results related to the second question: What are the needs of faculty members to use electronic information resources centers for?

Investigation of views of faculty members regarding needs of using electronic information resources centers in terms of academic rank (132 demonstrators- 122 lecturers-180 assistant professors-associate professors -136 associate professors- 82 professors) through (23) items on a questionnaire requiring them to choose among five options (often- always-sometimes-rarely- never).

Table 8

Shows mean scores and standard deviations of academic ranks and their correlation with needs of using electronic information resources centers

Needs : Scientific Degree																								
Scientific Degree		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Teaching Assistant	N Valid	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132
	Mean	3.583	3.719	3.825	3.734	3.742	4.068	4.045	3.954	3.681	3.848	4.037	4.03	4.053	3.916	3.833	3.803	4.2955	4.272	4.280	4.189	4.181	4.181	4.212
	Std. Deviation	1.198	1.167	.9999	1.144	1.169	.8666	.915	.9235	1.086	1.142	1.058	1.03	.9435	1.026	1.120	1.142	.83564	.865	.849	.839	.9148	.836	.838
	Variance	1.436	1.364	1.000	1.311	1.368	.751	.838	.853	1.180	1.305	1.121	1.07	.890	1.054	1.254	1.304	.698	.749	.722	.704	.837	.700	.703
lecturer	N Valid	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122	122
	M	4.082	4.090	3.967	4.114	4.098	4.008	3.745	3.803	3.582	3.401	3.918	4.06	4.065	4.008	4.082	4.147	3.9016	3.868	4.057	3.729	3.991	4.041	4.016

	Std. Deviation	.905	.8431	.9528	.8738	.9128	.9045	1.016	1.118	1.225	1.283	1.056	.906	.8789	.9315	.932	.9151	1.0318	.995	.956	.953	.9748	.903	.987
	Variance	.820	.711	.908	.764	.833	.818	1.034	1.250	1.501	1.647	1.117	.822	.773	.868	.869	.838	1.065	.991	.914	.910	.950	.816	.975
Assistant Prof	N Valid	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180
	Mean	4.077	4.105	3.944	4.061	4.161	3.844	3.866	3.565	3.306	3.216	3.961	4.05	3.988	3.933	4.000	4.388	4.3444	4.211	4.161	4.227	4.183	4.266	4.100
	Std. Deviation	.893	.815	.9075	.9164	.8198	1.018	.993	1.143	1.320	1.274	1.064	.993	1.041	1.044	1.118	.6962	.80725	.852	.946	.895	.842	.829	.940
	Variance	.798	.665	.824	.840	.672	1.037	.988	1.308	1.744	1.623	1.133	.986	1.084	1.091	1.25	.485	.652	.726	.896	.803	.709	.688	.884
Co-professor	N Valid	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136
	Mean	3.772	3.727	3.727	3.897	3.838	3.977	4.073	3.845	3.764	3.713	3.897	3.95	4.066	3.911	3.794	3.720	3.9926	4.316	4.183	4.139	4.169	4.198	4.308
	Std. Deviation	1.264	1.2312	1.176	1.097	1.168	1.057	.866	1.060	1.027	1.114	1.090	.949	.9124	1.021	1.129	1.239	1.0988	.875	.904	.990	.86	.823	.873
	Variance	1.600	1.518	1.385	1.204	1.366	1.118	.750	1.124	1.055	1.243	1.189	.902	.833	1.044	1.276	1.536	1.207	.766	.818	.980	.749	.679	.763
prof	N Valid	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85
	Mean	3.541	3.458	3.482	3.317	3.505	3.870	4.152	4.152	3.929	4.000	3.882	3.91	3.882	3.882	3.623	3.600	3.9412	4.094	4.011	4.047	4.082	4.247	4.20
	Std. Deviation	1.314	1.286	1.287	1.521	1.411	1.203	.919	.8231	.856	.8997	.9438	.928	.943	1.016	1.224	1.283	1.1685	.971	.957	.924	.953	.911	.870
	Variance	1.727	1.656	1.657	2.315	1.991	1.447	.845	.679	.733	.810	.891	.862	.891	1.034	1.499	1.648	1.366	.943	.917	.855	.910	.831	.757
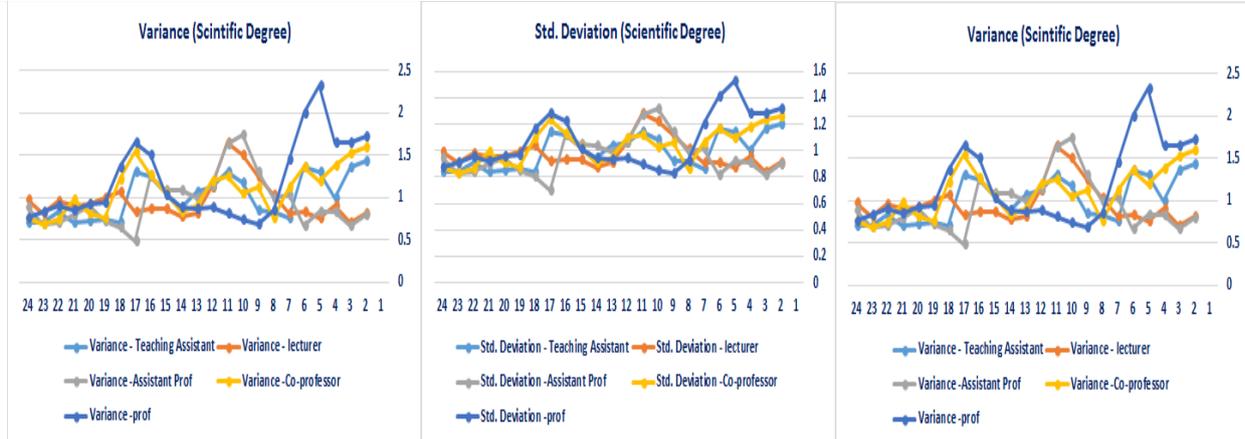
Figure 8. Shows mean scores and standard deviations of academic ranks and their correlation with needs of using electronic information resources centers.

Data analysis revealed that there are significant differences among academic ranks at (**α ≤ 0.05**) level, since mean score of demonstrators was (3.977) with standard deviation of (1.013) and degree of variance of (1.041), for lecturers, their mean score was (3.907) with standard deviation of (1.001) and degree of variance of (1.023), mean scores of assistant professors was (3.815) with standard deviation of (1.180) and degree of variance of (1.311), mean scores of associate professor was (4.120) with standard deviation of (0.819) and degree of

variance of (0.672) and the mean score of professors was (3.861) with standard deviation of (1.016) and degree of variance of (0.943). This is revealed since the item of using and learning at the appropriate times came on top, then discovery of potentials and aptitudes, followed by supporting preparation and implementation of lectures, then providing an economic alternative to save costs of preparation of classrooms with technologies and finally came developing students' abilities to obtain information from multi-sources.

Results related to the third question: What are the challenges that hinder faculty members at Saudi university from using electronic information resources centers?

Statistical analysis of views of participants in terms of academic ranks (132 demonstrators- 122 lecturers-180 assistant professors-associate professors -136 associate professors- 82 professors) around challenges facing them in using electronic information resources centers were investigated through questionnaire items requiring them to select among five options (often- always-sometimes-rarely- never).

Table 9

Shows mean scores and standard deviations of academic ranks and their correlation with challenges of using electronic information resources centers.

Challenges : Scientific Degree													
Scientific Degree			1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
Teaching Assistant	N	Valid	132	132	132	132	132	132	132	132	132	132	132
	Mean		3.507	3.621	4.136	3.939	4.022	3.909	3.863	3.848	4.159	4.022	4.037
	Std. Deviation		1.257	1.207	.9144	1.075	.9202	1.029	1.046	1.066	.7895	.8949	.9197
	Variance		1.580	1.458	.836	1.157	.847	1.060	1.096	1.137	.623	.801	.846
lecturer	N	Valid	122	122	122	122	122	122	122	122	122	122	122
	Mean		3.844	3.868	3.762	3.762	3.918	4.000	3.598	3.647	4.147	3.934	4.082
	Std. Deviation		1.060	1.075	1.091	1.135	1.017	1.020	1.118	1.219	.8969	.9936	.9144
	Variance		1.124	1.156	1.191	1.290	1.035	1.041	1.251	1.486	.804	.987	.836
Assistant Prof	N	Valid	180	180	180	180	180	180	180	180	180	180	180
	Mean		3.983	3.950	3.977	3.811	3.827	4.005	3.594	3.916	3.744	3.572	3.211
	Std. Deviation		.9715	.9470	.9451	.9559	1.061	1.038	1.132	1.132	1.196	1.223	1.341
	Variance		.944	.897	.893	.914	1.127	1.078	1.282	1.284	1.432	1.498	1.799
Co-professor	N	Valid	136	136	136	136	136	136	136	136	136	136	136
	Mean		3.963	3.970	4.139	4.000	3.992	4.022	3.757	3.992	3.926	3.823	3.647
	Std. Deviation		.8978	.9579	.7810	.9428	.9775	.9772	1.176	.9775	1.106	1.134	1.226
	Variance		.806	.918	.610	.889	.956	.955	1.385	.956	1.224	1.287	1.504
prof	N	Valid	85	85	85	85	85	85	85	85	85	85	85
	Mean		3.705	4.023	3.964	3.858	3.929	4.023	3.705	3.894	4.035	3.905	3.929
	Std. Deviation		1.142	.9509	.9315	1.001	.9974	.9509	1.132	1.069	1.017	1.030	1.088
	Variance		1.305	.904	.868	1.004	.995	.904	1.282	1.143	1.034	1.062	1.185
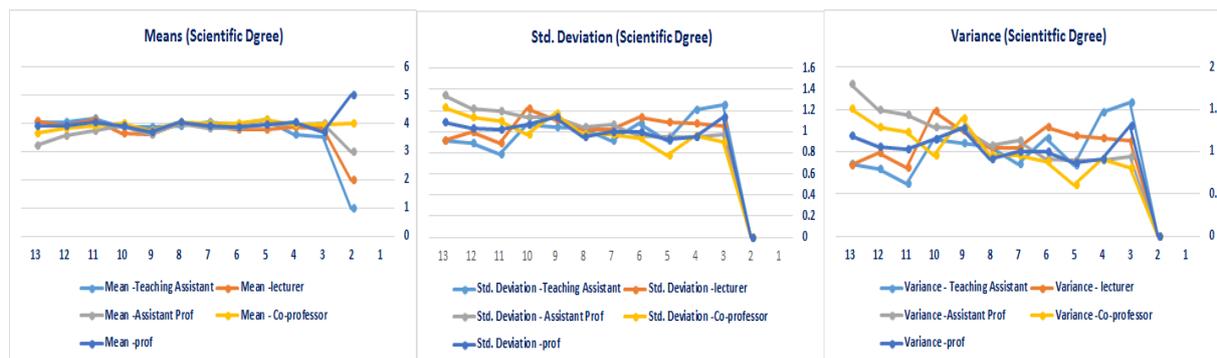
Figure 9. Shows mean scores and standard deviations of academic ranks and their correlation with challenges of using electronic information resources centers.

Analysis of data regarding challenges facing faculty members in using electronic information resources centers in terms of academic ranks showed that there are significant differences among academic ranks at $(\alpha \leq 0.05)$ level, since results from participants were as follows: mean scores of demonstrators was (3.914) with standard deviation of (0.918) and a degree of variance of (1.017); mean scores of lecturers was (3.914) with standard deviation of (1.041) and a degree of variance of (1.133), mean scores of assistant professors was (3.780) with standard deviation of (1.136) and degree of variance of (1.080), mean scores of associate professor was (3.930) with standard deviation of (1.080) and a degree of variance of (1.062), and mean scores of professors was (3.906) with standard deviation of (1.028) and a degree of variance of (1.062). the item of lack of electronic information resources centers came on top then, lack of encouragement to faculty members to use electronic information resources centers followed by unavailability of an appropriate place for electronic information resources centers inside universities then, lack of technical support to solve problems facing faculty members searching electronic resources and finally lack of skills of using electronic information resources centers.

Regarding third hypothesis: There are significant differences at $(\alpha \leq 0.05)$ level regarding the use of faculty members at Saudi universities to electronic information resources centers in terms of academic area of specialization.

Results related to first question: What are the competencies faculty members at Saudi universities should posses in order to be able to use electronic information resources centers?

The following table shows that results indicated significant differences at $(\alpha \leq 0.05)$ level among academic areas of specialization (238 from humanities- 227 from applied sciences- 190 from health sciences) regarding competencies that faculty members should obtain to use electronic information resources centers through a questionnaire requiring them to respond to different items requiring them to choose from five options (often, always, sometimes, rarely and never).

Table 10

Shows mean scores and standard deviations of results related to academic area of specialization and correlation with electronic resources centers.

Competencies : Academic Specialization			1	2	3	4	5	6	7	8	9	10
Academic Specialization			1	2	3	4	5	6	7	8	9	10
Humanities	N	Valid	238	238	238	238	238	238	238	238	238	238
	Mean		4.1008	3.9832	4.1176	4.0630	4.0714	4.0546	4.2017	4.0000	4.1050	3.9916
	Std. Deviation		.97127	.98498	.90172	.9679	.91353	1.0111	.86253	.98512	1.0441	1.1288
	Variance		.943	.970	.813	.937	.835	1.022	.744	.970	1.090	1.274
Applied Science	N	Valid	227	227	227	227	227	227	227	227	227	227
	Mean		4.1894	4.0088	4.0837	4.1630	4.0264	4.1674	4.1938	4.0352	4.1498	4.0352

	Std. Deviation	.85408	.97305	.90576	.83869	.96359	.82986	.91562	.97245	.93815	1.0553
	Variance	.729	.947	.820	.703	.929	.689	.838	.946	.880	1.114
Health Sciences	N Valid	190	190	190	190	190	190	190	190	190	190
	Mean	4.1737	4.0316	4.1895	4.0947	4.0158	4.0684	4.1842	4.0000	4.1737	4.0684
	Std. Deviation	.79439	.92528	.83943	.91517	.99457	.94312	.92168	1.0591	.99008	1.0442
	Variance	.631	.856	.705	.838	.989	.889	.849	1.122	.980	1.091
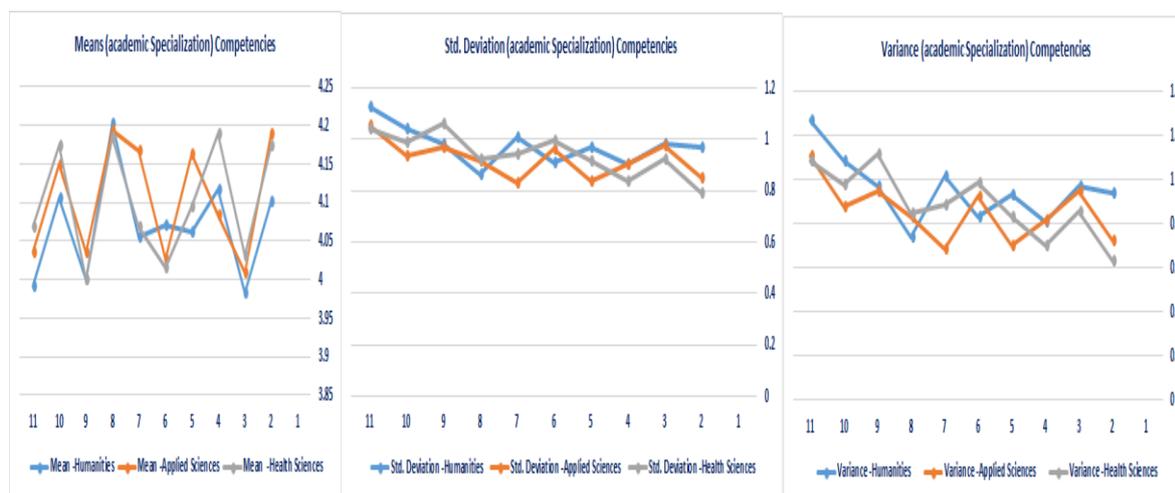
Figure 10. Shows mean scores and standard deviations of results related to academic area of specialization and correlation with electronic resources centers.

Statistical analysis of data regarding competencies needed for faculty members revealed that there are significant differences among faculty members in terms of academic areas of specialization at **(α ≤ 0.05)** details of this could be explained as follows. Mean scores of humanities was (4.068) with standard deviation of (0.967) and a degree of variance of (0.937), mean scores of applied sciences was (4.104) with standard deviation of (1.044) and a degree of variance of (1.090) and mean scores of health sciences was (4.099) with standard deviation of (0.973) and a degree of variance of (0.947). qualitative interpretation of this resulted in the following: selection of the item 'referring to the citation page to choose a new document cam on the top followed by documentation of references obtained on line, then setting a strategy for searching electronic databases, then identifying databases needed in terms of academic area of specialization and finally entering electronic databases using their abbreviated names.

Results related to the second question: What are the needs of faculty members to use electronic information resources centers for?

The following table shows results of statistical analysis of data obtained in terms of academic area of specialization (238 from humanities- 227 from applied sciences- 190 from health sciences) indicating that there are significant differences at **(α ≤ 0.05)** level among academic areas of specialization which determine the need of faculty members to use electronic information re3sources centers based on a questionnaire using five scales (strongly agree- agree- neutral- disagree- strongly disagree).

Table 11

Shows mean scores and standard deviations of academic areas of specialization and correlation with needs of faculty members to use electronic information resources centers.

Needs : Academic Specialization																									
Academic Specialization		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
N	Valid	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238

	Mean	3.945	3.9328	3.9118	3.9034	4.0126	4.0000	3.9370	3.8403	3.554	3.546	3.937	4.084	4.071	3.907	3.924	4.050	4.319	4.2521	4.210	4.197	4.193	4.214	4.222
	Std. Deviation	1.079	1.0492	.98757	1.0449	1.0692	.98512	.96796	1.0868	1.184	1.254	1.0792	.900	.9408	1.022	1.048	1.05	.8467	.9067	.8987	.8995	.8787	.8320	.9070
	Variance	1.166	1.101	.975	1.092	1.143	.970	.937	1.181	1.404	1.574	1.165	.811	.885	1.046	1.100	1.103	.716	.822	.808	.809	.773	.692	.824
Applied Sciences	N Valid	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227
	Mean	3.775	3.8326	3.7445	3.8899	3.8767	3.9515	3.9692	3.8062	3.682	3.599	3.8855	3.947	4.013	3.889	3.818	3.898	3.969	4.101	4.074	4.035	4.118	4.158	4.185
	Std. Deviation	1.127	1.0800	1.1272	1.1214	1.1299	.99215	.94725	1.0207	1.123	1.172	1.0829	1.054	.975	1.000	1.149	1.1223	1.074	.956	.9540	.925	.9115	.8526	.878
	Variance	1.272	1.167	1.271	1.258	1.277	.984	.897	1.042	1.262	1.374	1.173	1.112	.951	1.001	1.322	1.260	1.154	.914	.910	.857	.831	.727	.771
Health Sciences	N Valid	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190
	Mean	3.805	3.8105	3.7947	3.8211	3.8316	3.8895	3.9789	3.8211	3.589	3.610	4.0263	4.005	3.957	4.015	3.942	4.0053	4.07	4.136	4.168	4.005	4.068	4.200	4.063
	Std. Deviation	1.167	1.1202	1.0515	1.1950	1.0852	1.0457	.95373	1.0638	1.178	1.188	.97283	.939	.941	1.005	1.137	1.0665	1.0104	.868	.9160	.9785	.9200	.8920	.946
	Variance	1.364	1.255	1.106	1.428	1.178	1.094	.910	1.132	1.386	1.414	.946	.884	.887	1.010	1.293	1.138	1.021	.754	.839	.958	.847	.796	.895

Figure 11. Shows mean scores and standard deviations of academic areas of specialization and correlation with needs of faculty members to use electronic information resources centers.

Data analysis revealed that there are significant differences among faculty members in terms of academic areas of specialization at **($\alpha \leq 0.05$),** details are as follows. Mean scores of participants from humanities were (4.178) with standard deviation of (0.987) and a degree of variance of (0.868) and mean score of participants from applied science was (3.921) with standard deviation of (0.975), mean scores of participants from health sciences was (3.939) with standard deviation of (0.976) and a degree of variance of (0.975). qualitative examination of these results showed that needs of faculty members to' developing research skills , discovery and thinking skills' on top followed by providing students with skills enable them to adapt and make use of competitive developments in information systems. Then' dealing with individual difference', after that, discovering potentials and aptitudes, then using and leaning at the appropriate times, then supporting preparation and implementation of lectures and finally developing students' abilities in obtaining information from different sources.

Results related to the third question: What are the challenges that hinder faculty members at Saudi university from using electronic information resources centers?

The following table shows results of statistical analysis of views of participants on challenges facing faculty members of different areas of specialization in using electronic information resources centers. Results indicate that there are significant differences at **(α ≤ 0.05),** level among academic areas of specialization (238 from humanities- 227 participants from applied sciences- 190 participants from health sciences).

Table 12

Shows mean scores and standard deviations of different areas of academic specialization and correlation with using electronic information resources centers.

Challenges : Academic Specialization													
Academic Specialization			1	2	3	4	5	6	7	8	9	10	11
Humanities	N	Valid	238	238	238	238	238	238	238	238	238	238	238
	Mean		3.806	3.962	4.016	3.907	3.974	3.970	3.852	3.789	3.953	3.785	3.701
	Std. Deviation		1.065	.9865	.9138	1.010	.9890	1.032	1.039	1.150	1.064	1.117	1.235
	Variance		1.135	.973	.835	1.021	.978	1.067	1.080	1.323	1.133	1.249	1.527
Applied Sciences	N	Valid	227	227	227	227	227	227	227	227	227	227	227
	Mean		3.643	3.810	3.969	3.806	3.876	3.889	3.634	3.964	3.973	3.810	3.718
	Std. Deviation		1.136	1.086	1.001	1.020	1.018	1.064	1.122	1.051	1.004	1.070	1.171
	Variance		1.292	1.181	1.003	1.042	1.038	1.134	1.260	1.105	1.008	1.145	1.371
Health Sciences	N	Valid	190	190	190	190	190	190	190	190	190	190	190
	Mean		4.052	3.868	4.021	3.910	3.942	4.136	3.578	3.842	4.015	3.894	3.757
	Std. Deviation		.9580	1.038	.9082	1.032	.9930	.8862	1.209	1.091	1.051	1.073	1.138
	Variance		.918	1.078	.825	1.066	.986	.785	1.462	1.192	1.106	1.153	1.296
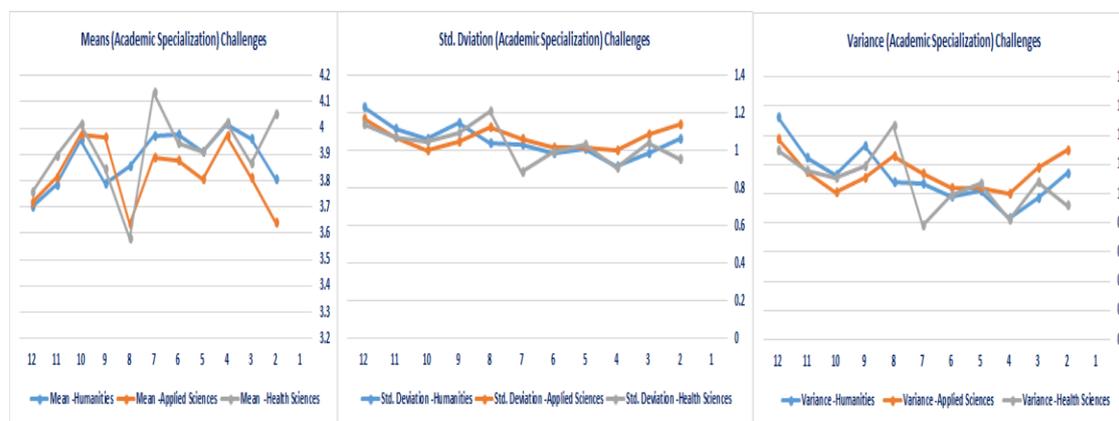
Figure 12. Shows mean scores and standard deviations of different areas of academic specialization and correlation with using electronic information resources centers.

Data analysis regarding challenges facing faculty members revealed that there are significant differences in terms of academic areas of specialization at **(α ≤ 0.05),** level. This is interpreted as follows. Mean score of participants from humanities was (3.883) with standard deviation of (1.064) and a degree of variance of (1.134), mean score of participants from applied science was (3.826) with standard deviation of (1.083) and a degree of variance of (1.181) and mean score of participants from health sciences was (3.910) with standard deviation of (1.032) and a degree of variance of (1.066). The biggest challenges facing faculty members and selected on top of all items was ' lack of encouragement to help faculty members use electronic information resources centers'. followed this ' lack of electronic information resources centers, then lack of electronic information resources

serving the university, after that lack of electronic information resources centers in Arabic and finally, lack of modern electronic environment that are supported with modern programs in colleges of the university.

Fourth hypotheses: There are significant differences at **(α ≤ 0.05),** level regarding the use of faculty members at Saudi universities to electronic information resources centers in terms of number of years of experience.

Results related to the first question: What are the competencies faculty members at Saudi universities should posses in order to be able to use electronic information resources centers?

The following table shows statistical analysis of data related to the variable of number of years of experience (from 1-5, from 6-10, from 11-16, from 16-20 and from 21-25) and its correlation with competencies needed to use electronic information resources centers. Results indicated that there are significant differences at **(α ≤ 0.05),** based on the five scales (often- always- sometimes-rarely-never). As described in Table 13 & Figure 13.

Table 13

Shows mean scores and standard deviations of number of years of experience and its correlation with competencies needed to use electronic information resources centers.

Competencies : Years of Experience											
Years of Experience		1	2	3	4.	5	6	7	8	9	10
Less than 5 years to 5 years	N Valid	233	233	233	233	233	233	233	233	233	233
	Mean	4.060	3.931	4.073	4.073	4.107	3.995	4.180	4.000	4.094	3.970
	Std. Deviation	.9763	1.006	.9232	.9688	.9009	1.010	.8570	.9782	1.042	1.127
	Variance	1.238	.968	.819	1.022	1.017	1.020	1.100	1.285	1.069	1.196
From 6 years to 10 years	N Valid	191	191	191	191	191	191	191	191	191	191
	Mean	4.157	3.989	4.094	4.162	4.015	4.193	4.214	3.984	4.162	4.026
	Std. Deviation	.8923	.9732	.9185	.8334	.9429	.8578	.9124	1.028	.9346	1.083
	Variance	1.320	1.315	1.149	1.048	1.008	1.305	1.242	1.241	1.067	1.096
From 11 years to 15 years	N Valid	159	159	159	159	159	159	159	159	159	159
	Mean	4.226	4.088	4.213	4.207	3.993	4.213	4.169	4.056	4.144	4.132
	Std. Deviation	.7707	.8886	.8063	.7801	.9840	.7824	.9154	1.026	1.011	.9879
	Variance	.949	1.006	.784	1.078	1.045	.699	1.604	1.205	1.082	1.210
From 16 years to 20 years	N Valid	54	54	54	54	54	54	54	54	54	54
	Mean	4.240	4.018	4.111	3.759	3.888	3.814	4.203	3.981	4.222	3.907
	Std. Deviation	.7251	.9613	.8831	1.148	1.176	1.133	.9977	.9212	.9450	1.153
	Variance	.667	.924	.632	.929	.792	.598	.896	.803	1.157	1.261
From 21 years to 25 years	N Valid	18	18	18	18	18	18	18	18	18	18
	Mean	4.388	4.388	4.444	4.111	4.277	4.222	4.333	4.166	4.222	4.277
	Std. Deviation	.7775	.8498	.6157	.9633	.6691	.9428	.8401	1.098	.9428	.8947
	Variance	.693	.997	.735	1.232	1.114	1.163	1.324	1.359	1.294	1.412
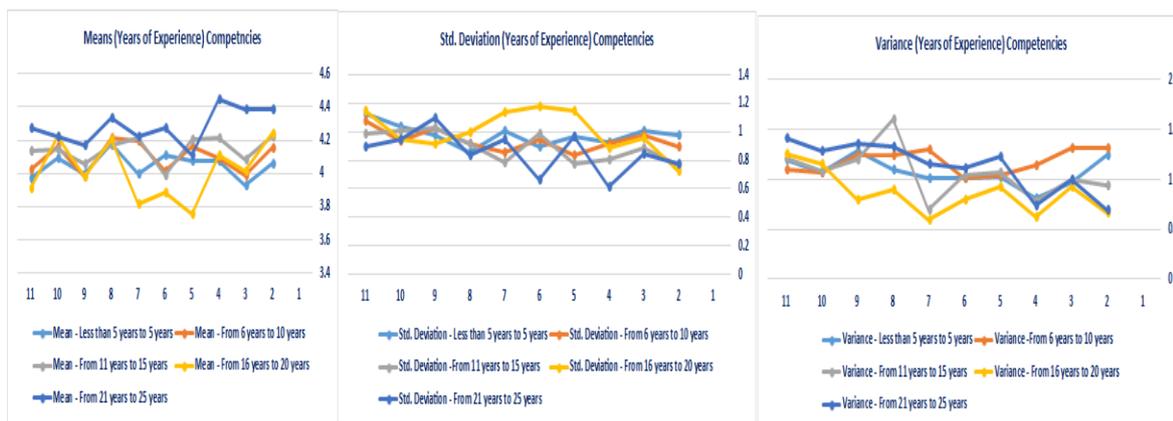
Figure 13. Shows mean scores and standard deviations of number of years of experience and its correlation with competencies needed for faculty members to use electronic information resources centers.

Results indicated that there are significant differences at **(α ≤ 0.05),** level based on the five scales (often, always, sometimes, rarely and never) in terms of number of years of experience interpreted as follows. Mean scores of experience ranged from one year to five was (3.553) with standard deviation of (1.029) and a degree of variance of (1.028), mean scores of number of years of experience ranged from six to ten was (9.099) with standard deviation of (1.068) and a degree of variance of (1.301), mean scores of number of years of experience ranged from eleven to fifteen was (4.014) with standard deviation of (0.930) and a degree of variance of (0.865), mean scores of number of years of experience ranged from sixteen to twenty was (4.144) with standard deviation of (0.972) and a degree of variance of (0.843) and mean scores of number of years of experience ranged from twenty one to twenty five was (4.282) with standard deviation of (0.894) and a degree of variance of (0.801). The most important competency revealed and top selected was ' ability to use direct technical support on line and use of topic guide, followed by setting a strategy for searching electronic databases, then identifying components of the main page of electronic databases, after that entering electronic databases using the abbreviated names, then identifying different types of electronic databases and finally method of arranging variables when searching electronic databases.

Results related to the second questions: What are the needs of faculty members to use electronic information resources centers for?
The following table deals with results from statistical analysis for the variable of number of years of experience (from: 1-5, 6-10, 11-15, 16-20 and 21-25).
And the relationship with needs of faculty members through responding to items of a questionnaire selecting among five scales measure (often- always-sometimes-rarely- never). Results indicated significant differences at (α ≤ 0.05). As illustrated in Table 14 & Figure 14.

Table 14
Shows mean scores and standard deviations of number of years of experience and its relation with needs of staff members of using electronic information resources centers.

																						Needs : Yo
ree	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11	12	13	14	15	16	17	18	19	20	2
	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	233	2
	3.90	3.90	3.89	3.91	3.97	4.01	3.96	3.83	3.56	3.99	4.03	4.03	3.8	3.90	4.03	4.27	4.26	4.17	3.56	4.12	4
ion	1.08	1.02	.990	1.03	1.09	.999	.984	1.07	1.23	1.07	.929	.943	1.01	1.04	1.03	.860	.863	.917	1.23	.910	.
	1.17	1.05	.981	1.07	1.18	1.00	.968	1.15	1.34	1.53	1.16	.865	.891	1.02	1.10	1.06	.741	.746	.841	.828	.
	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191	1
	3.78	3.85	3.73	3.82	3.89	3.94	3.95	3.86	3.56	3.88	4.04	4.04	3.96	3.80	3.86	4.09	4.14	4.15	3.56	4.12	4
ion	1.15	1.06	1.09	1.12	1.12	.950	.893	.990	1.18	1.04	.983	.939	.947	1.12	1.17	1.04	.928	.936	1.18	.906	.

1.32	1.13	1.20	1.26	1.25	.903	.798	.981	1.26	1.39	1.09	.967	.882	.899	1.27	1.38	1.09	.863	.877	.822	.
159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	159	1
3.85	3.84	3.82	3.99	3.93	3.94	4.08	3.79	3.63	3.62	4.00	3.98	3.98	3.89	3.93	3.98	3.98	4.06	4.11	4.04	4
1.14	1.15	1.08	1.12	1.04	1.03	.885	1.11	1.20	1.18	1.00	1.01	.987	1.07	1.19	1.11	1.07	.994	.930	.950	.
1.30	1.33	1.18	1.25	1.08	1.07	.784	1.23	1.44	1.41	1.01	1.03	.975	1.14	1.41	1.24	1.152	.989	.865	.903	.
54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	5
3.77	3.83	3.83	3.70	3.85	3.74	3.61	3.70	3.51	3.44	3.85	3.98	3.85	4.18	4.01	4.12	4.03	4.12	4.05	3.81	4
1.16	1.12	1.11	1.29	1.15	1.08	1.13	1.09	1.22	1.29	1.10	.999	.959	.991	1.09	.847	1.04	.891	.940	1.10	.
1.34	1.27	1.23	1.68	1.33	1.17	1.29	1.19	1.50	1.68	1.22	1.00	.921	.984	1.18	.719	1.09	.794	.884	1.21	.
18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	1
4.27	3.77	3.55	3.66	3.38	3.33	3.77	3.94	3.83	4.05	3.72	3.72	4.27	3.88	3.77	4.22	4.11	4.11	4.44	4.33	4
.894	1.11	1.19	1.02	1.24	1.13	1.11	1.05	.923	.872	.958	.751	.894	1.07	1.06	.878	.758	.676	.783	.766	.
1.24	1.43	1.05	1.54	1.29	1.24	1.11	.853	1.05	.761	.918	.565	.801	1.16	1.12	.771	.575	.458	.614	.588	.
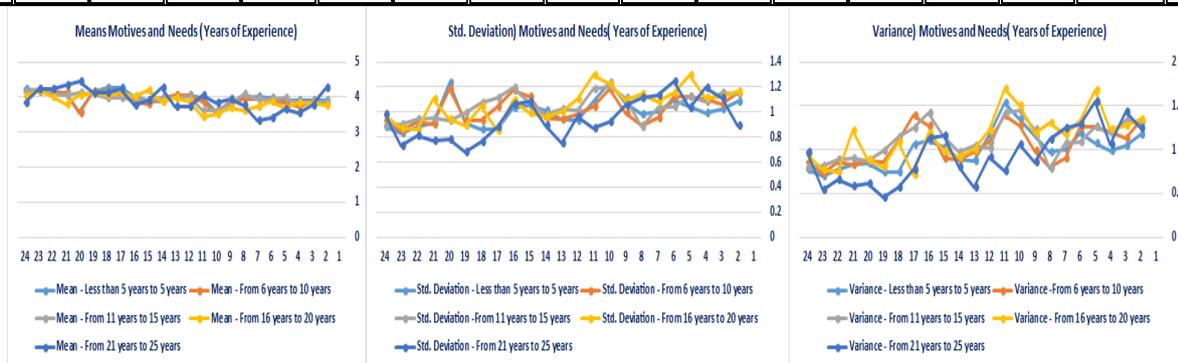
Figure 14. Shows mean scores and standard deviations of number of years of experience and its relation with needs of staff members of using electronic information resources centers.

Results indicated that there are significant differences at **(α ≤ 0.05),** level between different numbers of years of experience. This is explained as follows. The mean score of participants of years of experience was (3.808) with standard deviation of and a degree of variance at (1.013). The mean scores of participants of number of years of experience from 6-10 years was (3.926) with standard deviation of (0.984) and a degree of variance of (0.901). The mean scores of participants of number of years experience from 11- 15 years was (3.957) with standard deviation of (1.98) and a degree of variance a (1.410). Mean scores of participants of number of years of experience from 16-20 was (3.881) with standard deviation of (1.153) and a degree of variance at with standard deviation of (1.381). Mean scores of participants of number of years of experience from 21-25 was (3.929) with standard deviation of (0.931) and a degree of variance at (0.879).

The most prominent needs for electronic information resources centers as follows: 'developing students' abilities in reaching information from multi-sources', followed by discovery of potentials', then' allowing the opportunity for self learning', after that, using and learning at the appropriate time, then, assisting in preparation and implementation of lectures and finally, organizing electronic information resources to facilitate reaching them.

Results related to the third question: What are the challenges that hinder faculty members at Saudi university from using electronic information resources centers?

The following table shows results from statistical analysis to variable of number of years of experience (from: 1-5, 6-10, 11-15, 16-20 and 21-25) and relation with problems that hinder faculty members from using electronic information resources centers through responding to items on a questionnaire requiring selection of five scale measures (often- always- sometimes- rarely- never). Results shows that there are significant differences at (α ≤ 0.05). As described in Table 15 & Figure 15.

Table 15
Shows mean scores and standard deviations related to number of years of experience and its relation with problem hindering faculty members from using electronic information resources centers.

Challenges : Years of Experience													
Years of Experience			1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
Less than 5 years to 5 years	N	Valid	233	233	233	233	233	233	233	233	233	233	233
	Mean		3.716	3.952	4.017	3.939	3.905	3.922	3.841	3.794	4.008	3.798	3.759
	Std. Deviation		1.112	.9836	.9048	1.011	1.008	1.009	1.048	1.133	1.033	1.093	1.182
	Variance		1.238	.968	.819	1.022	1.017	1.020	1.100	1.285	1.069	1.196	1.399
From 6 years to 10 years	N	Valid	191	191	191	191	191	191	191	191	191	191	191
	Mean		3.691	3.806	3.942	3.811	3.947	3.837	3.596	3.921	3.963	3.879	3.785
	Std. Deviation		1.148	1.146	1.072	1.023	1.003	1.142	1.114	1.114	1.032	1.046	1.183
	Variance		1.320	1.315	1.149	1.048	1.008	1.305	1.242	1.241	1.067	1.096	1.401
From 11 years to 15 years	N	Valid	159	159	159	159	159	159	159	159	159	159	159
	Mean		4.000	3.805	3.974	3.899	3.924	4.257	3.547	3.899	3.981	3.893	3.673
	Std. Deviation		.9743	1.003	.8855	1.038	1.022	.8360	1.266	1.097	1.040	1.100	1.198
	Variance		.949	1.006	.784	1.078	1.045	.699	1.604	1.205	1.082	1.210	1.437
From 16 years to 20 years	N	Valid	54	54	54	54	54	54	54	54	54	54	54
	Mean		4.111	4.018	4.166	3.703	4.000	4.074	3.833	3.907	3.888	3.722	3.500
	Std. Deviation		.8165	.9613	.7950	.9640	.8902	.7734	.9466	.8958	1.075	1.122	1.111
	Variance		.667	.924	.632	.929	.792	.598	.896	.803	1.157	1.261	1.236
From 21 years to 25 years	N	Valid	18	18	18	18	18	18	18	18	18	18	18
	Mean		4.111	4.055	4.166	3.944	3.944	3.888	3.833	3.777	4.000	3.333	3.722
	Std. Deviation		.8323	.9983	.8574	1.109	1.055	1.078	1.150	1.165	1.137	1.188	1.319
	Variance		.693	.997	.735	1.232	1.114	1.163	1.324	1.359	1.294	1.412	1.742
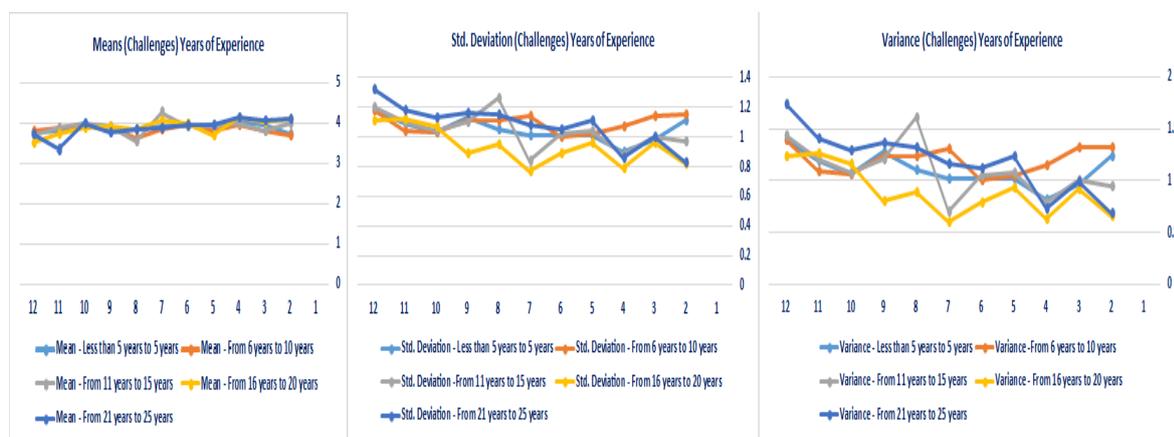
Figure 15. Shows mean scores and standard deviations related to number of years of experience and its relation with problem hindering faculty members from using electronic information resources centers.

Results from statistical analysis to data related to problems hindering faculty members from using information resources centers and its relation with number of years of experience indicated significant differences at $(\alpha \leq 0.05)$, explained as follows. The mean score of participants of years of 5 years experience was (3.877) with standard deviation of (1.058) and a degree of variance at (1.117). The mean scores of participants of number of years of experience from 6-10 years was (3.834) with standard deviation of (1.071) and a degree of variance of (1.215). The mean scores of participants of number of years experience from 11-15 years was (3.895) with standard deviation of (1.038) and a degree of variance a (1.078). Mean scores of participants of number of years of experience from 16-20 was (3.902) with standard deviation of (0.985) and a degree of variance at (0.803) Mean scores of participants of number of years of experience from 21-25 was (3.888) with standard deviation of (1.068) and a degree of variance at (1.113).

The problems hindering faculty members from using electronic information resources centers in terms of investigation of participants' views are as follows: 'lack of encouragement of faculty members to use electronic information resources'; followed by' lack of electronic information resources centers serving the university'; then, 'lack of specialized trainers to train faculty members in using electronic information resources centers'; after that, lack of an electronic learning environment equipped with technology and modern programs inside the university'; then, ' lack of appropriate places for electronic information resources centers and finally, ' lack of technical support to solve problems facing faculty members when searching electronic information resources centers.

DISCUSSION OF RESULTS
First hypotheses
Results related to this hypothesis show different effects to using electronic information resources centers for males and females since there are significant differences in favor of females in terms of importance of acquiring competencies needed to use electronic information resources centers, particularly these related to identifying a strategy for searching electronic databases, methods of documentation of data obtained on line, methods of identifying appropriate databases for particular area of specialization and use of specialized searching engines. These results are supported by the study of **Jain et al. (2012)**, that indicated effective employment of electronic information resources centers in providing the educational content at a wide range and identifying strategies to easily reach required information.

Results indicted differences between males and females in recognizing the nature of needs of faculty members. This is proved by the degree of variance in views of males that were higher than females. Results raise the importance of dealing with individual differences among students and meeting their needs in relation to study courses, allowing opportunities to self-learning, continuous support to teaching and learning, discovering the real aptitudes and potentials of learners, developing learners' abilities in reaching information from multi-resources and enriching learning process.

The study of **Gordillo et al. (2013)** supported the idea of identifying research skills, discovery skills, problem solving skills and learning from multi-resources electronic information. In addition to enabling faculty members to establish new educational units that facilitate learning through electronic information resources.

A number of studies revealed that there are many problems hindering the use of electronic information resources centers in the third world **(King & Boyatt 2015)**. These match results from the current study as shown in the statistical analysis of data that revealed significant differences between males and females in the degree of variance of males in comparison to males... These results may go back to the lack of electronic information resources centers in some Saudi universities, lack of skills of using them, lack of specialized trainers and lack of encouragement. Participants suggested the importance of identifying an institutional strategy aims at providing resources and methods of effective use. Also it was suggested that relying on views of faculty members and making the utmost use of free Google applications for the success of research and teaching processes in terms of cost, easy management and achieving academic goals **(Davidson et al. 2013)**.

Second hypotheses
There are significant differences among different academic ranks arranged as follows: lecturers, assistant professor, associate professor and professor. This is explained in terms of: the desire for identifying required electronic databases according to the academic area of specialization, documentation of references obtained on line, evaluation of search results, ability to use technical support and on line guide of topics and the possibility of using electronic information resources. That is assured by the study of **Davids et al. 2015** and **Basha et al. 2013.** The current study indicated the importance of helping lecturers and assistant professors in acquiring competencies of using electronic information resources centers as they are considered the most active members in the field of teaching and research.

Results indicated the needs of faculty members according to the academic rank as follows: associate professor- demonstrator- lecturer- assistant professor- professor. The degree of variance for assistant professors and professors were less than other academic ranks. The study of **Amjad et al. (2013)**. indicated that most researchers are in need of using electronic information resources centers for the purposes of teaching, researching, using and learning at the appropriate times and discovery of real aptitudes and potentials of learners.

Views were variant regarding processes of preparation and implementation of lectures in addition to developing abilities of students in reaching information from multi-sources.

Results indicated significant differences among different academic ranks arranged as follows: associate professor- demonstrator- professor- assistant professor- lecturer. Variance in views shown in different responses of participants in terms of problems hindering them from using electronic information resources centers, lack of encouragements towards using these centers, lack of enough places for these centers, lack of technical support to help faculty members solving their problems and lack of skills of using these centers.

Third hypotheses

Area of academic specialization plays a great role in orienting the hypotheses regarding helping Saudi faculty members acquiring competencies of using electronic information resources centers. Results indicated significant differences at **(α ≤ 0.05)**, level in favor of applied sciences specializations, followed by health sciences and finally humanities. Results from the current study agrees with results from the study of **Fahad et al. (2013)**. This indicated the need for identifying appropriate strategies for researching electronic databases, identifying particular methods for academic areas of specialization, searching methods and documentation of references obtained on line **(Feraru & Teodorescu 2009)**.

Responses of questionnaire items related to needs of faculty members in using electronic information resources centers indicated the importance of developing research, thinking and problem solving skills to their students through teaching. Also the importance of providing them with skills enabling them to adapt and make use of competitive rapid developments in the field of information systems. These results agree with results from the study of **Henle (2008)**. As it showed significant differences at **(α ≤ 0.05)**, level in favor of health sciences, followed by applied sciences and finally humanities. The current study is supported by the results from the study of **Solomou et al. (2015)** that indicated the importance of dealing with individual differences, fulfilling students' needs, discovery of real aptitudes and potentials of students, using and learning at the appropriate times were the most prominent results obtained. Also, the study of **Dalveren (2014)** goes in match with the current study in relation to needs of using electronic information resources centers.

The analysis of data related to problems hindering different academic areas of specialization from using electronic information resources centers indicated significant differences at **(α ≤ 0.05)**, level in favor of health sciences, followed by humanities and finally applied sciences. The study of **Gordillo et al. (2013)** found out that electronic information resources centers play a vital role in the future of education, providing learning content at a wide range, overcoming problems hindering the use of these centers. Results from this study match the results of the current study as it indicated the lack of these centers, lack of skills of using them and lack of such centers to help particular areas of academic specializations came on top of all problems hindering faculty members using electronic information resources centers. In addition to lack of flexibility in using these centers in comparison to applied specializations and the inability to use them in terms of easy access. **(Taber and García-Franco 2010)**.

Fourth hypotheses

Results from the current study revealed significance differences at **(α ≤ 0.05)**, level among different number of years of experience in relation to the need of acquiring competencies of using electronic information resources centers. Number of years of experience from 21-25 came on top followed by 16-20, then 6-11, after that 10-15 and finally from 1-5. The most prominent reported competency was the ability of faculty members to use direct technical support, use of guide of topics on line and identifying strategies for searching electronic databases **(Caird & Lane 2015)**. The current study also agrees with a British study to develop models for helping faculty members to acquire competencies and skills. This study resulted in identifying components of the main page of electronic database, entering electronic database using abbreviated names, recognizing different types of electronic databases and methods of arranging variables of searching electronic databases **(Yang et al. 2014)**. Results from the current study revealed variance in views in terms of number of years of experience from 1-5, then 6-11, then 10 to 15. Results indicted significant differences at **(α ≤ 0.05)**, level among different years of experience in terms of needs of faculty members in using electronic information resources centers as follows: from 20-25, followed by 11-15, then 6-10, then 16 to 20 and finally from 1-5. The need of using these centers, developing students ability to obtain information from multi-sources, discovering real aptitudes and potentials and allowing opportunities for self-learning were the most prominent and match with the study of **Casquero et**

al. (2015). This study aimed assessing needs of students for on line use of electronic information resources centers and its relationship with establishing persona information networks, using and learning at the appropriate times, helping in preparation and implementation of lecture, classifying and organizing electronic information to facilitate access to them.

Examining data related to the variable of number of years of experience in relation to problems hindering faculty members from using electronic information resources centers revealed significant differences at **(α ≤ 0.05),** level details are as follows: from 16-20 were on top followed by 11-15, then 21-25, variance in views were for years of experience, 6-10 and 20-25 and 1-5.

Results from the current study revealed that lack of encouraging faculty members of using electronic information centers agree with the study of **Peacock et al. (2013)**, as this study identified problems and obstacles related to developing thinking skills. The current study indicated that lack of specialized trainers to train faculty members in using electronic information resources centers was the most prominent obstacle, in addition to lack of an electronic educational environment equipped with technology and modern programs inside colleges of the university. Also, lack of these centers inside universities, lack of appropriate places inside the university and lack of technical support to solve problems of searching electronic databases **(King & Boyatt 2015)**.

CONCLUSION

- Expanding the establishment of electronic information resources centers in new universities.
- Designing training courses to staff members in acquiring needed competencies and fulfilling their needs.
- Designing a plan for solving problems hindering faculty members from using electronic information resources centers.
- Examining the factual situation of using electronic information resources centers in Saudi universities
- Designing strategies for using electronic information resources centers.
- Designing training courses to prepare specialists to offer technical support to faculty members.
- Designing training courses to university students in using electronic information centers and ways of making use of them.

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USİNG FACİAL RECOGNİTİON TECHNOLOGY İN SMART ATTENDANCE APPLİCATİON

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ABSTRACT
We propose to use a facial recognition technology in a smart attendance application in order to make the attendance taking process more efficient. The conventional method, such as manual roll call, is inefficient and time consuming. However, with the application of facial recognition technology, the attendance taking process becomes automated and unobtrusive, thereby making it a smarter alternative to traditional methods. In this paper, we introduce an open source attendance taking program using OpenFace for the facial recognition module. We use a machine learning approach to build a classification model to identify a person's name from the unique facial features of an individual subject. In an experiment, we have verified the accuracy of the facial recognition module at 96.2% given our test using 50 subjects. The result is tolerable for a school/organization with a small number of users. This could be implemented within a classroom to assist administration through automating roll call.

INTRODUCTION
Attendance is a tedious but necessary part of lives, from calling roll at school or clocking in at work. The main problem with the process of taking attendance is that although it is cost-effective, it is extremely inefficient with time. While other methods, such as key cards and fingerprints, allow for more time-efficient methods of clocking in, fingerprinting machines are expensive and key cards can easily get lost or misplaced. This creates the need for an alternative to traditional methods of attendance taking that will not get lost and is inexpensive.

Facial recognition technology has been developed rapidly for the past few years. The computing power of machine, as well as the advance in the algorithm of artificial neural network, has made facial recognition a reliable technology which can be used as one of the alternative solutions for an attendance taking system. By using facial recognition we created a new application for cost-effective, efficient attendance taking that will serve as an upgrade to conventional methods of attendance taking.

In this paper, we introduce the way to utilize facial recognition technology in a smart attendance application. Our open-source code is available at https://github.com/xphongvn/smart-attendance-system-ta, for other developers to reuse and improve for their own use. The rest of the paper is organized as follows: First, we give an overview of the related work to facial recognition technology and smart attendance system. Second, we present our method to apply facial recognition module in the whole system. Third, we demonstrate how we set up experiments to verify the accuracy of the facial recognition module. And we give the results and discussion about the results. Finally, we give our conclusions on the system.

RELATED WORK

There are other facial recognition softwares, such as Facefirst [1] and OpenFace [2]. Facefirst has facial recognition software. However, the focus is mainly on surveillance and picture capturing, which is an application of facial recognition but not our desired effect. It does not have possible attendance taking capabilities [1]. There is also programs such as OpenFace. OpenFace can detect a face and into feature representations into usable data [2]. Therefore, it won't classify the name and use this information in an attendance system. By leveraging the open source code from OpenFace were able to constructed a smart attendance application on that source code that can utilize the resources from OpenFace and be a facial recognition program that successfully takes attendance.

Another work has used Bluetooth Low Emissions (BLE) as a smartphone system for checking attendance. By implementing this within a classroom the problems arise with having obstacles within the class that would dampen the signal of the BLE emitter, making potential reading inaccurate. Also, this system requires the student to own a bluetooth compatible smartphone, which is expensive. [5]

METHOD
Data Collection

In order to prepare the training data, a sample of pictures of various subject's faces should be collected. These sample pictures were taken by the user on a laptop computer webcamera before the experiment began. These sample pictures are then put into OpenFace API and are stored in folders under the name of each subject. These pictures are used for building a SVM classification model, with names of each person as the label used to classify them.

Building the Facial Recognition Model

We built a classification model using a machine learning framework. The goal with this model was to reach an accuracy of 97.53%, based upon the number given for human level accuracy in by Cornell University on Surpassing Human-Level Facial recognition capabilities [4]. From raw image data of a person's face, we convert it into feature vector using neural network provided by OpenFace. Using the feature vectors, a Support Vector Machine (SVM) classification model was built to identify a person's name [3]. The flow is described in Figure 1. By using the implementation portion of our program, the system will take in all inputs within the camera's frame and try to identify a face. If the correct range is met for the two inner eye landmarks and the bottom of the lip landmark, a face is identified within the camera. Then our system will match all other landmarks to the face and compare that to the data previously stored (the sample of pictures taken earlier). Our system will then make 128 strings and compare those to the previously stored data and the percent of the matches between the new set of 128 strings and the old set is returned as the percent confidence and a name.
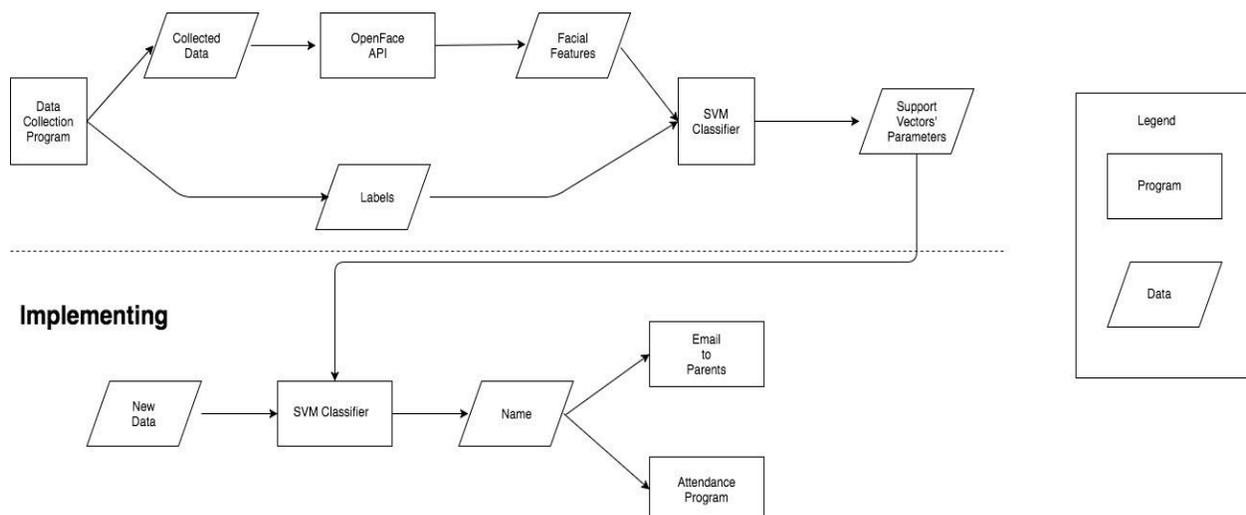
Fig. 1: Flowchart of training and implementation of Smart Attendance Application

Application

To know whether a person enters a building or leaves a building, we use 2 cameras: one facing the direction to enter, and the other one facing the direction to leave (Figure 2). The system will identify the person entering or exiting, and will then send their name to a processing program to mark their attendance. This system will be used by students to be identified for attendance, and management staff to monitor attendance. Also once a student is identified, the time of arrival and departure are recorded as well as their attendance marked (Figure 3). Simultaneously, an email will be sent to the student's parents to notify them if the student is or isn't present and the time of arrival and departure.
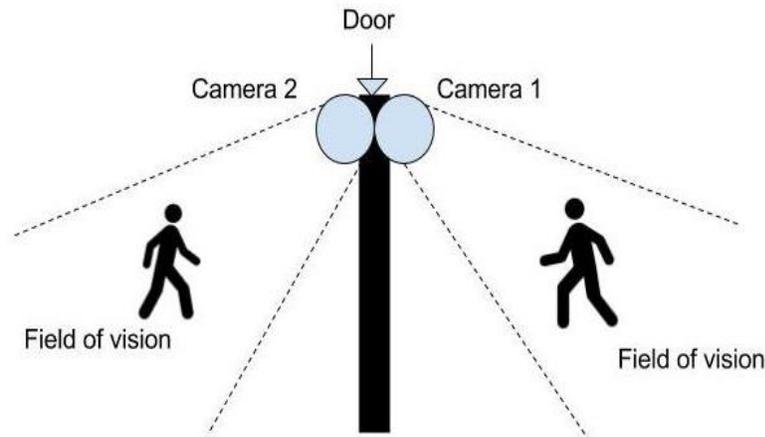
Fig. 2: Setup of smart attendance system, with cameras identifying people entering and exiting an area

Fig. 3: User interface of the Smart Attendance System

EXPERIMENTAL SETUP

The experiment took place at Tokyo Academics, a tutoring school in Japan, and spanned over the course of 2 weeks (2 weekends). This experiment was to verify the accuracy of the facial recognition module. We settled on an experiment that included a total of 50 subjects.

Before the start of the two weeks, each subject had 10 photos taken of them with the Facial Data Collection program, thus making profiles for each user which contained data on multiple characteristics of the user's face. The time to take 10 photos of the experimenters was not too long, therefore it was acceptable in the experiments. We believed the more training photos we had, the better the models can be built.

We used these collected photos and their names to build a SVM classification model. And the same SVM classification model was tested for accuracy. Over the course of the 2 weeks, each subject walked through the camera 10 times. We kept the lighting, camera level, and general walking speed of the test subjects as constants in order to truly test the accuracy of our system under fair conditions.

We setup the facial recognition module so that it shows the name of the person output by the system on top of their images. Fig 4. shows an example of how the module shows the image and the names on top of the image. We count the number of successful recognition (as the name of the person and the name as the system output is the same) as the main metric to verify the accuracy of the facial recognition module. The accuracy of the facial recognition module determine of reliability of our Smart Attendance System.
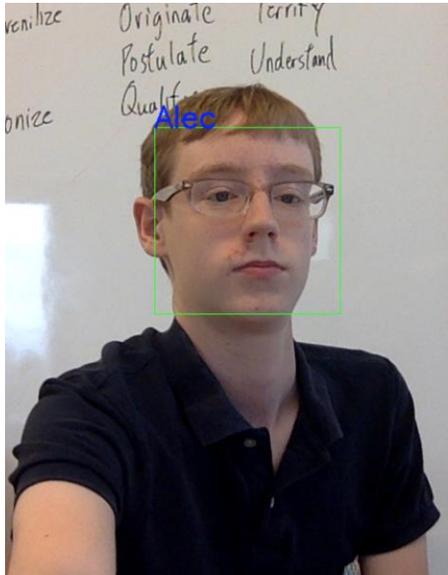
Fig. 4: Facial Recognition Module outputs a person name based on new input image

RESULTS
Of the 500 trials done 481 were accurately identified while 19 were incorrectly identified. This leaves us with approximately a 96.2% accuracy and a 3.8% error. Meaning that about 4 of every 100 students that come into TA will be incorrectly marked in one way or another. In the case of TA, this is a tolerable margin of error considering how few people this will affect. Extrapolating these results to a given company of or above 100,000 employees, there error appears to be at least 3,800 incorrectly marked people, also our SVM classifier can only work well with a small number of labels, or corporations of this scale, these two may potentially cause big problems for said corporations with large numbers of employees.

CONCLUSIONS
We have achieved an accuracy of 96.2% with our facial recognition module in our smart attendance system. However our experiment was not conducted on a larger scale because our SVM classifier can only work well with a small number of labels. Our future work is to improve the number of labels and improve the accuracy of the facial recognition module to be practical on a larger scale. This means that for this to be effective for real world applications, it would have to be used in a relatively small environment, examples including a small middle or high school, where the number of people needed to be identified is not as large, and where possible errors could easily be corrected by teachers. To employ this system in larger environment improvements would need to be made. These improvements could include the program generating a confidence percentage indicating how confident it is of its guess. This could be used to make it so that if the confidence is too low, the program would not return a name, but would instead alert of a stranger. This is as currently if an entirely new person were introduced to the program, it would identify it and give it a name, even if it can barely match the face, which could hurt our accuracy ratings. Other optimizations would be possibly changing the type of classifier used as because as was previously mentioned, our SVM classifier can only work with a small number of labels, limiting its ability to work on an even larger scale.

In addition, our percentage of accuracy was slightly less that what our goal was, as we were trying for an accuracy of 97.53% and ended up with 96.2%. However, even if our model is slightly less accurate than human level, it is still very effective and can be more efficient than conventional methods of attendance. Finally, with improvements, such as returning a confidence number, or changing what we used for development of the model and the recognition, we feel that we could surpass our goal of 97.53% accuracy.

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USING MOBILE TECHNOLOGY TO SUPPORT PHYSICIAN AND STUDENT LEARNING AS PART OF PATIENT CARE

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ABSTRACT

The third year clerkship is an exciting yet challenging time for medical students (Cooke, Irby, & O'Brien, 2010). For the first time, students spend significant time in clinical settings (e.g., hospitals) assisting in the daily care of patients. Obtaining just-in-time and at point-of-care information and resources (Author, 2009) is one challenge faced by supervising doctors and students. Technology has been used extensively in point-of-care decision-making (Burke & Weill, 2008); mobile technology adds value to this activity. In this study, we explored how mobile tablets (e.g., iPads) were being used to support supervising doctors and medical students in three ways (1) supervising doctors learning the practice of academic teaching, (2) medical students learning the practice of Internal Medicine, and (3) supporting clinical decision-making for supervising. Results from a two-year study indicate that both faculty and students benefitted from and were challenged by the use of the iPads in clinical settings. Benefits included ready access to a teaching tool, access at point of care, and multiple resources to support decision-making. Challenges included keeping track of the tablet, network access, and speed of the network. Implications for improving practice and future research are suggested.

USİNG R İN CONDUCTİNG MULTİVARİATE ANALYSES BASED ON DATA SUMMARİES OF PUBLİSHED RESEARCH

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ABSTRACT
Most multivariate analyses use variance-covariance matrices and descriptive statistics, such as means and standard deviations, as their starting points. Inclusion of correlation matrices and descriptive statistics summaries in reporting results is recommended by journal editors and the American Psychological Association (APA) style guidelines. These descriptive data summaries in published research articles provide other researchers and graduate students in education and other social science fields with opportunities to replicate or verify the results of the analyses without requiring access to the raw data. The aim of this paper is to illustrate how to conduct various analyses, such as, multivariate analysis of variance (MANOVA), multiple regression, and factor analysis via R scripts based on descriptive summary statistics reported in published research. **Keywords**: Multivariate analysis, Quantitative research courses, Teaching, Replication, R scripts.

INTRODUCTION

The important role that statistics plays in graduate programs in social science fields, such as psychology and education, is evidenced by increasingly common requirements for students to complete quantitative research methods courses in which the list of topics invariably includes univariate and multivariate statistical analysis techniques (Perepiczka, Chandler, and Becerra, 2011; Sandals & Türegün, 2013). Generally, Analysis of Variance (ANOVA), MANOVA, discriminant analysis, multiple regression, path analysis, and factor analysis are commonly discussed topics in these graduate research methodology courses. The use of variance-covariance matrices, correlations and standard deviations may be considered as the computational starting points for these types of analyses. Editors for various peer-reviewed research journals in education, educational psychology, social sciences, and the American Psychological Association (APA) style guidelines recommend the inclusion of correlation matrices, means, and standard deviations as descriptive data summary tables in the published articles. Additionally, as stated by Zientek & Thomson (2009), reporting correlation/covariance matrices, standard deviations, and means in published research articles allows researchers opportunities to conduct secondary analyses. Hence, this paper is focused on illustrating how to conduct various analyses by using these descriptive summary statistics tables in the published research articles as the starting point.

Conducting analyses based on the descriptive data summaries from published research in the fields of social sciences and education can be a very useful tool in teaching multivariate analysis for graduate students. From a pedagogical point of view, the opportunities offered by the secondary analyses, such as replication of published results, conducting secondary analyses leading to publishable outcomes, and developing transferable skills in coding syntax make this types of analyses ideal for use in classroom examples, semester projects, capstone research, and supplemental studies (Rossi, 1987; Sautter, 2014). Additionally, the reviews and editors of peer-reviewed journals may benefit from such analyses in their efforts to replicate and verify the reported results of statistical analyses conducted in submitted manuscripts.

The aim of this paper is to illustrate how to conduct multivariate analyses from the data summaries in published research, and discuss the possible issues and potential benefits of this practice for novice researchers and graduate students. In the next section, I present a brief description of the setting where I used these types of analysis based on data summaries.

MODEL AND PROCEDURE

The college of education at the university where I teach requires students to complete quantitative research methods courses, and I teach various research methods courses, including a multivariate analysis course. The multivariate course, titled Advanced Quantitative Inquiry, is a semester-long, face-to-face, doctoral level, multivariate analysis course taught by a single instructor for students within a college of education. The topics discussed in the course include inferential statistics and data analysis techniques for educational research and practice. Among the specific

statistical techniques listed in the course objectives are factorial ANOVA, one-way and factorial MANOVA, multivariate analysis of covariance (MANCOVA), multiple linear regression, logistic regression, path analysis, and factor analysis. Additionally, students are provided with a comprehensive knowledge of R statistical compouting environment and other statistical aids in order to complete various course assignments and projects. In addition to being included in a master's level research methods course, the univariate and bi-variate topics, such as descriptive statistics, inferential statistics, t-tests, one-way ANOVA, and bi-variate correlation, are also discussed further in a doctoral level pre-requisite course for the multivariate course.

In order to provide students with hands-on methodological experiences and applications of various multivariate statistical concepts and techniques, the assessment of the students' performances in the course is based on several components consisting of a dissertation critique, a peer-reviewed article critique, a number homework assignments, and a final research project report. For the peer-reviewed article critique assignment, students conduct literature searches in order to locate published articles using the multivariate techniques discussed in the course. The articles using multiple regression analysis, factorial ANOVA, MANOVA, MANCOVA, factor analysis, and path analysis techniques are the most frequently chosen types of articles by the students.

Following the APA guidelines and the American Educational Research Association (AERA) standards for reporting statistical analyses have been considered by many as essential practices for the replication of results (MacCallum & Browne, 1993; Maxwell & Cole, 1995; Onwuegbuzie & Combs, 2009; Onwuegbuzie, Combs, Slate, and Frels, 2009; Sandals & Türegün, 2013; Thompson, 2007; Zientek & Thomson 2009). Furthermore, reporting the sample variance-covariance matrix, and the descriptive summary statistics, such as means and standard deviations, along with the sample sizes provides sufficient information to allow readers to replicate the authors' results for certain types of correlational analyses, such as multiple regression analysis, factor analysis, path analysis, and structural equation modeling (Cohen, 1968; Rossi, 1987; Zientek & Thomson, 2009).

The journal articles chosen for the article critique assignment are examined closely to verify that sufficient amount of information is reported to permit the replication of the published results. Raw data are rarely included in published research articles. However, following the APA guidelines and AERA standards for publications, the authors of the articles usually report appropriate descriptive summary data for other researchers to replicate the results via secondary analysis.

Illustrated Examples

In this section, I give three examples selected by students to critique for a course assignment. The sources from which the examples were taken ranged from peer-reviewed journal articles to dissertations. The examples include multiple regression analysis, MANOVA, and factor analysis.

Multiple Regression Analysis (MRA) Example

In this example, a study focusing on the important and integral role that statistics play in research courses offered in graduate programs at schools of education was used to illustrate how MRA is implemented based on the summary statistics from published research studies. Perepiczka, Chandler, and Becerra (2011) investigated the nature and extent of the relationship among graduate students' *statistics self-efficacy*, *statistics anxiety*, *attitude towards statistics*, and *social support*. The data for these four variables were collected from a sample of 166 participants from various colleges of education across the United States. The descriptive statistics summary consisting of the means, standard deviations, and the Pearson product-moment correlations for the four variables is presented in Table 1.

Table 1.
Means, standard deviations, and correlations for the variables.

N=166	M	SD	Self-efficacy	Statistics Anxiety	Attitude towards Statistics	Social Support
Self-efficacy	49.73	18.97	1	-	-	-
Statistics Anxiety	119.95	35.83	-.679	1	-	-
Attitude towards Statistics	106.73	18.91	.708	-.832	1	-
Social Support	5.69	1.04	-.023	.006	.017	1

The data presented in Table 1 constituted the starting point in creating the R script given in Figure 2 to conduct a simultaneous multiple linear regression analysis. As can be seen from Table 1, *statistics anxiety* and *attitude towards statistics* were highly correlated (r=-.832). To combat multicollinearity, the problematic variable is either omitted from the analysis, or combined with the other variable(s) causing multicollinearity in order to create a single variable, especially for variables with correlation coefficients of .80 or higher (Stevens, 1992). However, since this strategy was not implemented by Perepiczka, Chandler, and Becerra (2011), it was not used here either in order to be able to compare the results.

Table 2.
Model summary and ANOVA results.

R	R-Square		Sum of Squares	df	Mean Square	F	p
.73	.53	Regression	31374.84	3	10458.28	60.5	.000
		Residual	28002.21	162	172.85		
		Total	59377.05	165			

A simultaneous multiple regression using the R script given in Figure 1 produced a statistically significant model to predict *self-efficacy* to learn statistics from *statistics anxiety*, *attitude towards statistics*, and *social support* ($F(3, 162) = 60.5$, $p < .001$, R^2=.53). As presented in Table 2, the three predictor variables combined together accounted for 53% of the variance in the *self-efficacy* to learn statistics.

As illustrated in Table 3, *statistics anxiety* was a statistically significant predictor of *self-efficacy* to learn statistics ($t(162)$= -2.98, p<.01). *Attitude towards statistics* was also a statistically significant predictor ($t(162)$= 4.80, p<.001). However, *social support* was not a statistically significant predictor of *self-efficacy* to learn statistics ($t(162)$= -.54, p>.05).

Table 3.
MRA results with Self-efficacy to learn statistics as the dependent variable.

	Standardized Coefficients Beta	t	p
StatAnxiety	-.29	-2.98	.003
AttStat	.47	4.80	.000
SocSupp	-.03	-.54	.590

The analysis based on the data summaries reported by Perepiczka, Chandler, and Becerra (2011) replicated their results and conclusions that *statistics anxiety* and *attitude towards statistics* were statistically significant predictors of *self-efficacy* to learn statistics, but not *social support*. The results of the analysis reported here using only summary statistics were aligned well with their results.

_____

```
#Install and load the necessary packages and the associated libraries
library(psych);library(Rcmdr);library(FAiR)
#Read Lower Corr matrix as the input data file
cormat<-read.triangular("C:/Users/Mturegun/Desktop/R Dell/StatSlfEffcorrmat.txt",
        names=c("StatAnx","AttStat","SocSupp","SlfEffStat"),nlines=4)
#Display Correlation Matrix
cormat
#Perform MRA
set.cor(y=4,x=1:3,cormat,n.obs=166)
#or another way
set.cor(c(4),c(1:3),cormat,n.obs=166)
```

Figure 1. The R script for conducting multiple regression using descriptive data summaries as input.

MANOVA Example

In this example, a dissertation examining the effects of various student characteristics, such as ethnicity, family educational history, and native language, on academic self-efficacy, faculty-student interactions, and students' self-reported cumulative grade point average was used to illustrate how to conduct a one-way MANOVA based on data summaries. Among various multivariate analyses, Gosnell (2013) conducted a one-way MANOVA to examine the effects of enrollment status, as full-time versus part-time, on students' self-reported grade point average, academic self-efficacy, and faculty-student interactions. Table 4 illustrates the descriptive statistics and the Pearson correlations for the variables.

Table 4.
Means, standard deviations by full-time (FT) and part-time (PT) enrollment status, and correlations for Self-reported Grade Point Average (GPA), academic self-efficacy, and
faculty-student interactions.

Variable	Enrolment Status FT M(SD)	Enrolment Status PT M(SD)	Self-reported GPA	Academic Self-efficacy	Faculty-student interactions
Self-report GPA	3.36(.436) n=92	3.18(.409) n=39	1	-	-
Academic Self-efficacy	7.50(1.60) n=75	7.47(1.63) n=31	.028	1	-

Faculty-student	3.38(.54)	3.07(.55)	.123	.240	1
interactions	n=88	n=36			

The descriptive summary statistics presented in Table 4 and the pooled standard deviations were used as a starting point in creating the R script given in Figure 3 to conduct a one-way MANOVA. The results, given in Table 5, were aligned with to the results reported by Gosnell (2013).

Table 5.
Multivariate Tests of Significance.

Test Name	Values	*F*	Hypoth. df	Error df	*p*
Hoteling's T^2	10.20	3.34	3	102	.022

There was a statistically significant effect of students' enrollment status on the linear combination of the variables, self-reported grade point average, academic self-efficacy, and faculty-student interactions, ($F(3,102)=3.34$, $p=.022$). As is illustrated in Table 6, subsequently conducted univariate ANOVAs revealed that the only statistically significant effect was for faculty-student interactions ($F(1,122)=8.33$, $p=.005$, $\eta^2=.064$) at the Bonferroni adjusted alpha significance level of .0167.

Table 6.
Univariate F-tests.

Variable	Hypoth. SS	Error SS	Hypoth. MS	Error MS	*F*	*p*	Eta Square
Srgpa	.887	23.66	.887	.183	4.84	.030	.036
AcadSelf	.020	296.15	.020	2.588	.01	.929	.000
FacStInt	2.455	35.96	2.455	.295	8.33	.005	.064

As reported by Gosnell (2013), the full-time students (*M*=3.38, *SD*=.54) had statistically significantly higher faculty-student interactions than the part-time students (*M*=3.07, *SD*=.55).

_____

```
#Install and load the necessary packages and the associated libraries
library(MASS);library(car)
#Calculating Two-group MANOVA from data summaries and var-covar group matrices
#Given means, SDs, and r coefficients for the four cells in a one-way two-group MANOVA
#Enter Means: m1DV1, m1DV2, m1DV3, m2DV1, m2DV2, m2DV3
m1DV1<-3.36; m1DV2<-7.5; m1DV3<-3.38; m2DV1<-3.18; m2DV2<-7.47; m2DV3<-3.07
#Enter SDs: sd1DV1, sd1DV2, sd1DV3, sd2DV1, sd2DV2, sd2DV3
sd1DV1<-.436; sd1DV2<-1.60; sd1DV3<-.54; sd2DV1<-.409; sd2DV2<-1.63; sd2DV3<-.55
#Enter Correlation coefficients:
cor1DV1DV2<-.028; cor1DV1DV3<-.123; cor1DV2DV3<-.240
cor2DV1DV2<-.028; cor2DV1DV3<-.123; cor2DV2DV3<-.240
#Enter Sample sizes for two groups
n1<-75; n2<-31
#Enter Number of DVs
p<-3
#Given the two group means for 3 DVs create mean vectors for two groups
m1<-matrix(c(m1DV1,m1DV2,m1DV3),3,1); m2<-matrix(c(m2DV1,m2DV2,m2DV3),3,1)
#Given the two group SDs for 3 DVs and r coefficients create var-cov matrices for groups
#Var-Cov Matrices Calculated from mean, SD, and Corr values
varG1<-matrix(c(sd1DV1^2,cor1DV1DV2*sd1DV1*sd1DV2,cor1DV1DV3*sd1DV1*sd1DV3,
        cor1DV1DV2*sd1DV1*sd1DV2,sd1DV2^2,cor1DV2DV3*sd1DV2*sd1DV3,
        cor1DV1DV3*sd1DV1*sd1DV3,cor1DV2DV3*sd1DV2*sd1DV3,sd1DV3^2),3,3)
```

```
varG2<-matrix(c(sd2DV1^2,cor2DV1DV2*sd2DV1*sd2DV2,cor2DV1DV3*sd2DV1*sd2DV3,
        cor2DV1DV2*sd2DV1*sd2DV2,sd2DV2^2,cor2DV2DV3*sd2DV2*sd2DV3,
        cor2DV1DV3*sd2DV1*sd2DV3,cor2DV2DV3*sd2DV2*sd2DV3,sd2DV3^2),3,3)
#Calculate the pooled sample covariance matrix
S33<-((n1-1)*varG1+(n2-1)*varG2)/(n1+n2-2)
#Calculate Hotelling T^2, the F-statistic, and the P-value
T2<-((n1*n2)/(n1+n2))*(t(m1-m2)%*%solve(S33)%*%(m1-m2))
Fstat<-((n1+n2-p-1)*T2)/((n1+n2-2)*p)
df1<-p; df2<-n1+n2-p-1
pvalue<-1-pf(Fstat,p,n1+n2-p-1)
print(paste("Hotelling T^2=",round(T2,4),"F=",round(Fstat,4),
  "df1=",df1,"df2=",df2,"P-value=",round(pvalue,6)))
#Univariate ANOVAs to follow significant MANOVA from data summaries
library(rpsychi)
#For DV1: GPA
Means<-c(m1DV1,m2DV1); SDs<-c(sd1DV1,sd2DV1); Samplesizes<-c(92,39)
#Use ind.oneway.second from the rspychi package:
results<-ind.oneway.second(Means,SDs,Samplesizes)
results
#p-value for the F-test
Ftest<-results$anova.table$F[1]
pf(Ftest,1,122,lower.tail=F)
#For DV2: ASE
Means<-c(m1DV2,m2DV2); SDs<-c(sd1DV2,sd2DV2); Samplesizes<-c(75,31)
results<-ind.oneway.second(Means,SDs,Samplesizes)
results
Ftest<-results$anova.table$F[1]
pf(Ftest,1,104,lower.tail=F)
#For DV3: FSI
Means<-c(m1DV3,m2DV3); SDs<-c(sd1DV3,sd2DV3); Samplesizes<-c(88,36)
results<-ind.oneway.second(Means,SDs,Samplesizes)
results
Ftest<-results$anova.table$F[1]
pf(Ftest,1,122,lower.tail=F)
```

Figure 2. The R script for conducting MANOVA by using descriptive data summaries as input.

Factor Analysis Example

In this example, a study focusing on the predictive ability of a set of institutional and student characteristics for retention rates of full-time, degree-seeking, first-time freshmen was used to illustrate the use of secondary analysis from data summaries. Scott, Velazquez, Türegün, and Wolman (2016) examined the relations among a set of predictor variables based on a sample obtained from the Integrated Post Secondary Education Data Systems (IPEDS) Data Center. Based on previous research studies, Scott et al. (2016) considered a total of sixteen institutional and student characteristics as variables from 233 institutions for a factor analysis in order to summarize the patterns of correlations among the observed variables.

The variables used to describe student characteristics for each institution were first semester average GPA, SAT 25th percentile score, percent of full-time students, percent of full-time, first-time, undergraduates receiving federal financial aid, percent of full-time, first-time undergraduates receiving Pell grants, percent of undergraduates over the age of 24, and percent of first-time freshmen receiving financial aid and living on campus. The variables used to describe institutional characteristics were grand total enrollment, student-to-faculty ratio, highest degree offered, degree of urbanization, academic support per full-time enrollment (FTE), net Instruction per FTE, selectivity, average net price for students receiving grants or scholarship aid, and percent of undergraduate FTE. The variables selectivity, degree of urbanization, and highest degree are based on the percentage of freshman applications that are accepted, the area where the institution operates and/or the geographical region where the institution is based, and the highest degree offered by the institution, respectively.

Scott et al. (2016) reported the descriptive statistics and the correlation coefficients, Pearson for continuous and Spearman for ordinal variables. The reported correlations were the starting point in creating the R script given in Figure 4 to conduct a factor analysis using Principal Axis Factoring (PAF).

The analysis conducted by using the script given in Figure 4 replicated the results reported by Scott et al. (2016). The sampling adequacy of items was determined via the Kaiser-Meyer-Olkin (KMO) measure, and the Bartlett's sphericity test was used for appropriateness of conducting a factor analysis. The KMO statistic is a summary of how small the partial correlations are for each pair of the variables. If the variables share common factors then the partial correlations should be small and the KMO should be close to 1.0, indicating extraction of distinct and reliable factors. A value close to 0 indicates that the sum of the partial correlations is large relative to the sum of the correlations, which would result in factor analysis to be inappropriate.

```
library(psych);library(Rcmdr);library(Hmisc)
corrmat<-read.triangular("C:/Users/Mturegun/Desktop/R Dell/Scottetalcorrmat.txt",
        names=cl ("SAT","GPA","Select","PerFT","TotEnr","AcadSup","NetInst",
        "PerFed","PerPell","PerO24","S2FRat","MPSwAid","HDeg","PerUgrad",
        "Urb","PerFinCam"),nlines=16)
KMO(corrmat); cortest.bartlett(corrmat,n= 233)
#Perform Parallel Analysis to identify the number of factors to retain
fa.parallel(corrmat,n.obs=233,fm="pa")
#Perform PAF with Varimax rotation
fa(corrmat,nfactors=5,n.obs=233,fm="pa",rotate="varimax")
#Perform PCA on corr matrix (instead of cov matrix, since scales are different)
Scottpcacor<-princomp(covmat=corrmat)
summary(Scottpcacor,loadings=T,digits=3,cutoff=.3,sort=T)
Eigenvals<-Scottpcacor$sd^2
Eigenvals
#Scree plot
plot(Scottpcacor)
```
Figure 4. The R script for conducting a factor analysis by using correlation matrix as input.

According to Kaiser (1974) and Cerny & Kaiser (1977), values greater than 0.5 are considered acceptable. Furthermore, values between 0.5 and 0.7 are mediocre, values between 0.7 and 0.8 are good, values between 0.8 and 0.9 are great, and values above 0.9 are considered superb. As presented in Table 7, the results of the extraction yielded a KMO statistic of .729, thus indicating the sampling adequacy of items was satisfied via the KMO measure.

Table 7.
Kaiser-Meyer-Olkin measure and Bartlett's test of sphericity.

Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy		.73
Bartlett's Test of Sphericity	Approx. Chi-Square	1935.06
	df	120
	p	.000

Bartlett's test of sphericity tests the null hypothesis that the original correlation matrix is an identity matrix, which indicates that all correlation coefficients are zero. Bartlett's test of sphericity produced a significant result ($\chi^2(120)$=1935.06, $p < .001$), verifying the appropriateness of factor analysis.

In factor analysis, communalities can be thought of as the squared multiple correlations for each of the variables that have been included in the analysis using the factors as independent variables and the variable as a dependent variable. It represents the proportion of variance of each variable that is explained by the factors. Initial communalities are the squared multiple correlation between a given variable and all other variables. The initial and extracted communalities are presented in Table 8.

Table 8.
Commonalities for the variables.

Variable	Initial	Extraction	Variable Name	Initial	Extraction
1 SAT	.790	.851	9 PerPell	.786	.806
2 GPA	.499	.519	10 PerO24	.717	.757
3 Select	.325	.131	11 S2FRat	.633	.712
4 PerFT	.726	.826	12 MPSwAid	.519	.552
5 TotEnr	.677	.819	13 HDeg	.467	.627
6 AcadSup	.588	.654	14 PerUgrad	.615	.718
7 NetInst	.664	.781	15 Urb	.201	.154
8 PerFed	.425	.381	16 PerFinCam	.485	.540

Note. SAT: SAT 25th percentile score, GPA: first semester average GPA,
Select: selectivity, PerFT: percent of full-time students, TotEnr: grand total Enrollment,
AcadSup: academic support per FTE, NetInst: net Instruction per FTE, PerFed: percent of
full-time, first-time, undergraduates receiving federal financial aid, PerPell: percent of
full-time, first-time undergraduates receiving Pell grants, PerO24: percent of undergraduates
over the age of 24, S2FRat: student-to-faculty ratio, MPSwAid: average net price for students
receiving grants or scholarship aid, HDeg: highest degree offered by the institution,
PerUgrad: percent of undergraduate FTE, Urb: degree of urbanization, PerFinCam: percent of
first-time freshmen receiving financial aid and living on campus.

The communality values in the extraction column of Table 8 represent the proportion of the variance by the extracted factors. These values ranged from .851 to .131, suggesting that most of the variables are moderately, in some cases strongly, related to the set of factors, with the exception of the variables Selectivity and Degree of Urbanization. These two variables did not seem to be well represented in the common factor space.

Table 9 presents the eigenvalues obtained with a PAF, and the total variance explained. In determining the number of factors to be retained, traditionally and most commonly used practice is to use either Kaiser's eigenvalue rule or Cattell's scree test. Kaiser's eigenvalue rule is the default option in most statistics packages.

Table 9.
Eigenvalues and total amount of variance explained.

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.460	27.877	27.877	4.181	26.132	26.132
2	2.427	15.171	43.048	2.112	13.203	39.335
3	2.151	13.447	56.495	1.784	11.151	50.485
4	1.457	9.108	65.603	1.111	6.943	57.428
5	1.118	6.988	72.591	.641	4.006	61.435
6	.888	5.550	78.142			
7	.827	5.170	83.312			
8	.537	3.359	86.671			
9	.453	2.832	89.503			
10	.373	2.329	91.832			
11	.327	2.042	93.874			
12	.280	1.750	95.624			
13	.248	1.550	97.174			
14	.178	1.113	98.287			
15	.151	.943	99.231			
16	.123	.769	100.000			

Even though Kaiser's rule may be the most widely used decision rule for determining the number of factors to retain, Kaiser's rule has been shown to almost always severely overestimate the number of factors to retain (Zwick & Velicer, 1986). Despite its subjective nature in interpretation, Cattell's scree test has been shown to be much more accurate, but also tended to overestimate the number of factors. Applying Kaiser's rule to the eigenvalues presented in Table 9 suggests the presence of five factors, as the eigenvalues for these factors are greater than 1, with factors 5

and 6 being equally close to 1 from above and below, respectively. Factors 1, 2, 3, and 4 explained 27.88%, 15.17%, 13.45%, and 9.11% of the variance, respectively, with a cumulative total variance of 65.6%.

In addition to Kaiser's rule, the scree plot shown in Figure 4 was examined as a second criterion. The scree plot appears to indicate the presence of at least five factors and possibly up to six factors, as there is a slight drop after the fifth factor. As indicated previously, the use of scree plot in deciding on the number of factors to retain can be somewhat subjective, and tend to overestimate the number of factors to retain. Additionally, as illustrated in Table 10, the factor matrix revealed that there was only one item loading on Factor 5. Cattell's scree test and Kaiser's eigenvalue>1 rule show a five factor solution, but the Velicer MAP achieves a minimum of 0.05 with four factors. Hence, a four-factor solution seemed reasonable, as suggested by Scott et al. (2016).
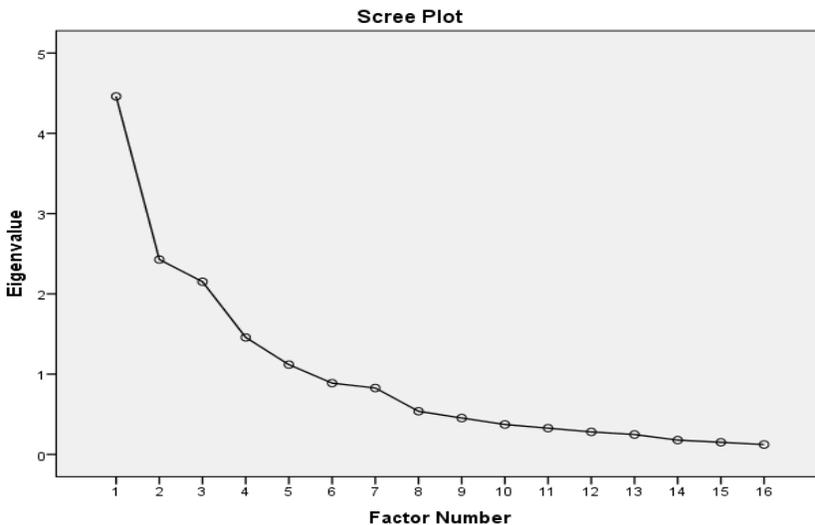
Figure 4. Scree plot

Factor 1, with the highest loadings of SAT, PerPell, and PerO24, seemed to focus on student characteristics. With high loadings of PerUgrad, and PerFT, Factor 2 reflected traditional enrollment. Factor 3, with the highest loadings of TotEnr, S2FRat, and MPSwAid was interpreted as institutional affluence by Scott et al. (2016). Factor 4, with the highest loadings of NetInst and AcadSup can be interpreted as Institutional academic support.

Table 10.
Factor matrix.

	Factor				
	1	2	3	4	5
1 SAT	.860				
2 GPA	.573			-.325	
3 Select					
4 PerFT	.512	-.619		.368	
5 TotEnr	.512		.721		
6 AcadSup	.562			.464	
7 NetInst	.623	.340		.505	
8 PerFed		.412	-.308		
9 PerPell	-.758			.416	
10 PerO24	-.650	.489			
11 S2FRat		-.570	.553		
12 MPSwAid	.444		-.523		
13 HDeg	.386	.322	.378		.454
14 PerUgrad	-.378	-.740			
15 Urb					
16 PerFinCam	.513		-.441		

CONCLUSIONS

There are many different purposes and benefits of replicating the results of various multivariate analyses via analyses based on published summary statistics, without relying on raw data. It may be an effective way for editors or reviewers to replicate the results of various multivariate analyses of submitted manuscripts to ensure and verify accuracy. These types of analysis of published research provide graduate students with opportunities and experiences that may lead to developing transferable skills in coding and statistical analysis. Integration of these pedagogical aspects into one's teaching approach makes these types of data summary-based analysess ideal for use in classroom examples, semester projects, and capstone research studies (Rossi, 1987; Sautter, 2014). Although R open source statistical computing environment was exclusively used in the examples given here, there are other data analysis packages to use, such as SAS, SPSS, Stata, OpenStat, and LISREL.

There are a several imitations of using data summary-based analyses. For example, insufficient data summaries and disregard for APA guidelines in reporting results prevent other researchers from replicating the results of published research. Descriptive data summaries reported in the published research can potentially be the starting point for the subsequent analyses to replicate the results. Therefore, making decisions about how to summarize the raw data becomes very important, and can further serve as a valuable teaching point. Although most multivariate analyses can be performed based on descriptive data summaries and correlation matrices, the information contained in the raw data is hardly ever recovered from the descriptive data summaries reported in the published research. Additionally, since the analyses based on published research use the data summaries, instead of the original raw data sets, as the starting point, novice researchers or graduate students do not have an opportunity to gain experience in or practice data screening or preparation techniques, such as handling of missing data, or verifying assumptions.

In closing, the analytics of understanding, processing, and visualizing data in order to extract valuable information from it is an important skill, not only at the proefessional level, but also at all educational levels from elementary school to college and beyond. Hence, it is time now to begin fully incorporating R into one's set of data analytics and statistical tools.

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USİNG TECHNOLOGY DEVİCESTO IMPROVE COLLEGE STUDENTS' ENGLİSH LEARNİNG OUTCOMES

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INTRODUCTION

Nowadays, traditional classroom instruction combined with new tools using computer technology is making a dramatic contribution to various educational fields, including the learning of foreign languages, particularly in higher education (Chen, Chang, & Yen, 2012; MacDonald, 2006; Prensky, 2001; Author, 2015). New uses of computer technology have exploited the rapid technological changes in the educational system (Chen et al., 2012; Author, 2014). The 2015 *Higher Education Horizon Report* from the NMC (New Media Consortium) Project (2015) describes how integrating technologies has a positive impact on students' learning, instructors' teaching, and increased demand for using technology tools in higher education, for instance by increasing learning motivation, encouraging students to more actively self-manage their learning, and providing training to future workers (Hargittai, 2010; Rayson, 2013; Mohammadyari & Singh, 2015). Many educators have investigated which of the new technological tools may be most efficient to motivate college students' learning (Salas, Kosarzycki, Burke, & Stone, 2002; Schwabe & Goth, 2005). Colleges and universities have altered insofar as technology plays a role for teachers and students, as an "unbundled environment" (Dziuban & Moskal, 2011, p. 207), where everyone can learn without time and place limitation; in this context, Greenhow (2009) raised the issue of which methods to adopt directly in saying that "we still have a long way to go in understanding methods of effective practice" (p. 10). To address this issue, this paper aims to use the three latest methods of technology-enabled instruction (Norberg, Dziuban, & Moskal, 2011;Thomas & Thomas, 2012) in order to improve students' learning (Levine, Ferenz, & Reves, 2002) by developing the subskills necessary to provide students with a new awareness of a given learning approach and assisting them to navigate their social-communicative environment (Dziuban, Hartman, & Moskal, 2004; Kim, Ruechert, Kim, & Seo, 2013) and to develop real skills (Ali, Murphy, & Nadkarni, 2014; Slaouti, 2002) in preparation for the needs of their future workplaces.

REVIEW OF THE LITERATURE
Introduction to the Blended Learning Approach

BL is viewed as one of the top 10 trends in classroom delivery of content knowledge (Graham, 2004; Kiviniemi, 2014) with appropriate pedagogical methodologies in classroom settings (Graham, 2006). The term "blended learning" was first used in late 2003 by Sharma and Barrett (Whittaker, 2011). Banados (2006) defined blended learning as "a combination of technology and classroom instruction in a flexible approach… which can improve learning outcomes and/or save costs" (p. 534). BL in the classroom encompasses collaborative training opportunities for learners (Waterhouse, 2005; Sharma & Barret, 2007; Richardson, 2010; Kim et al., 2013; Solomon & Schrum, 2010) and provides the opportunity for students to track their own learning (Rooney , 2003; Waterhouse, 2005). Currently, in higher education institutes, learners are frequently encouraged to bring their own devices for learning in specific subjects or contexts (Pegrum, Oakley, & Faulkner, 2013; Kong & Song, 2015). Hence, learners can collaborate with others using their own devices to complete activities within the classroom (Al-Qahtani & Higgins, 2013; Wu et al., 2012); and these devices are also certainly used for learning outside the class environment (Chen & Huang, 2012; Hwang, Wu, Zhuang, & Huang, 2013). Martin and Ertzberger (2013) state that "there is an opportunity to leverage mobile technology to better support students not only in the classroom, but also as students navigate to the context of their learning" (p. 76). Furthermore, students can complete assignments collaboratively outside the classroom using computer-assisted learning tools (Dziuban, Moskal, Kramer, & Thompson, 2013). Through immersion in a BL environment, learners have no limitations with regard to time management or space for self-learning pace (Vaughan, 2007; Tai, 2012). This is convenient for adult learners who have jobs, or families, or are unable to attend class regularly. In addition, due to their limited budgets, many colleges and universities are trying to save money on additional costs in schools. Thus, they often require administrative staff and faculty to use tablet devices for meetings and to conduct international conferences by virtual means. In addition, they encourage teachers to design online course materials that can be delivered using the technology instead of printing out all of the class materials and exams. Interestingly, Singh and Reed (2001) and Dziuban et al. (2004) identified similar advantages of using BL: (1) it improves learning effectiveness; (2) it extends learning and teaching reach; and (3) it reduces cost and time.

Significant Cases of Blended Learning in Higher Education

The blending learning approach is viewed as a bridge that connects the face-to-face classroom with online learning environments (Lee, Fong, & Gordon, 2013). Starting in 2000, for instance, the Massachusetts Institute of Technology (MIT) introduced the MIT TEAL (Technology-Enabled Active Learning) program to teachers and students. TEAL aims to create a collaborate learning environment, which is a functional platform that allows teachers to integrate lectures, course materials, problem-solving, and personal responses to students' questions. By 2005, this program had been piloted in MIT physics courses, and was found to improve on traditional teaching methods, enhance students' study effectiveness, actively participate in studies, and create a high-tech, highly interactive study environment featuring high levels of mutual assistance (MIT iCampus, 2015).

In May 2009, the Australian government announced the "Digital Education Revolution" (DER), which aims to effect a meaningful transformation of education to increase "leadership development—practical guidance; faculty ability—enrichment of teaching; teaching resources—strengthening digital teaching and studying, establishment of a new basis—the digital technology for a digital revolution in teaching." The main venue for DER was the University of Sydney. With this as a beginning, the government is hoping to pursue for a complete digital renovation at every level of the educational system. It was reported in 2010 that "Australia committed AUD 2.4 billion over seven years to help schools across the country integrate technology into the classroom" (p. 1).

At the National Institute of Education at Singapore's Nanyang Technological University, the only teacher-training body in the country, the message is that "every place is a learning area, with no constraints on time or space." During classroom study, students combine their school and personal lives using computer backpacks the size of a sheet of B4 paper, which they carry and use to engage in schoolwork outside of school time. Furthermore, in the classrooms, the instructor sets up five different contexts in the learning materials, including ones on campus life and social occasions. Students can learn in these authentic contexts through collaboration with their peers: Desks are installed with computers that have wide touch-controlled screens to which students can automatically link by placing their electronic backpack near the desk, a system that facilitates student communication, interaction, and small group work. While classroom activities are in progress, students can receive assignments transmitted to them by their teachers, involving tasks such as performing internet searches (Huang, Lin, & Cheng, 2010).

These noteworthy examples from three of the world's top universities, MIT TEAL, DER, and Singapore's Nanyang Technological University, demonstrate how BL is used to combine formal class lectures and technology. Technology-supported learning serves as a useful support for regular teaching materials and creates learning opportunities in real life contexts (Collis, 2004; Cottrell & Robinson, 2003; Orvis, Wisher, Bonk, & Olson, 2002). To exploit these benefits, technological devices have been widely integrated in higher education institutions globally. This study focuses on the following three research questions:

(1) Does any significant learning improvement occur as a result of the use of face-to-face classroom instruction with mobile devices, e-learning platforms, or blended learning plus FormosaSoft Media Server?

(2) What are the differences between learning a language through face-to-face classroom instruction and mobile devices, an e-learning platform, or blending learning plus FormosaSoft Media Server?

(3) Do students view technology-enabled learning materials as a facilitator of future job preparation?

METHODOLOGY

Participants

The 61 participants in this study were undergraduate students from various departments at a private university in Northern Taiwan: the Department of Applied English ($n = 43$), the International Honors Program ($n = 6$), the Department of Tourism ($n = 6$), the Department of Law ($n = 2$), and the Department of Business ($n = 4$). The participants included 24 males and 37 females, and fell into two age groups: 16–20 ($n = 43$) and 21–25 ($n = 18$). The classes they were enrolled in were treated as intact groups, meaning that they could not be randomly assigned to the three treatment conditions: (1) Mobile Learning (M-Learning); (2) E-learning Platform; and (3) BFMS. The main reason for choosing this approach was that all students had been exposed to the "Learning in the Smart Campus E-Learning Project" and the "Smart Campus Mobile" environment since 2014, making them more familiar with the use of digital tools and mobile devices in their learning than other students. In order to help them acquire a full understanding of the e-learning platform, all participants in the e-learning group received an "E-learning Training Course" for three hours at the beginning of the class such as using VoiceTube,

watching videos on YouTube, and learning with MIT OpenCourseWare (Table 1).

Table 1
Participant Numbers and Treatment Groups

Groups	Group A	Group B	Group C
	M-Learning	E-Learning Platform	BFMS
Number of Participants	21	20	20
Devices	Mobile phones	E-Learning Platform	FMS
Tools	Smartphones	Desktop computers, laptops	Cloud Education, MIT OpenCourseWare

Note: BFMS = blended learning plus FormosaSoft Media Server; FMS = FormosaSoft Media Server; MIT = Massachusetts Institute of Technology

Specialized Course Design for the Three Groups

There are two academic semesters each year at the participants' university, each 18 weeks long; this course was one semester long. The regular time for each class was two hours per session, twice a week. Normal class size ranged from 15 to 25 students. In different classes, the basic course design was combined with each of three models (Mobile Devices, E-Learning Platform, and FMS; see Appendix A). The researcher designed a 16-week English course for each group. The three groups used the same textbook, materials, and activities, learned with a regular instruction time, and received the same amount of instruction time in using the technological tools in class. All classrooms throughout the campus had free Wi-Fi access, with one or two computers and a projector in each classroom. The three teachers used related activities designed by the researcher to prompt the use of the technological tools. In each class, participants were given just 20 minutes to use the mobile devices in order to complete assignments; BFMS participants were also required to use the technological tools to prepare content before the class. As this implies, they were also expected to have acquired the needed knowledge and identified problems before classroom instruction. In other words, for the BFMS students, the method of learning was more self-directed.

Instruments

This study used mobile learning, e-learning, and BFMS as pedagogical approaches in English reading courses to investigate ways of improving college students' learning outcomes. After the various technological tools were used to facilitate students' learning, four instruments were used to collect data. In order to assess their improvement: (1) A background information survey was administered to gather personal information about the participants; (2) To examine participants' learning progress, the General English Proficiency Test (GEPT), designed by the Language Training & Testing Center, was administered at an intermediate level as a pretest and posttest; and (3) A questionnaire on students' perceptions of whether and how computer technology devices prepared them for future jobs.

Quantitative data collection. Achievement tests (the GEPT) were administered both before and after the implementation of the three different treatments. The test took 45 minutes and included vocabulary, structure, fill-in-the-blank, and reading comprehension questions.

Data Analysis

When analyzing the quasi-experimental data using multivariate analysis of covariance (MANCOVA), the researcher used individual scores as a unit of statistical analysis, including both pretest and posttest data. The pretest was viewed as the dependent variable, the three treatments were fixed factors, and posttest scores were taken from all 61 participants. Descriptive information was analyzed using SPSS 16.

RESULTS

Learning Improvements

In order to answer research question 1, analyses of variance (ANOVAs) were used to examine learning improvement across the three groups. One-way analysis of variance was used to analyze the pretest scores and the posttest scores—mean scores, standard deviations, and F-values—as shown in Tables 2 and 3. Pretest scores revealed that there were no statistically significant differences among the three groups ($F = .643$, $p = .529$). This

means that the three groups demonstrated similar levels of English proficiency before participating in the study. Compared with the posttest scores for the three groups (Tables 4, 5, and 6), these results demonstrate statistically significant differences for all three groups (F = 10.951, p = .000). Furthermore, the BFMS group (M = 78.25, SD = 10.036) scored higher than the other two groups, that is, the E-Learning group (M = 76.09, SD = 8.129) and the M-Learning group (M = 66.80, SD = 6.074). The BFMS group scored marginally higher than the E-Learning group. The mean score of the E-Learning group was significantly higher than the M-Learning group.

Table 2
Pretest Scores for the Three Groups

Group	n	M	SD	SE	95% Confidence Interval	
					Lower Bound	Upper Bound
M-Learning	20	43.4000	7.91667	1.77022	39.6949	47.1051
E-Learning	21	41.1905	4.91548	1.07264	38.9530	43.4280
BFMS	20	42.8500	6.43408	1.43870	39.8388	45.8612
Total	61	42.4590	6.47450	.82897	40.8008	44.1172

Note: M-learning = mobile device learning; E-learning = E-learning platform; BFMS = blended learning plus

FormosaSoft Media Server

Table 3
One-Way Analysis of Variance of Pretest Scores for the Three Groups

	M	df	Mean Square	F	Sig.
Between Groups	54.559	2	27.280	.643	.529
Within Groups	2460.588	58	42.424		
Total	2515.148	60			

Table 4
Multivariate Tests of Performance Improvement of the Three Groups

Effect		Value	F	Hypothesis df	Error df	Sig.
Treatments	(Wilks's λ)	.704	5.473	4.000	114.000	.000

Table 5
Tests of Between-Subjects Effects

Source Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Pretest	54.559	2	27.280	.643	.529
Posttest	1486.552	2	743.76	10.951	.000

Table 6
Summary of the Final Results of the Multivariate Tests

Sources	SSCP		df	^		F	
	Pretest	Posttest			Pretest	Pretest	Posttest
Experimental	54.559	-158.084	58	.704	.643		10.951
	-158.084	1486.552					
Error	2460.588	327.969					
	327.969	3936.760					

*p < .05.

Differences in Using the Various Devices

To answer research question 2, differences in learning improvement between the three groups were assessed. They were as follows. First, interestingly, the E-Learning group achieved higher mean scores than the M-Learning group. From Table 7, the M-Learning group (min. = 28, max. = 62) and the E-Learning group (min. = 30, max. = 48) received closer mean scores in the pretest; after the experimental instruction, the M-Learning

group (min. = 52, max. = 78) received lower mean scores than the E-Learning group (min. = 63, max. = 89) in the posttest. The pretest and posttest mean scores in the BFMS group were relatively low. In the posttest, the BFMS group showed greater improvement (min. = 52, max. = 91) than the other two groups (Table 7). This seems to indicate that providing a more real and interactive method of learning was improved learning performance more than other approaches.

Table 7
Comparing Minimum and Maximum Means of Pretest and Posttest

Groups	*n*	Pretest		Posttest	
		Min.	Max.	Min.	Max.
M-Learning	20	28	62	52	78
E-Learning	21	30	48	63	89
BFMS	20	30	53	62	91
Total	61	28	62	52	91

Future Job Preparation

To answer research question 3, the researcher summarized the students' perspectives on the influences of use of mobile technology for learning on their future job preparation. Twelve themes were collected from the questionnaire results (Table 8), consisting of the top four statements emphasized by each group. In the M-Learning group, students mentioned that using mobile devices for job preparation is a novel approach that makes those devices a new delivery tool (*n* = 19), in which employees can share company news and information, connect with social activities, and even hold new staff orientations using the mobile devices; also in the M-Learning students' opinion, the devices can be used to discover information (*n* = 19), create long-distance business (*n* = 19), and that they make work more effective (*n* = 19); for the E-Learning group, important advantages were knowledge-sharing (*n* = 19), use as a new delivery tool (*n* = 16), gaining feedback quickly (*n* = 16), and enhancing interaction (n = 16). For the BFMS group, important factors were knowledge-sharing (*n* = 18), use as a new delivery tool (*n* = 15), training employees (*n* = 16), gaining feedback quickly (*n* = 15), and making work effective (*n* = 15). From the above, we can see that the findings of the three groups of students show agreement regarding the benefits of their BL approach in relation to future job preparation with regard to technology use, use as a new delivery tool, sharing knowledge, gaining feedback quickly, and making work effective. Overall, students desire the latest tools to deliver information not only in the learning environment but also in their future workplaces.

Table 8
Usage of Technological Devices in Future Job Preparation

Perspectives	M-Learning		E-Learning		BFMS	
(*N* = 61)	Yes	No	Yes	No	Yes	No
1. Knowledge-sharing	18	3	19	1	18	2
2. New delivery tool	19	2	16	4	15	5
3. Training employees	10	11	13	7	16	4
4. Discovering problems	19	2	10	10	12	8
5. Searching for information	18	3	8	12	9	11
6. Gaining feedback quickly	17	4	16	4	15	5
7. Long-distance business	19	2	15	5	12	8
8. Enhancing interaction	18	3	16	4	14	6
9. Tracking work procedures	17	4	11	9	12	8
10. Making work effective	19	2	12	8	15	5

11. Making work collaborative	12	9	14	6	11	9
12. Chance to interact with colleagues	18	3	11	9	10	10

DISCUSSION & CONCLUSION

To enhance reading comprehension while reading the course textbooks, watching YouTube or VoiceTube videos, and reading new articles posted on Facebook or discussion boards, students can also retrieve the latest learning contexts from the BFMS system based on students' English abilities. All students' experiences using technological tools in foreign language teaching and learning have been assessed for at least one academic year. This result complements the studies of Pasman and Woodward (2003) and Chen and Chung (2008) in which teachers provided a -world environment, immediate interaction, and 3D learning opportunities to learners, aiming to create pragmatic learning through technology usage. The study results suggest that mobile learning, e-learning, and BFMS can be widely used as instructional tools in language teaching and learning. The three kinds of learning tool tested each provided positive advantages to students' learning outcomes. Discussing the advantages of the three groups in detail, first of all, the M-Learning group saw a slight improvement. The use of mobile devices combined with the appropriate materials in class teaching and learning is expanding (Moredich & Moore, 2007; Lee, 2010). Students love to engage in class activities when teachers allow the use of mobile devices (Yang, Li, & Lu, 2015; Mittal, 2014; Zhang, 2013; Chen & Huang, 2012). Based on one of the Person surveys in 2014, most students desired to use mobile devices in the classroom (Poll, 2014). Furthermore, students interact more with their classmates during class by searching for materials or completing course assignments. Students like to capture pictures of their notes rather than writing them in notebooks. During class, M-Learning students enjoy using their own devices to complete assignments. Most of the time, they share information, text messages, or email materials quickly using their tool.

The E-Learning group performed better than the M-Learning group in terms of learning outcomes. They were well able to read course materials and take quizzes repeatedly by themselves when ready. These self-learning activities benefited their acquisition of material. Most importantly, accompanied by video watching, it tends to enhance students' interest when reading long materials.

The use of BFMS caused more significant improvement than the use of either m-learning or e-learning. Providing the opportunity for acquisition of material among students is the main beneficial factor here (Hwang & Chang, 2011). Students in this group were expected to read materials before class, to prepare; then, while participating in class instruction, students are supposed to discuss, solve, and answer questions through group discussion. This approach makes it easier to communicate with classmates and understand the course materials. BFMS not only provides more opportunities for interaction among students but also allows extra time to absorb the materials. Biddix, Chung, and Park (2015) suggest that under this approach "students will be empowered to explore and take charge of their own learning beyond class time" (p. 162). Based on these results, it is important to note that BFMS not only encourages students to take advantage of self-learning time but also builds self-expression ability so that students can better express their perspectives.

Overall, one way to foster successful blended learning is teachers training students to perceive technology as a tool to improve learning outcomes. All students who participated in this study mentioned that their usage of technological devices increased gradually when the courses were taught. Each episode of technological device usage in learning is viewed as an improvement. Students have the opportunity to access their own devices, share information, and deliver messages. Students can benefit greatly from using mobile devices to learn. In the future, these discussions will help open the way for teachers and students in higher education who aim to use different technological tools in classroom teaching and learning.

Compliance with Ethical Standards
Informed consent was obtained from the study participants

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Appendix A

Specialized Course Design

Group	Main Procedures	Extra Functions for Learning
Group A	Lecture Task Mobile Devices	In class: Line YouTube video watching VoiceTube watching Adult learning activities: California Distance Learning Project Interaction tool: Facebook for social interaction
Group B	Lecture Task E-Learning Platform	In class: YouTube video watching Adult learning activities: California Distance Learning Project Interaction Tool: In Time Discussion Board
Group C	Online Preparation In-Class Discussion Online Reviewing	Outside class: Read the materials online/download the assignments from MIT OpenCourseWare In class: Lecture, individual/group discussion Outside class: Go online and review material Interaction tool: students' own devices

USİNG TİMESTAMPS FOR AN EFFECTİVE UTİLİZATİON OF VİDEO CONTENT AND THE CONSTRUCTİON OF İTS PLATFORM

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ABSTRACT

This research will use timestamps in order to measure the utilization of video content. A timestamp in this context refers to elapsed time since the start of the video, and it is linked to a viewer. By using this timestamp, the viewers are able to compare their own thoughts to the thoughts of others, thus enabling them to clarify their previously vague ideas in a relatively clear manner. We will also construct a platform where this timestamp can be utilized, and support wide-ranging utilization of video content.

INTRODUCTION

Today, universities within and outside of Japan are actively making their lectures accessible to the public. Platforms used for such purposes include Open Course Ware (OCW), which provides public access to lecture materials and lecture videos, and Massive Open Online Course (MOOC), which also offers learning support and certification. In recent years, an increasing number of universities are also using services such as iTunes U, YouTube, and Slide Share to make their lectures accessible to the public. While there are various challenges—such as the processing cost for editing public videos, copyright restrictions, and lack of departmental cooperation to increase the number of materials made available to the public (Takemura, 2012) (Yamazato, 2013)—public university lectures are growing steadily on such bases. While much focus has been placed on increasing website traffic and certification numbers, little attention has been paid to the analysis of individual public lecture videos. One reason for this could be the difficulty of video analysis.

While this calls upon the importance of big data analysis, analysis of video content is also underway. Mpeg-7 and video annotation have been highlighted as methods of analyzing unstructured data such as videos. Both technologies can automatically add information to videos and conduct efficient search within the video content. Although mpeg-7 has been an anticipated search technology for video data since 2002, it has not been used widely. Its complex input process, unstandardized video search methods and the availability of search tools on each search engine are thought to be the reasons behind this (Fujiki, 2012). Likewise, key techniques of video annotation include video segmentation, in which a footage is divided into meaningful layers that are then annotated—a method in which specific rules are set and annotations are made when the footage matches the rule—and learning-based annotation (Nitta, 2009). However, a large-scale parallel programming environment,

like Hadoop, would be required to use such techniques, and in many cases, only certain experts know how to operate it.

This research will use timestamps in order to measure the utilization of video content. A timestamp in this context refers to elapsed time since the start of the video, and it is linked to a viewer. By using this timestamp, as indicated in Figure 1, the viewers are able to compare their own thoughts to the thoughts of others, thus enabling them to clarify their previously vague ideas in a relatively clear manner.

Figure 1: Verifying the relative positioning of individual thoughts using timestamps

We will also construct a platform where this timestamp can be utilized, and support wide-ranging utilization of video content. Video content is expected to be used in a variety of fields, such as e-learning in education and medical care. Here, we will describe a case study from the healthcare industry.

PLATFORM FOR THE UTILIZATION OF VIDEO CONTENT

This research links timestamps to video content and measures the utilization of video content. This section will describe the basic design of the system required for this task. As demonstrated in Figure 2, this system can work in both e-learning format and face-to-face format. Devices used are personal computers and Android tablets. Here, we will provide explanations assuming the use of an Android tablet, which uses more technical components than using a personal computer.

Figure 2: The formats used in this system: e-learning and face-to-face format

First, the basic construction of database tables is indicated in Figure 3. The users table controls user login information and functions, and the content table controls information on video content. Additionally, the timestamps table controls each user's timestamps for the target video. Timestamp attribute table groups will be set up according to the number needed for a given target model.

Figure 3: Basic table construction used in this platform

Users of this system will be separated into users and administrators. Table 1 categorizes the functions used by users and administrators.

Table 1: The system's basic functions for users and admin

User	Administrator
Login function	General user functions
Viewing videos : entering timestamps	User, video management function : e-learning setting, etc.
Checking videos : timestamp display	Timestamp control function: aggregation level, etc.

Figure 4 describes the system flow concerning system users. Additionally, Figure 5 describes the overall system flow.

Figure 4: User system flow

Figure 5: Overall flow of the video content utilization platform

As shown on Figure 5, timestamps are recorded when the button is pressed during the first viewing of the video. Then, timestamp attributes are set for each model, and attributes are recorded by repeatedly viewing the video for the number of attributes.

Table 2 indicates technical components, which has a particular importance to the construction of this system. Additionally, Figure 6 indicates the utilization of a video tag, which superimposes timestamps onto the video, as well as the video distribution script for synchronized viewing of a video.

Table 2: Technical components used in the system

Item	Content
Visualization of video timestamps	Superimposing timestamps onto a video
Aggregation of video timestamps	Graphing timestamps
Android functions	User authentication from device
	Synchronizing video contents: Download function

Figure 6: Video tag and utilization of video distribution script

CASE STUDIES: APPLICATION OF THE PROPOSED PLATFORM IN MEDICAL FIELD

This section will introduce example cases that utilize this system. Within the medical field, in recent years, non-technical skills are increasingly recognized as being equally or even more important than technical skills in ensuring the safety of medical care. Especially in areas such as surgery and anesthesiology, progress has been made not only in the specific components of non-technical skills, but also in how they are assessed. However, on the other hand, a definitive method for the acquisition of non-technical skills is yet to be established. Particularly, as non-technical skills are characterized by the separation between "what one understands" and "what one does", cramming knowledge through classroom learning is considered insufficient for the acquisition of non-technical skills.

Under such circumstances, there is an increased interest in the simultaneous utilization of simulation and e-learning as a potential method outside of knowledge acquisition. The use of simulation enables users to experience specific situations where non-technical skills are required, and through such an experience, there is the potential to go beyond simple understanding and to apply such requirement on a behavioral level. At the same time, the use of e-learning enables group decision-making and behavior analysis, regardless of one's geographical environment.

Using the video content utilization platform, we develop a simulation system for non-technical skills acquisition targeting doctors in Japan and aim for its integration with e-learning. Furthermore, we verify its effects by conducting an experiment that actually uses the system.

The importance of simulation for non-technical skills acquisition

While the importance of non-technical skills (NTS) is increasingly recognized in the medical field (Souma, 2013) (Jones, 2014), at the moment, there is no clear method or approach established concerning how NTS should be acquired. Surely, in the medical field, components of NTS are gradually being defined, and it is becoming possible to study them as knowledge and to assess NTS in the actual clinical setting (Graafland, 2014). However, the biggest issue of NTS is that they differ from technical skills, and one's knowledge and understanding of NTS may not link directly to his/her actual behaviors. Therefore, there is a need for an approach, which would enable one to apply such knowledge and understanding on a behavioral level while on site.

At present, the simulation approach has been identified as a potentially effective approach (Abrahamsen, 2014) (Network Rail, 2013). This is because simulation, by providing specific experiences, makes the importance of NTS tangible and facilitates such "recognition" in situations that require them (Morgan, 2011).

This is highly significant in that it uses the video content utilization platform and addresses the core of practical issues, such as "how does one acquire it" and "what approaches enable one to acquire it", to indicate the outcomes.

Consequently, when doctors apply the specific approaches to NTS acquisition using this video platform, it could certainly enhance the safety of medical care. In addition, by developing such knowledge into NTS acquisition systems for other medical specialists in the future, NTS would be improved not only for medical care in Japan, but also for numerous medical specialists in the world. This is highly significant in that this will promote safer medical practices around the world.

Integration of the simulation system for NTS acquisition and e-learning
Previously, NTS were acquired by having participants assess NTS on paper, by listening to instructor's lectures and watching videos. Much of NTS assessment concerns assessment of human components. Therefore, it becomes challenging to determine what assessment is considered the standard, solely based on an individual's assessment. Furthermore, when assessments are conducted on paper, it takes time to get the aggregate and makes it difficult to capture the overall trend on the spot. Additionally, when participants are assessing the videos, there is no way to identify at what point in the video they sensed NTS. This takes away the opportunity to discuss "who felt what, during which scene".

Moreover, simulation for NTS acquisition is ideally conducted with an instructor in an operation room, etc., where the actual physical environment is in order. However, it is unrealistic to prepare such an environment given the cost and time limitations. Thus, an environment that makes use of e-learning, etc., becomes a necessity.

Here, we propose a simulation system for NTS acquisition, which uses the video content utilization platform and makes use of an e-learning environment. The following outlines the characteristics of this system:
1.   A realistic, practical learning environment that uses NTS videos.
2.   It enables participants to share their understanding of NTS with others and to verify their own ways of thinking.
3.   It can be implemented regardless of location and start time. Furthermore, participants can arrange a time to carry out the training in real time.
4.   Participants can assess NTS easily while watching the videos. By superimposing timestamps onto the videos, it enables precision in NTS debriefing (review learning).
Figure 7: An example of a video used in NTS simulation
Figure 7 is a scene from a video used for NTS simulation. These videos are created using scenes that have been selected by the authors as being effective for NTS education. While watching the video, participants can each record what they sensed by pressing a button. By sharing these timestamps with the group, they are able to share with each other "who felt what, during which scene", and objectively verify the NTS they picked up on. Figure 8 shows a list of timestamps entered by participants.
Figure 8: An example of a list of timestamps by participants
Table 3 describes the flow of the simulation system for NTS acquisition.

Table 3: Outline of the simulation system for NTS acquisition

System Name	Simulation system for NTS acquisition
Purpose	To support NTS acquisition through simulation
Preparation	Identify simulation videos Identify simulation participants
Flow 1	Participants login
Flow 2	Prepare for video distribution, Distribution begins
Flow 3	Video viewing, Individual NTS assessment
Flow 4	Overall NTS assessment
Supplementary notes	Tablets used as device Participants initially enter 4-category assessment stamps for the videos. Subsequently, they check the videos again and assess NTS. Participants can view everyone's assessment stamps during overall NTS assessment. The simulation videos can be viewed as e-learning (independent of location and time)

An example: Utilizing the simulation system for NTS acquisition

Using the proposed system, we implemented a practical training for NTS simulation assessment on October 12, 2015 at Business Centre Tokyo Station. There were 17 participants, including doctors. This session was carried out in a lecture format, rather than in an e-learning format. Table 4 indicates the flow of the session. Timestamp attributes used in the session include NTS categories (situational awareness, leadership, decision-making, and communication) and their assessment (4 levels), as outlined in Table 5. As indicated in Figure 9, this session will ask participants to select a NTS category at the time of recording a timestamp. Users will record a timestamp by selecting its attribute from the four buttons. Following this, users will view the video again and select an NTS attribute assessment, from Poor, Marginal, Acceptable, and Good for the timestamp they entered.

Table 4: Flow of NTS simulation

First video viewing	Watch the video as a group
	Select a NTS category at the time of entering a timestamp
Second video viewing	Watch the same video individually
	Enter an attribute (assessment of NTS category) for the timestamp
Third video viewing	Watch the video again as a group
	Go over timestamp assessments as a group, and review

Table 5: Timestamp attributes used in this session

Attributes	Content
NTS category attributes	Select one from situational awareness, leadership, decision-making and communication
NTS assessment attributes	Select one from Poor, Marginal, Acceptable, and Good

Figure 9: Category attributes at the time of timestamp recording

Next, all participants will watch the video for the third time and, as indicated in Figure 10, compare their individual assessment to that of the group. Additionally, as shown in Figure 11, we divided the video into time units, and graphed the number of timestamps at each instance. The sections with concentrated numbers of timestamps indicate where users were able to predict a component requiring an action. We expect that focusing on these sections during the debriefing would make it more effective.

Table 6 summarizes the number of assessments for each NTS attribute. Although the result also depends on the nature of videos, the trend shows that it is easier to give negative assessments. A preceding study in this field indicated a tendency for leadership to have low assessment values (Mizuno, 2015). By carrying out a debriefing in this system, we expect to see improvements in medical sites.

Figure 10: Review learning with use of video timestamps (Third video viewing)

Figure 11: Number of timestamps recorded at each time unit

Table 6: Number of assessments by NTS attributes

Assessment item	Poor	Marginal	Acceptable	Good
Situational awareness	2	7	3	0
Decision-making	2	6	3	0
Communication	3	16	11	0
Leadership	4	8	5	1

CONCLUSIONS

This research proposed a video analysis platform with timestamps. The use of this platform could create an environment that facilitates the analysis of videos –which is something that has not been studied extensively – and expands the range of its use.

We used the video content utilization platform and constructed a simulation system for NTS acquisition in order to improve non-technical skills in medical settings. We expect enhancements in NTS through the process of entering timestamps concerning the four categories while watching NTS videos and having each participant review the timestamps as well as assess them using a four-grade evaluation system. Additionally, by going over the assessments given by all participants, it enables individuals to understand their objective viewpoint concerning NTS. Furthermore, this system can be used for both real-time training and e-learning and is available to a variety of users. In the future, we will update the system in order to enhance NTS based on opinions from medical sites.

Utilizing the video analysis platform with timestamps, as proposed in this research, makes it possible to design a basic system that serves one's purpose. As this is a versatile platform, we expect that it can be applied to a variety of cases.

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USİNG VİDEO RECORDED CORPUS TO ANALYZE CLASSROOM INTERACTİONS İN ELEMENTARY SCHOOL EFL CLASSES

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This paper describes an interaction analysis study, which was carried out in a French Polynesian elementary school context. The corpus for the study was gathered via video recordings during an extensive educational project. This project aimed at collecting corpora on various school subjects from French Polynesian elementary schools between the years 2014-2017. The researchers used ATLAS.ti, a Computer Assisted Qualitative Data Analysis Software (CAQDAS) to analyse the classroom interactions collected from six elementary school teachers' EFL classes. The study attempted: a) to discover common teaching strategies and techniques the teachers employed; b) to understand the effects the teachers' actions on the learners, and c) to determine whether the teachers' teaching methodologies were in concordance with today's foreign language teaching approaches. The study used both comprehensive and descriptive data analysis methods. The transcribed data were examined by focusing on both verbal and nonverbal classroom interventions. The codes were generated by studying both classroom exchanges and video recordings. The analysed data were presented using interpretations of individual instances, examples, paradigms, and frequencies.
Keywords: interaction analysis, coding, qualitative research, EFL classroom, young learners, CAQDAS, interactionist perspective, SLA, socio-cultural theory, competency-based approaches, action-oriented approach, communicative language teaching

INTRODUCTION

The present research took place in a French Polynesian elementary school context and reports on a classroom-based interaction analysis study aimed at exploring teacher and learner exchanges. This research work uses a video-recorded corpus gathered via an extensive research project called '**Pr**atiques **E**ducatives **E**nseignantes et **P**arentales en **P**olynésie' (**PrEEPP-**Teachers and Parents' Educational Practices in Polynesia*)* which was funded by the following organizations: *Ministère des Outre-Mer* (Ministry of Overseas France), *Université de la Polynésie Française* (The University of French Polynesia), *Vice-rectorat de la Polynésie française, and the ESPE de l'Académie de Guadeloupe.* The project was launched in 2014 and was carried out by a multidisciplinary and multi-institutional research team. The primary objective of this longitudinal research initiative was to constitute a representative body of an educational corpus from French Polynesian elementary school classrooms. To be precise, the initiative comprised of gathering large-scale data samples of different school subjects (i.e. Science, Mathematics, English, and Tahitian) across five French Polynesian archipelagos (Society Islands, Tuamotu Archipelago, Marquesas Islands, Gambier Islands, and Austral Islands). The geographical area that the project covered was as large as Europe and required the researchers to travel long distances (i.e. by boat and plane) to collect data. In 2015, some researchers from the University of French Polynesia integrated another local project into PrEEPP. The project was named after the state elementary school Maeha'a Nui, where the project was carried out. The primary objective of this scheme was to create a multilingual space within the school's premises. This project contained both research and non-research activities. The classroom corpus obtained via the Maeha'a Nui initiative was also integrated into the corpora of PrEEPP. The data collection procedures of PrEEPP initiative were completed in July 2017; however, the transcribing and analysing processes are still in progress. The researchers who participated in the study have started sharing the initial research results through conference communications and academic publications (e.g. see Ailincai, Gabillon, Vernaudon, Paia, & Alì, 2016; Ailincai, Gabillon, Vernaudon, Saura, & Alì, 2016; Gabillon, Vernaudon, Marchal, Ailincai, & Paia, 2016; Gabillon, & Rodica, 2015a, 2015b, 2016; Gabillon, 2016).

The study described in this paper utilised six samples of video-recorded data gathered during the PrEEPP project. The researchers examined the classroom exchanges collected from six English as a foreign language (henceforth EFL) lessons. These samples were collected from different French Polynesian archipelagos. The study aimed to explore the teaching strategies and techniques the teachers employed in their EFL classes.

The present study based its theoretical stance on the sociocultural and interactionist perspectives in foreign language learning (henceforth L2). Sociocultural and interactionist theories see foreign language learning as happening through dialogic exchanges. These two viewpoints underline the importance of interaction in foreign language learning. From these perspectives, language learning takes place in interaction (in the process of interacting) rather than as a result of it. This classroom corpus-based interaction analysis study utilised both qualitative and descriptive data analysis methods. The researchers used ATLAS.ti, a Computer Assisted Qualitative Data Analysis Software (CAQDAS) to analyse the corpus, and the results were presented by using extracts, comments and histograms.

LITERATURE REVIEW AND THEORETICAL STANCE

SLA is a multi-disciplinary field which makes use of insights and research paradigms from other domains such as linguistics, education, sociology, psycholinguistics, sociolinguistics and psychology (Ellis & Barkhuizen, 2005). It is commonly stated that the issues concerning L2 learning cannot be fully understood from a single perspective (Tarone, 2000). L2 learning involves a multitude of complex and interacting incidents which cannot be captured and understood from a narrow viewpoint. This study views L2 learning as a situated phenomenon which is influenced by both micro and macro social contexts and "…embedded in these contexts are the multiple relations of inequitable power in which language learners participate." (Ellis & Barkhuizen, p. 278, 2005).

This research work based its standpoints on sociocultural (SC) (Vygotsky, 1978, Lantolf, 1994, 2006, 2009) and interactionist perspectives (Swain, 2000). These two viewpoints seem to capture the complexity of foreign language learning (henceforth L2) both in instructional and natural settings. From these viewpoints, language learning is regarded as occurring in interaction (in the process of interacting) rather than as a result of it (Lantolf 2002). Although Vygotsky's works stressed the role of socially mediated interaction in learning, his standpoints were different from today's interactionist perspectives in language learning. The sociocultural and interactionist traditions used different research paradigms and produced different scientific terminology. However, these two approaches share remarkable similarities, as regards the principles which characterize them. In SLA literature, these two standpoints are often referred to under the name of '*socio-interactionist approach*' (e.g. Mondada & Doehler, 2004; Swain, 2000; van Compernolle, 2010). These two perspectives are complementarity to one another, and they underline the importance of scaffolding (teacher & peer) and face-to-face interaction in L2 learning (Vygotsky, 1978; Lantolf, 1994, 2006, 2009; Swain, 2000). They both view L2 learning as a social phenomenon occurring with the involvement of diverse social actors and artefacts (Lantolf, 2000). In this section, the researchers will try to highlight the key terminology used in these two perspectives.

For the last two decades, there has been an exponential increase in the interest in SC theories in L2 learning. This theory suggests that human learning is primarily a social process. Foreign language specialists who adopt an SC framework consider language learning as a social activity in which language operates as a tool for thought (Lantolf, 2002, 2006; Mitchell & Myles, 2004). L2 learning from this viewpoint is seen as an activity which happens both in social (interpersonal—social & cognitive) and personal planes (intrapersonal—individual & cognitive) (Vygotsky, 1978). The sociocultural perspective sees cognitive development and knowledge construction as a collaborative social event, which uses social artefacts. According to this view, optimal cognitive development depends upon socially mediated interaction. From this perspective, language learning is seen as a situated activity that occurs first in a social context through interaction with others and then within the individual through cognitive processes (Lantolf, 2000, 2002, 2006; Mondada & Doehler, 2004; Swain, 2000).

The key terms which are associated to SC philosophies are: '*mediation*', '*Zone of Proximal Development (ZPD)*', '*scaffolding*', '*Activity*', and '*Social Artefacts*'. The term mediation was introduced to literature by Vygotsky (1978) and refers to interpersonal interactions that provide guidance (help) in children's cognitive development and knowledge construction. The ZPD concept is linked with mediation, and it constitutes the central element of the SC theory. ZPD explains how learning takes place in a social context. It refers to the difference between what a learner is capable of doing without guidance and what s/he is capable of doing with guidance (Vygotsky, 1978). The concept has been interpreted and applied to various educational contexts (see Figure 1, Gabillon & Ailincai, 2006). According to the SC perspective, knowledge is co-constructed with others (other-regulated) in social planes, and it is appropriated (self-regulated, internalized) in personal-planes. In this social setting, language is used as a means by the individual to regulate his/her cognitive activities, that is, language is used as a "…tool for thought…" and "…a tool for learning…" (Lantolf, 2002, 2006; Mitchell & Myles, 2004). The term scaffolding was introduced to the sociocultural literature through the works of Jerome Brunner and his colleagues (Brunner et al., 1976). Later the concept was elaborated by Bruner, and the concept now is associated with him (Brunner, 1978). This term was defined as the process of supportive dialogue, which draws the learners/peers' attention to the main features of learning (Brunner et al., 1976). According to Vygotsky (1978) the social activity, which involves the use of social artefacts, contributes to the child's cognitive

development. The role of social artefacts in the child's potential cognitive development is explained by Vygotsky's ZPD concept (1979). The SC theory considers all human-made material and objects as artefacts. Swain, Kinnear and Steinman (2011) claim that all artefacts, such as symbolic (e.g. language) and material (e.g. books) can become tools for mediation. Swain et al. (2011) assert that all sort of human mental activity is mediated through individuals' interactions with these social artefacts (symbolic and material world) around them. The role of artefacts in mediating learning is explained and theorised in the activity theory. In SC theory, activity is described as a purposeful social interaction between actors and "artefacts" (the world and its objects). Aleksei Leontiev's Activity Theory expanded and updated many of the concepts introduced by Vygotsky (Leontiev, 1974, 1978; Engeström, 1987).
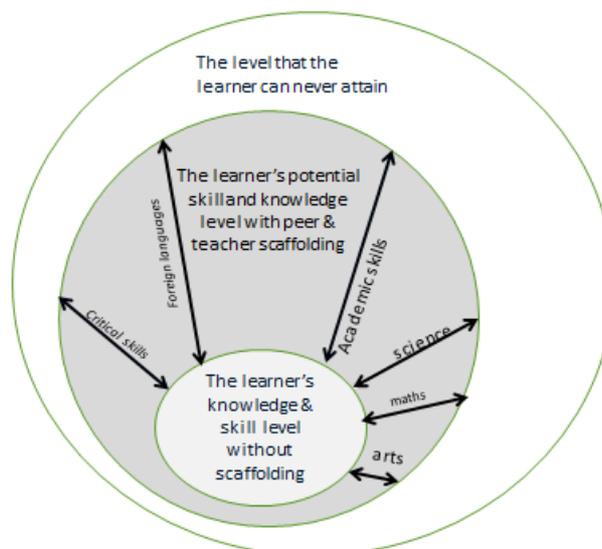
Figure 1. A Schematic representation of the notion of Zone of Proximal Development (ZPD) in an educational context (Gabillon & Ailincai, 2016).

The key terms used in the interactionist approach are: '*comprehensible input*', 'interaction hypothesis', '*collaborative interaction/dialogue*', '*negotiation of meaning*', '*output*', 'noticing' 'hypothesis testing' '*modified output*', and '*intake*'. Interactionist perspective to L2 learning takes its inspiration from Krashen's 'input hypothesis' (Krashen 1979, 1983) which explained that the primary condition for language learning is to understand messages (input). He named this phenomenon as 'comprehensible input'. In his input hypothesis, he maintained that in order for learners to progress, the level of the input should be 'i +1' ('i' represents the learner's language level, and +1 is the new input, which should be a little higher than the learners' actual level). L2 Researcher Michael Long insisted that the interactions that take place in L2 learning contexts should not be seen as "…one-directional source of target language input…" (Mitchell & Myles, p. 160, 2004). Long took Krashen's ideas further by proposing that attention should be paid to the interactions which occur between learners and proposed the 'interaction hypothesis' (Long, 1981, 1983). Long's interaction hypothesis (1981, 1983) claimed that "…L2 acquisition is facilitated when a communication problem arises that causes learners to try to resolve it …." (Ellis, 2012, p. 23). This process of modification and restructuring during interactions happening between peers is named as 'negotiation of meaning' (Long, 1981,1983). Swain referred to this process as 'collaborative dialogue'. According to her, collaborative dialogue "…is knowledge-building dialogue…" (Swain, 2000, p. 97) and modifications that are made within these collaborative interactions resolve communication difficulties (Ellis, 1991). Ellis and Barkhuizen defined the negotiation of meaning as "… the conversational exchanges that arise when interlocutors seek to prevent a communicative impasse occurring or to remedy an actual impasse that has arisen…) (Ellis & Barkhuizen, 2005, pp.166-167). Swain maintained that negotiation of meaning process aims to increase the comprehensibility of the interaction and meaning-making (Swain, 1993, 2000). She explained that during the negotiation process the learners use strategies such as repeating, rephrasing, and translating etc. that lead to the comprehension of the input. Nonetheless, she claimed that comprehension is not the sufficient condition for L2 learning and argued that there is a direct link between language use and language learning (Mitchell & Myles, 2004). Swain maintained that interaction provides not only comprehensible input but also the opportunity to use the language (output). She put forward a set of claims explaining that "…output pushes learners to process language more deeply…" (Swain, 2000, p.99). She also maintained that 'output' should be seen both as part of a communicative and cognitive activity. She formulated this claim as '*output hypothesis*' (Swain, 1985, 1993; Swain & Lapkin, 1995). Swain maintained that 'output' requires more cognitive effort than 'input' and it pushes the learners to progress. She added that during the

output learners may *notice* the gap between their interlanguage and the target language and may look for help to fill in this gap (help from peers or teachers—ZPD). This viewpoint sustains that learners apply a series of '*hypothesis testing*' procedures to test the accuracy of their interlanguage. This process helps them progress in their learning through the use of trial-error strategies and modify their input (intake). Having gone through this activity learners become aware of their problems, predict their needs, set goals, monitor their language performance, and to evaluate their success (Swain, Kinnear, & Steinman, 2011, 2015).

The principles of the aforementioned theories constitute the foundation of the current L2 teaching approaches. These L2 approaches are grouped under the competency-based language teaching (CBLT). The commonly known L2 teaching methodologies which fall into this category are: a) Action-based/oriented approach (AOA), b) Communicative Language Teaching (CBLT), c) Task-based language teaching (TBLT), d) Project-based approach, e) Content and Language Integrated Learning (CLIL) (Adler & Milne, 1997; Lier, 2007; Council of Europe, 2001, Richards & Rodgers, 2014). These L2 approaches respond to the key expectations defined in the Common European Framework of reference for languages, in other relevant Council of Europe publications (Council of Europe, 2001; European Commission, 1995, 2003, 2008; Eurydice Network, 2006) and the official texts published by the French Ministry of education. As the name indicates, these competency-based approaches aim to build skills and competencies that learners can transfer and use in other similar contexts. They all emphasize the primacy of face-to-face interaction in language learning and activities which focus on the successful functioning in society (i.e. to be able to use the language communicatively in real-life situations etc.).

This research study will also use the principles conveyed through the activity framework designed by Gabillon and Ailincai (2015b, 2016). The framework was designed through applying the ideas expressed in the sociocultural and interactionist perspectives. The aim of this framework was to provide teachers with some guidance in the conception of their L2 activities. (Gabillon & Ailincai, 2015b, 2016). The principles of this framework are presented in Table 1.

Table 1: Socially-mediated activity design for L2 learning (Gabillon & Ailincai, 2015b)

Socially Mediated Activity (SMA) Framework	
Collective mediation	• **SMA** views learning as an active and constructive process where learners collectively construct new information through collaborative interaction and joint attention
Joint attention	• **SMA** uses goal-directed activities which require learners to work together to fulfill tasks
Collaborative interaction	• **SMA** encourages natural face-to-face pair/group interactions. This type of collaborative interaction uses language as a means to exchange information and construct knowledge
Social artefacts & gestures	• **SMA** enables the use of artefacts and gestures to mediate learning
Experiential learning	• **SMA** provides learners with hands-on activities to enable learning through direct experience (e.g. laboratory experience, gardening etc.)
Naturalistic learning environment	• **SMA** allows learning to take place in naturalistic learning settings (e.g. laboratory experiments in labs, gardening in the garden etc.)
Active involvement	• **SMA** uses activities which necessitate each individual learner's active participation to complete tasks

CONTEXT

French Polynesia is an '*Overseas Territory*' of France (COM-- collectivités d'outre-mer) and the primary and secondary education implement the French National Curriculum. French Polynesia is a multilingual society where several local languages are used as home languages. Nevertheless, French is the only official language and the medium of school instruction. There are a hundred and seventy-two elementary schools scattered over five archipelagos, and because of their remoteness, these schools are not easy to coordinate (Gabillon & Ailincai, 2015a). In French Polynesia, elementary school teachers are generalist teachers, and they do not receive specialised primary level foreign language teacher education as part of their qualification (Gabillon & Ailincai, 2015a).

Between the years 2005-2017, several educational research projects were funded by both the French government and local authorities. These projects addressed to issues concerning plurilingualism and school instruction and

investigated the influence of bilingualism (French and the Tahitian language) on Polynesian children's school learning. These research activities concerning the importance of plurilingualism have provided the local educational authorities with useful information on Polynesian children's academic, cognitive, social and conational skills in a multilingual elementary school setting (Gabillon & Ailincai, 2015a).

During the PrEEPP project (2014-2017), more than 80 video-recorded data were obtained (from different subject lessons and parent interviews). From the EFL classes, all in all, 16 video-recorded lessons were collected. These recordings were gathered from the following archipelagos: Society Islands (6 lessons), Tuamotu Archipelago (3 EFL lessons), Marquesas Islands (3 lessons), Gambier islands (1 EFL lesson), and Austral islands (3 lessons). The corpora gathered during the PrEEPP initiative were vast, and the researchers have not yet completed transcribing and analysing processes.

RESEARCH METHODOLOGY
This research work is an interaction analysis study which used both comprehensive and descriptive statistics as analysis methods. The videotaped classroom corpus was transcribed, and the transcribed data were analysed by using a qualitative data analysis software ATLAS.ti. The results obtained were presented by using qualitative methods (e.g. extracts, comments etc.) and descriptive statistics (e.g. histograms).
The study aimed to: a) to discover common teaching strategies and techniques the teachers employed; b) to understand the influence of the teachers' actions on their learners, and c) to determine whether the teachers' teaching methodologies were in concordance with today's foreign language teaching approaches.

Participants & Data Collection
The present study focuses on EFL learning in this plurilingual French Polynesian context. The subjects involved in this study were four female and two male elementary school teachers with ages ranging from 32 to 45. These teachers had from 8 to 20 years of teaching experience. The video-recorded data contained 121 elementary school students' classroom corpora. The number of students in each class varied from 21 to 27 students. All of the participants were elementary school students between 7 to 11years of age and 1 to 3 years of English language learning experience.

Data Collection Method
L2 classes involve a variety of actions, and face-to-face exchanges and such incidents could not be easily captured and understood. Classroom-based research requires capturing linguistic, extra-linguistic and social aspects of classroom discourse (Dufon, 2002; Swann, 2001). This research work used video recording as a research instrument. When used as a research instrument video-recording provides researchers with a replicate of actual classroom happenings. Some of the advantages of video-recordings can be listed as follows: A) They capture both linguistic and social cues such as the language, turn taking, voice, intonation, and extra-linguistic elements such as gestures, body language and so forth. B) They provide permanent data which could repeatedly be replayed and studied. C) They help to distinguish different speakers. D) They provide visual information which contributes to clarifying verbal messages. E) They may help to identify observable emotions such as enjoyment, boredom, excitement, anger and so forth. F) They provide contextual information concerning the physical setting such as space, facilities, classroom arrangements, teacher movements, posture and so forth. G) They provide researchers with the complete account of the classroom exchanges (i.e. every word uttered and every action made is recorded).

Analysis Method
This study used interaction analysis method to analyse the video-recorded corpus. Interaction analysis is a widely-used method in SLA and Applied Linguistics research. This research paradigm enables researchers to capture and analyse a multitude of elements occurring during human interactions (both verbal and non-verbal). The analysis procedures entailed transcribing, coding, linking, comparing, grouping and interpreting.

In this study, the following procedures were followed. First, the videotaped corpus was transcribed paying attention to both verbal and non-verbal elements in the corpus samples. The transcriptions were made manually using a transcription notation adapted from the notation system offered by Jefferson (2004) (See Table 2). The transcriptions were then imported to ATLAS.ti software for analysis. The initial coding was performed through the use of open codes. The researchers studied each transcription closely and labelled the exchanges according to the functions they performed in the exchange. Then they labelled the codes mostly using the terms from SLA and Applied Linguistics literature. After the identification and labelling of the concepts, related ideas were linked and grouped. The researchers continued studying, linking and comparing processes until they formed consistent concept groups. Finally, the labelled concepts were reintegrated into higher level categories.

Table 2: Transcription notation used in the study (adapted from Jefferson, 2004)

Symbol	Name	Use
[italic text]	Square brackets	Indicates the start and end points of overlapping speech.
((*italic text*))	Double Parentheses	Indicates comments, translation, or annotation of non-verbal activity.
(italic *text*)	Parentheses	Indicates speech which is unclear or in doubt in the transcript.
…	Ellipsis	Short pause.
°	Degree symbol	Indicates whisper or reduced volume speech.
ALL CAPS	Capitalized text	Indicates shouted or increased volume speech.
underline	Underlined text	Indicates the speaker is emphasizing or stressing the speech.
:::	Colon(s)	Indicates prolongation of an utterance/ indicates a stretched sound.
(hhh)	Parentheses	Indicates laughter in the conversation/speech.
--	Dash	Indicates a break within a word.
=	Equal Sign	Indicates the break and subsequent continuation of a single interrupted utterance.

The insights gained through inductive analysis and comparisons were presented in the form of comments. The SLA and FLL research studies were also contributed to the shaping of the interpretations and comments. The researchers utilized extracts of significant episodes to illustrate vivid examples to support explanations. In addition to qualitative comments and inductive interpretations, a summary of results was presented using frequencies (e.g. histograms).

RESULTS

This section will present the results obtained through comprehensive and inductive analysis procedures. These results concerning the categories and the summary of results will be presented using of comments, tables, histograms, and extracts.

Categories

After intensive comprehensive and inductive analysis processes (e.g. repeated viewing of the video-recorded material, coding, linking, comparing, grouping etc.), the researchers grouped all exchanges under two major categories as '*Teacher*' and '*Learners*'. Other higher-level categories were grouped under these two main groups. The summary of results used these groups to explain the outcome of this research.

The SLA and Applied Linguistic terms were used to name the meaning and function of the teachers' and learners' utterances. These higher-level categories were formed through applying the qualitative analysis processes used in grounded theory, that is, the concepts were labelled, and then the categories were developed when the researchers discovered concepts on the same phenomenon (not all concepts became groups). This means that when a concept was named it was compared with other concepts for similarities and differences. Only the most grounded, pertinent, and thickest, categories became higher level groups.

The teachers' classroom exchanges were grouped into five higher-level categories according to their functions. These categories were named as T-Scaffolding strategies, T-Corrective feedback strategies, T-Problems related to L2 competence, T-Use of the Mother Tongue (hereafter L1), and T-Activity Types. Other lower level concepts which represented similar activities were assembled under these headings. Table 3 presents the categories and sub-categories grouped under the category '*Teacher*' (see Table 3).

Table 3: The category '*Teacher*'

T-Scaffolding Strategies	T-Corrective feedback strategies	T-Problems related to L2 competence	T-Use of L1	T-Activity Types
Checking understanding	Direct correction	Unattended problem	Use of L1 (Teacher)	Whole class (non-communicative activity)
Use of gesture and artefacts	Guided correction Recast	inauthentic language use		Group/pair work (non- or quasi-communicative activity)
Asking for repetition	Misleading correction	Incorrect language use		Group/pair work (communicative or real-life activity)
Asking for confirmation				
Asking for information				
Giving explanation				

Concerning the students, the categories that emerged through the analysis process indicated three large categories: L-Active Involvement, L-Passive Involvement and L-Use of L1 (see Table 4).   Other sub-groups which are linked with these groups were also collected under these three higher level abstractions.

Table 4: The category '*Learners'*

L-Active Learner Involvement	L-Passive learner involvement	L-Use of L1
Asking for confirmation /clarification	Reciting/performing	Use of L1
Asking for information	Repeating	
Disagreeing		
Free language use		
Giving explanation		
Peer feedback		

SUMMARY OF RESULTS
1) The number of exchanges and duration of each lesson

In this study, the analysed classroom exchanges were mainly in the form of simple repetitions or short question-answer type utterances. Only very few of the exchanges were learner initiated. This type of classroom exchange is known as *Initiation Response Feedback* (IRF).

The use of IRF patterns and whether they hinder or promote L2 development has been a subject of debate among SLA and FLL scholars. Many SLA researchers have argued that teachers adapt their classroom interactions according to the focus of the lesson. Some researchers maintained that IRF structure could be useful when the focus is on the 'accuracy'. However, many SLA studies have reported that the permanent use of such a teaching structure is unlikely to promote the communicative competence needed in real-life communications (Ellis, 2012).

These teaching patterns are easy to use and have control over the students because they proceed in an orderly manner and the teacher is the 'initiator' and 'knower'. This style of teaching restricts learner participation and does not allow trial-error possibilities. IRF is considered to be an unproductive instructional format that limits opportunities for L2 development, when becomes a routine classroom procedure (Ellis, 2012; Van Lier, 1991, 2008). IRF exchanges are not usual in communicative or task-based activities, which are primarily designed to promote face-to-face learner exchanges.

The transcribed corpus and video recordings illustrated that the language exchanges used in these six teachers' classrooms were short utterances through which the teachers initiated an exchange, asked a student to respond and then they followed up. Figure 2 presents the total number of exchanges occurred in each teacher's lessons and the duration of each lessons.
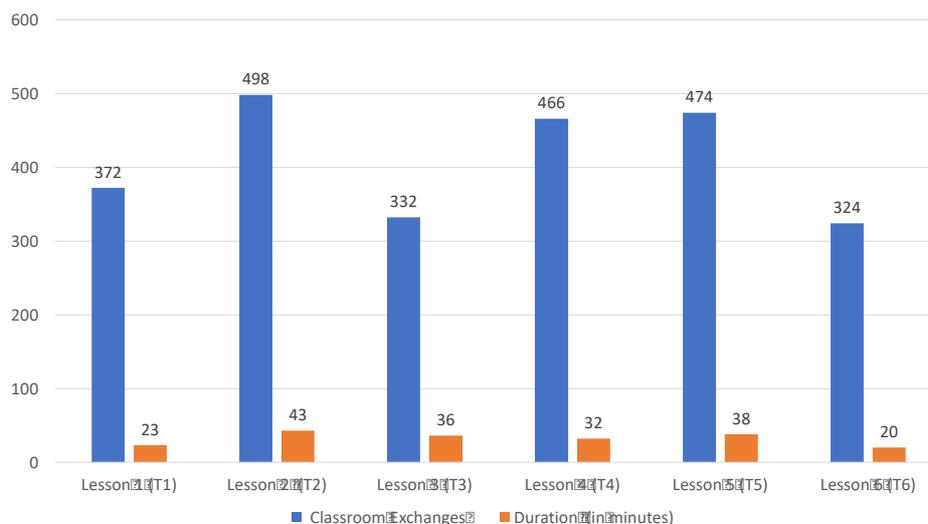
Figure 2: The number of exchanges and duration per lesson (T=Teacher)

Extract1 illustrates a series of repetition drill exchanges between *Teacher1* (T1) and the students. Because of space constraints the researchers included only part of these ubiquitous whole-class exchanges. Extract 2 is also a good example to characterise an IRF exchange. In this particular example, T1 attempts to elicit the correct language form through the use of an IRF pattern. Although the teacher attempts to involve other students in the corrective feedback procedures she fails to give a chance to the student to self-correct and she simply asks the student to repeat the correct language form (see Extracts 1 & 2).

👁 *Extract 1*	👁 *Extract 2*
(T=Teacher, Ss=Learners)	*(T=Teacher, Ss=Learners S=Student)*
T : Ball!	T: Is right?
Ss: Ball! *[Ball*]	Ss: Yes
T: Bicycle!	T: The ball is in? ((She uses a gesture to indicate
Ss: Bicycle! [*Bicycle]*	the position 'in'))
T: KITE!	Ss: On!
Ss: Kite! [KITE]	T: The ball is on! Stevens? Repeat!
T: Doll!	S1: The ball is on the table!
…..	T: Is good: ::::!
	T: ((The teacher shows another picture.)) …

2) The Use of L1 & L2 language exposure

The issue of L1 use in L2 language classrooms has long been a subject of debate in the L2 literature. Many scholars (although many of them agreed on the legitimacy of L1 in L2 classrooms) claimed that successful language learning requires extensive L2 input. (Chaudron, 1988; Ellis 2012; Turnbull 2001). Ellis (2012) explained that L2 learning is a slow and demanding process and unless learners receive L2 exposure, they cannot acquire it. Turnbull and Arnett's (2002) in their literature review about the L1 use explained that that in some learning situations L1 use can help teachers and peers to scaffold learning and to negotiate meaning. They also maintained that during collaborative tasks the learners' use of L1 facilitates interpersonal interaction and increase their efficiency.

Figure 3 illustrates the frequencies of L1 utilised both by the teachers and the students. The analysis of the corpus from six participant teachers indicated that four out of six teachers sustained L2 use throughout their lessons except for some short exchanges to fix misunderstandings, to give instructions or explanations, or to make a joke and so forth.
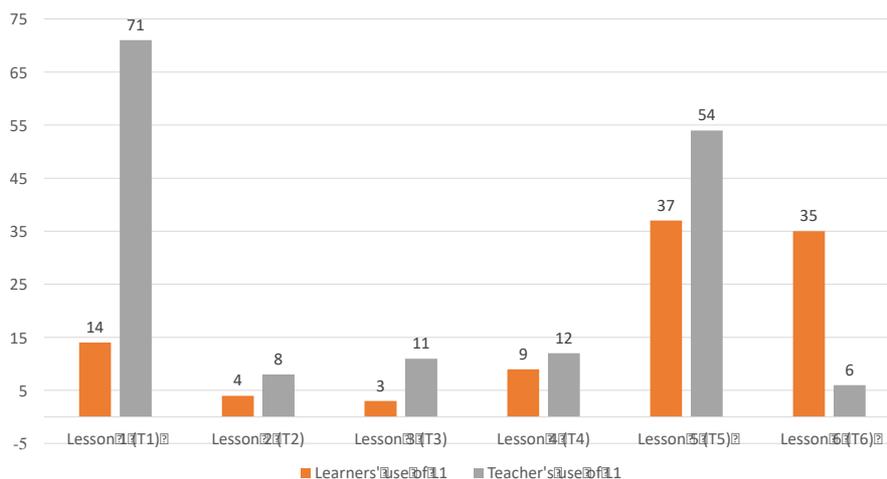
Figure 3: The use of L1 (teacher & learners) and the teacher's encouragement to use L2 (T=Teacher, E=Exchanges)

The analysis of the classroom exchanges showed that *T1* and *Teacher5* (T5) both used L1 extensively during their lessons. However, *T1* used L1 more frequently than the other five teachers. In many occasions the teacher's use of L1 did not seem to be necessary and the exchanges in L1 were particularly very lengthy (see Extracts 4 and 5).

💬 *Extract 3*	💬 *Extract 4*
(T=Teacher, Ss=Learners S=Student)	*(T=Teacher, Ss=Learners S=Student)*
S2: Sac, bag! T: Sac ((bag)), the bag. Tout le monde est d'accord ? ((Does everyone agree?)) ((The teacher writes the words in French and in English.)) Ss: Oui! ((Yes !)) T : Tout le monde répète ((Eveybody repeats)) : bag ! Ss: Bag! T : Autre chose peut- être! ((Perhaps another thing!)) T : Kahea? ((The teacher points to Kahea)) S9 : °°° (Unclear speech) T: Plus fort ma puce. ((Louder my heart)) S9: Table… T : Table! Est ce que c'est bon? (('Table' ! Is it correct?)) Ss: Oui! ((Yes!)) ((Some students keep their hands up. They are waiting for the The teacher to ask them to speak.)) T: Répétez ! table! ((Repeat ! 'table')) Ss : Table!	T: Bien! Poupée ((Well! Doll)), a doll! A vous! ((You!)) Ss: A doll! T : On passera à la prononciation ensuite. ((We will then proceed to pronunciation.)) T : Alors ! Yo ::-::yo? Alors ça pourrait être quoi ? Je ne fais pas le niveau difficile normalement le matin. ((Well! Yo::-:Yo ! What could it be? Normally, I do not do the difficult level in the morning.)) ……….. T : Allez ! On fait un petit rappel, ce ne seront pas long, on va voir si vous vous en rappelez. ((Come on, we (will) do a little revision, it will not be long, we'll see if you remember.)) T : C'était une des premières séances de l'année. ((It was one of the first sessions of the year.)) T : En français Yo-yo en anglais yo-yo. ((In French, it is yo-yo. In English, it is yo-yo)) ((The teacher writes the words on the board.)) T : En français puzzle en anglais puzzle ((In French, it is puzzle. In English, it is puzzle)) T : En français robot en anglais robot. ((In French, it is robot. In English, it is robot)) T : En français table en anglais table ! ((In French, it is table. In English, it is table))

T1's lesson was based on translating language items from English to French or vice versa. However, *T5* used L1 to give complex instructions, to explain the purpose of the task, to check understanding, to socialize with her students and to manage the class (see Extracts 5 & 6).

💬 *Extract 5*	💬 *Extract 6*
(T=Teacher, Ss=Learners S=Student)	*(T=Teacher, Ss=Learners S=Student)*
T: You will write the message to them. So, let's try today. T: Qui a compris là ce que je viens de dire? ((Who has understood what I've just said?)) Ss (some): En fait on va écrire une lettre. ((In fact, we will write a letter.)) T: By computer. Ss (some): On va écrire une lettre ! ((We will write a letter.)) T: By computer! …[S: J'ai déjà vue. ((I have already seen it.))] Ss (some): On va écrire un mail. ((We will write an e-mail.)) T: Can you repeat (Canny)? Listen! T: Calyssa, repeat, please ? S: On va leur envoyer un mail. ((We will send them an email.)) T: On va leur envoyer un mail. ((We will send them an email.))	T: So… Who is ready to write? Who is ready to write? ((She mimes meaning that they should write.)) T: Qui est prêt? Qui est prêt, déjà ? ((Some students raise their hands.)) Are you sure? T: Sûr? Sûr? [Unclear and overlapping speech.] S: Moi!° Moi!° [Me! Me!] T: Wait a minute…prêts ? (ready?) Can you…. Yes? Can you give me some example? ` Ss (some): Cochone ((Pig))? T: (hhh) aii aie non! T: So… Ss (some): On va regarder dans le dictionnaire! ((We will look it up in a dictionary.))

Regarding the students, the corpus indicated that in T5 and *T6's* classes the learners used L1 more that the students in other teachers' classes (except T5s class) (see Figure 3). In *T6's* lesson, the students were engaged in a group activity (the students were seven-year-old and most of the time the teacher was not present with the students). The close analysis of the learner interactions illustrated that these students were 'at task' 100% of the time and used L1 primarily to negotiate meaning, to give explanations to their classmates, to show disapproval, to imitate the teacher and so forth. All the activities they performed related to the task that they were involved in (see Extract 7). The students in T5's classroom, on the other hand, used L1 to show understanding, to ask for clarifications and so forth. However, they were not always 'at task' (see Extract 6).

💬 *Extract 7*
(S=Student)
S4 : Sais pas comment on dit les grands nombres. ((Does not know how we say big numbers))   S6 : (Addresses S1 by calling out her name.)   S1 : Sixteen?   S6 : Yes, very good ((Imitates his teacher.)). ((We do not see the teacher but we hear her giggles.))   S2 : Elle a dit 'six'…((She said six…))   S6 : Teen::: ((He confirms that she (S1) said sixteen and not six.))   S2 : Teen? ((Asking for confirmation.))   S6 : (Nods his head in agreement.)   Ss: … [Unclear overlapping speech]   S6 : Tiens! ((Take!)) (Passes the box of flashcards to S1.)

3) Scaffolding strategies used by the teachers

The results obtained illustrated that the teachers used main teaching and scaffolding strategies which are commonly used by L2 teachers. The researchers grouped these strategies under the following labels: 'Asking for clarification', 'asking for confirmation', 'asking for repetition', 'giving explanation', 'asking for information' and use of artefacts'. 'Asking for clarification' refers to a strategy that teacher employs to help learners make their meaning clear. The teacher may also use this strategy to check learners' understanding. The primary function of this strategy is to make sure that the learners have understood the phenomenon in question.

When used efficiently 'asking for clarification' strategy can promote active cognitive learner engagement and L2 development. The analysis indicated that this strategy was not very frequently used by the teachers (see Figure 4).

Figure 4: Scaffolding strategies used by the teachers (T=Teacher)

In this study 'asking for confirmation' refers to the teacher's request for confirmation to make sure that the learner means what s/he intends to say. However, in some cases this strategy may be used as a recast which is employed to direct the learner's attention to a mistake, and by asking for confirmation the teacher gives him/her the opportunity to correct himself/herself. These two functions are interrelated and sometimes it is difficult to separate one from the other. In this study, the researchers used the term 'asking for confirmation' to refer to both of these functions. The analysis revealed that this strategy was primarily used as a recast to indicate learners that they committed an error.

In L2 classrooms, functions of these teaching strategies may differ depending on the requirements of the situation and the intended purposes. For instance, 'asking for repetition' may take divers forms varying such as rote repetitions of words (see Extract 1 above), clarification requests to resolve misunderstandings, or asking for a repetition to hear well. In this research study the researchers defined 'asking for repetition' as a rote learning technique which is performed mechanically. The corpus illustrated that some teachers employed this strategy frequently (e.g. T1 and T3).

'Giving explanations' is the most commonly used and known teaching strategy. However, when it is used frequently and interminably this technique can lead to minimising useful Student Talking Time (STT). Some examples from T1 and T2's classrooms illustrated frequent and lengthy explanations, many of which could have been avoided through the use of examples, contextualising and the use of gestures or artefacts.

The category labelled as 'asking for information' means any form of request to obtain information or response from the students. This can be in the form of a simple question, elicitation, or brainstorming that necessitates a response from the learner. In the lessons the researchers examined, this strategy was predominantly used the get responses from the students. These, responses were predominantly in the form of short or on-word answers (T1 and T2).

The strategy 'use of gestures/artefacts' was exploited by all of the teachers observed. Mostly the teachers used this strategy to teach vocabulary items through the employment of flash-cards, PowerPoint slides, pictures, and objects. The researchers did not observe other creative use of artefacts and objects. Activities such as real-life tasks, the use of TPR, or artefacts and gestures to supplement instructions etc. were not observed in the analysed lessons.

The results also indicated that the learners were not encouraged to make use of artefacts and gestures to help them communicate, either. The learners were mainly encouraged to respond to the teacher verbally and non-verbal aspect of expression was very limited. Longitudinal SLA research studies have shown that young learners manifest a silent period at early stages of their L2 development (Ellis 2012).

Many applied linguistic researchers, recommend a variety of comprehension based Total Physical Response activities [TPR—Demonstration based L2 teaching method first introduced to the Applied Linguistics literature by James Asher (1969)] that encourage learner participation through the use of non-verbal response (through, demonstrating, drawing, acting, showing pictures etc.). Thus, supplementing verbal exchanges with non-verbal activities, through which the learners can participate, is highly recommended.

4) Corrective feedback strategies used by the teachers

Corrective feedback, that is, how teachers 'repair' their students' language errors, has been one of the most researched SLA topics (Ellis, 2009). Corrective feedback is an integral part of L2 learning and the methods teachers use to engage their students in this process influence the learners' L2 developments. How and how much should error correction be done, when should errors be corrected (immediately or delayed), who should do the correcting (teacher or students) have been the subjects of debates in SLA research (e.g. Ellis, 2009; Lyster & Saito, 2010; Russell, 2009 etc.). SLA research has maintained that repair (error-correction) can be used as a learning tool if it is not over done and when it is done efficiently. Recast (guided repair), that draws the learner's attention to a faulty language output, is viewed as an effective strategy to help learners notice the gap between their language production and the target language form. This strategy is known as an implicit error correction technique, through which the teacher encourages the learner to self-repair. The recast technique may also be used to encourage peer correction if the student cannot manage to self-repair. Direct correction technique, which was widely used in former L2 methodologies (Audio-lingual method—based on the behaviouristic approach) is no longer recommended by current L2 teaching pedagogies. During corrective feedback, it is also important that the purpose of the correction is understood by the learner (that the correction should not be misleading).

The results the researchers obtained through the analysis of the video-recordings and the transcriptions indicated that the participant teachers had the tendencies to use guided repair strategy (see Figure 5). However, on some occasions the teachers did not manage to make their purpose clear to their students. On some other occasions, the repair strategy the teachers employed was not clear because they were not sure about what exactly the error was or how to repair the error (which resulted in misleading corrections).
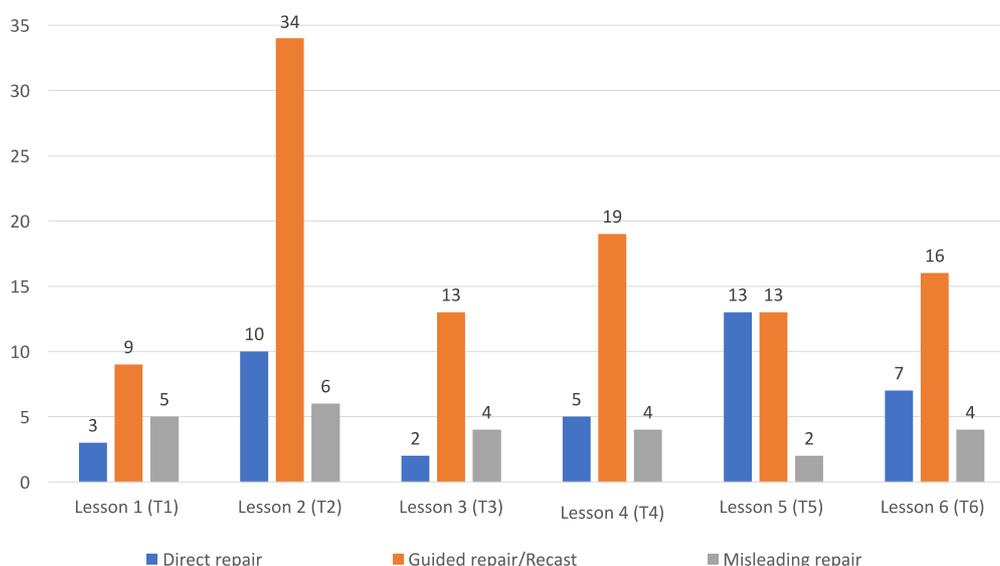
Figure 5: Corrective feedback strategies used by the teachers (T=Teacher, E=Exchanges)

5) Problems related to the teachers' L2 competence

As mentioned earlier, in French Polynesia, elementary school teachers are generalist teachers and they do not receive specialised primary level foreign language teacher education as part of their qualification. However, all elementary school teachers are expected to have competence level B2 (upper-intermediate level that corresponds to the reference provided by the Common European Framework of Reference for Languages--CEFRL). The results obtained from this study indicated that the teachers had some L2 difficulties (see Extracts 8 & 9).

💬 *Extract 8*

(T=Teacher)

T: Look! Now:: close your eyes /aɪsəs/……..Close your eyes! /aɪsəs/ ((She mispronounces the word 'eyes'.))
   ((Children close their eyes.))
T: Close your eyes! /aɪsəs/ Hei! ((She mispronounces the word 'eyes'. She looks around to check.))
T: Frederic et Faratetama ((Frederic and Tomatetama)) … close your eyes/aɪsəs/!
T: Open your eyes /aɪs/! ((She pronounces eyes correctly.))
T: Open your eyes! /aɪsəs/ ((She mispronounces the word 'eyes'. She picks one of the pictures from the
   board.))

These L2 competence related problems were grouped under the following headings: a) incorrect language use (e.g. mispronunciation, wrong word choice, wrong use of language structures etc.); b) leaving the problem unattended (not knowing how to correct an error or how to respond to a student's answer etc.); and c) inauthentic L2 use refers to the language use which does not comply with the authentic/natural native speaker use of the target language (e.g. unnatural language such as translation of French expressions into English etc.).

💬 *Extract 9*

(S= Student, T=Teacher)

T : Ehhhm….The other… you please…will make an exercise, Okay? ((He uses the wrong verb 'make' with
    the word exercise))
Ss (some): Exercice?? ((Exercise?)) [Unclear and overlapping speech.]
T: Tumuhai, Miranda (Unclear speech). You work with me Okay? The others…You make… You will make
    an exercise. ((He uses the wrong verb 'make' with the word exercise))
Ss: On va faire un exercice. [We will do an exercise.] [Unclear and overlapping speech.]

Inauthentic language use could be linked to language transfer or other cultural contextual influences. In general, these detected problems were minor and did not seem to be causing any harm to the learners' L2 development. However, the same types of mistakes were recurrently observed in almost all of the participants' discourse. Thus, this problem, despite its trivial nature, reveals to be an issue to consider in elementary school teachers' initial teacher education programme (see Figure 6).
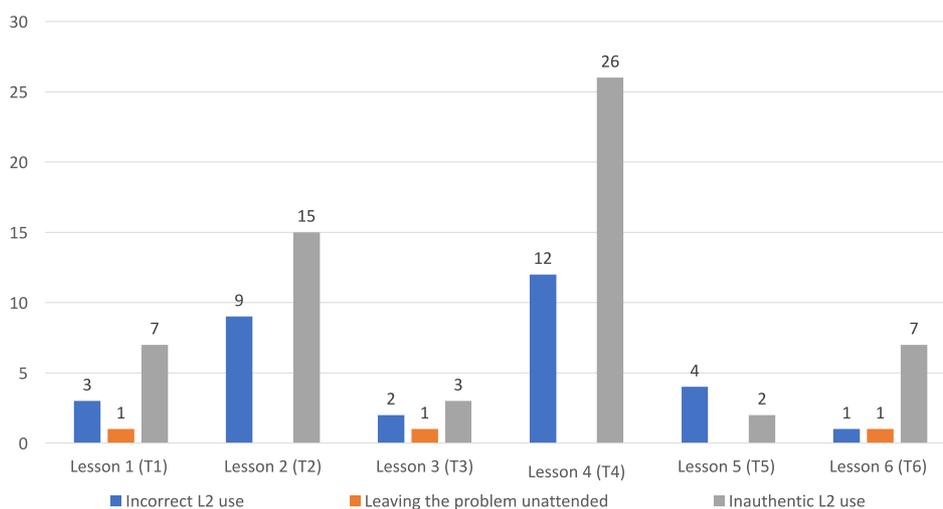
Figure 6: Problems linked to the teachers' L2 competence (T=Teacher)

6) Learner Involvement

Issues concerning learner engagement in L2 classrooms have been the central topic in diverse SLA debates and research activities. Research in this area has focused both on the issues concerning learner participation, Teacher Talking Time (TTT), Student Talking Time (STT), teacher & learner interaction types, learner & cognition, learner initiation, classroom task types and so forth (Ellis,2012; Lier, 2007; Long, 1981,1983; Swain, 2001; Van

Lier, 2008). The common point of these studies was learners' active engagement in their own L2 learning. It is now a common belief that active learner engagement is the key to L2 learning. However, it should be noted that learner participation using IRF structure, using mechanical repetition drills should not be considered as active learner engagement. Other, oral teacher-learner productions, which are the results of short question-answer type interactions, should not be mistaken for active learner participation. The results obtained from these six elementary school teachers' lessons indicated that these teachers (except T6) involved their learners in IRF type interactions based on short oral teacher-learner exchanges or mechanical repetition drills (see Figure 7).
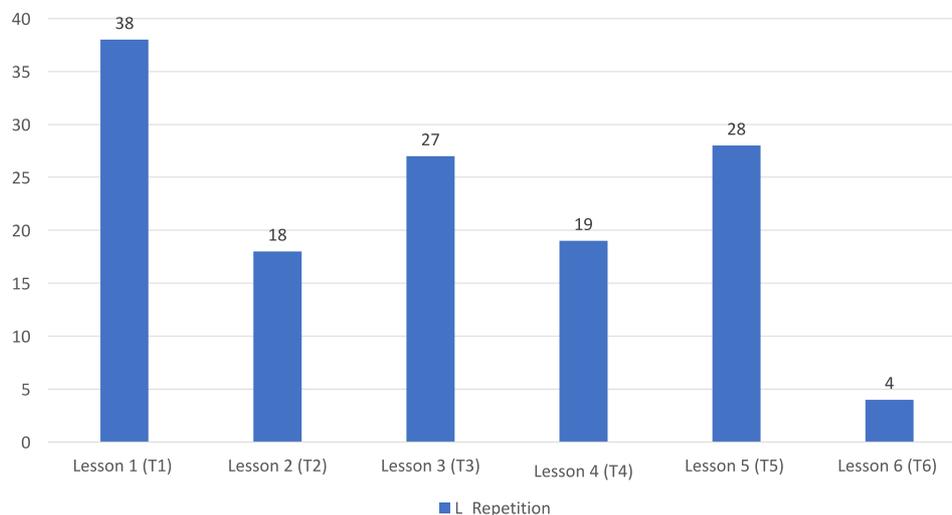
Figure 7: Passive learner involvement (T=Teacher, L=Learners)

Only T6's classroom contained some elements which favoured active learner engagement (see Figures 8 & 9). The results from the interaction and video-recorded material analysis illustrated that the students in T6's class were more actively engaged in their learning than the students in other teachers' classrooms. In this classroom, the students had the opportunities to collaborate with each other and engage in negotiation of meaning (i.e. asking for confirmation, clarification, giving explanations, disagreeing, giving feedback). The students were arranged in a group of seven students and the task given to them afforded the learners the opportunities to be actively engaged in L2 learning. Extract 10 represents a good example for negotiation of meaning taking place between three students in T6 class. These students were seven years old had only a year of L2 learning experience. Their task was to take cards from a box, read maths operations to their classmates and ask each their classmates to give the answer.

💬 *Extract 10*

(S= Student)

S7: ((Takes a flashcard from the box)) Fifty-one minus nine.
S6 : Is…
S 7 : Je sais! ((I know!)) ((She raises her hand, turns her head and looks for the teacher.))
S 7 : Sixty…
S 6 : Mais non! Moins! On a dit moins…((No, we said 'minus'.))
S 6 : On a pas dit "plus"! ((We did not say 'plus'.))
S 6 : Fifty…Fifty-two! Fifty-two!
S 4 : Quarante! Quarante! ((Forty ! Forty !))
S 7 : Forty-two!
S 6 : Non, FORTY-TWO! Forty-two!
S 7 : J'ai dit avant toi.((I said it before you.))
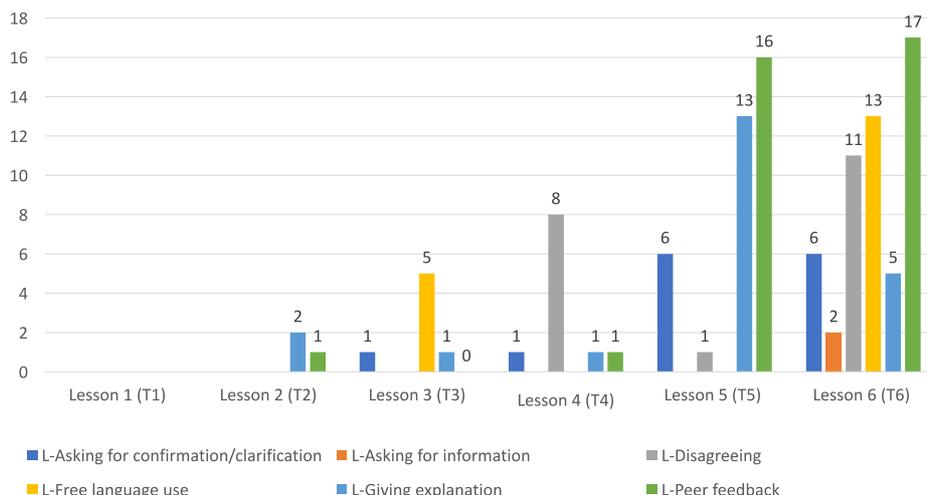
Figure 8: Active learner involvement (T=Teacher, L=Learners)

A number of studies have reported that small group activities help learners produce not only a greater quantity of language and but also better quality language compared to learners in traditional teacher-oriented classroom settings (Ellis, 2003, 2012; Lier, 2007; Long 1981,1983).   Group work also provides learners with the opportunities to negotiate for meaning when a communication problem arises. These studies maintained that group work can offer interactional conditions that facilitate L2 learning more easily than interactions involving only teacher-student exchanges.

Figure 9 displays that the five teachers out of six favoured non-communicative activities (i.e. mechanical activities) over activities based on real-life needs. The results also suggest that these teachers (except T6,) spent more time performing whole-class IRF than group activities that promote interaction and language production (output).
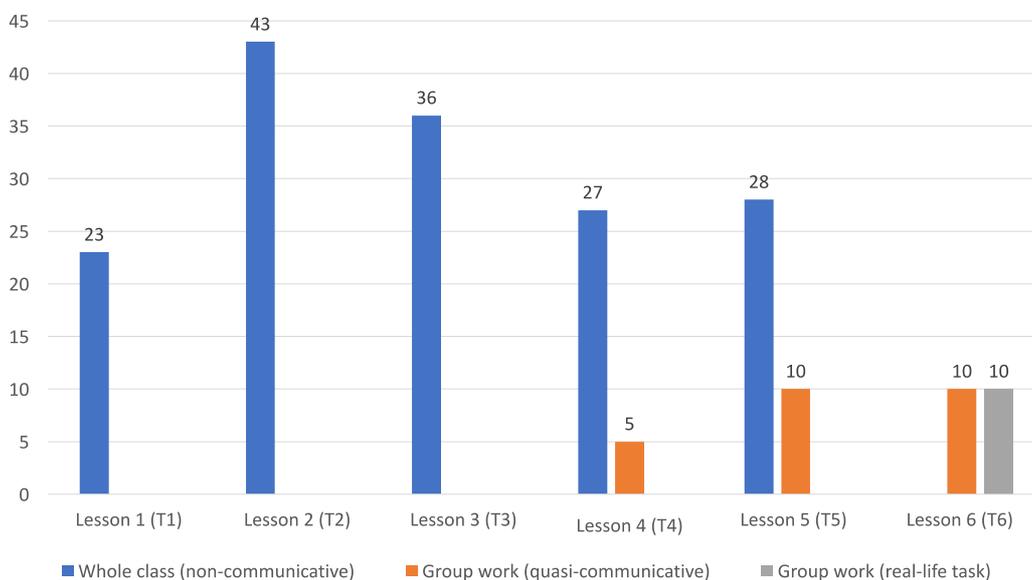
Figure 9: Activity types used in minutes (T=Teacher)

CONCLUSION
Several studies have reported that understanding messages conveyed by the teacher or engaging in controlled teacher-fronted mechanical activities (e.g. repetition drills or question-answer exercises) are not the sufficient conditions for learners to lean an L2. It has been repeatedly reported that face-to-face small group interactions through which learners engage in cognitive activities provide the necessary conditions to use and improve L2

learning.   The summary of the results showed that among these six teachers only T6 used group work activities through which the learners could engage in negotiation of meaning and free, learner initiated language production.

In this study, the analysis of the learners' and teacher's classroom interactions displayed that, although the teachers used various forms of scaffolding and feedback strategies, the following points required consideration:

- The roles the learners played in the classroom were predominantly passive.
- There were very limited real-life exchanges and group-work activities.
- The activities that the learners were provided with did not encourage cognitive learner engagement.
- The learners were primarily provided with IRF interactions.
- The majority of the exchanges were in the form of simple repetitions or short question-answer type exchanges. Few of the exchanges were learner initiated.

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UTİLİSİNG THE CAPABİLİTY APPROACH TO EVALUATE FİNAL-YEAR STUDENT TEACHERS ACHİEVEMENT İN INDONESİA

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ABSTRACT
Students in bachelor degree in education have been criticised as lack of pedagogical and professional competences which causes poor teacher quality in Indonesia. Drawing on a recently completed Master's degree research, this paper attempts to explore what students are able to do and to be in the end of four-year bachelor degree in education by using the Capability Approach concept. Qualitative data from semi-structured interviews with four student teachers in a teacher education institution will help to contextualise this framework and present thick description of their experiences and beliefs. By exploring student teacher perspectives through the capability approach lens, it is expected that a broader understanding of teacher candidate performance might be gained for further preservice teacher education development.
Keywords: Initial teacher education, preservice teachers, capability approach, qualitative study

INTRODUCTION
The importance of teachers' role in providing quality education has been overtly stated by the Government of Indonesia, however, concerns about the quality of initial teacher preparation for aspiring teachers continue (MoEC, 201, 2015; MoRTHE, 2015, 2016; Chang, et al., 2014). The Indonesian Government has been endorsing a postgraduate teacher certification programme in order to improve the preparation of preservice teachers (MoRTHE, 2016). This arrangement allows any bachelor degree graduates to be teachers by obtaining teacher certification is known as consecutive teacher education, with emphasis on four teacher competences of pedagogy, professionalism, social and personal. Research in Indonesian context has widely situated bachelor degree in education or in a concurrent teacher education programme has not been able to produce teachers with sufficient pedagogical and professional competences (Zein, 2016) and lack of motivation as well as self-efficacy to teach (Kuswandono, 2014a, 2014b). These bodies of research are mostly missing a comprehensive evaluation of student teachers' performances. It seems obvious to state that a didactic teacher education programme curriculum contributes to low competences and motivation, but what other aspects that relate to student teachers' achievement in their degree has been missing in previous studies.

Therefore, this paper utilises the Capability Approach to investigate broader potential factors that affects what aspiring teachers are able to do and to be. It will review relevant literature that discuss preservice teachers' performance and then it will use the Capability Approach to provide an alternative interpretation of these, particularly regarding to how they relate to individual professional capabilities. Data gathered at a faculty of education in a private university in a sub-urban area of Java Island, Indonesia, will be used to contextualise the state of student teachers in Indonesia and this will then be critically analysed within the Capability Approach to demonstrate the supporting and constraining factors that influence what student teachers achieve. This analysis is purposed to articulate what are student teachers valued as important beings and doings for becoming future teachers and what are the factors behind these beings and doings. Moreover, it is also expected that by reframing student teachers' perspectives in this way, a more nuanced understanding of preservice teachers might be gained for prospective improvement in initial teacher education development.

Depiction of Student Teachers in Indonesia
Before the review of literature about student teachers in Indonesia is presented, an overview about Indonesians diversity due to spatial and cultural characteristics will be the backdrop of this study. Indonesia is the largest archipelago country (17,504 islands) and the fourth most populous country (over 250 million people) (BPS, 2017). Indonesia is also one of the most diverse country with 643 vernacular languages, 1,300 ethnicities and six official religions (Islam, Protestant, Catholicism, Hinduism, Buddhism and Confucianism) (BPS, 2011). These complex diversities later can be seen emerging within the student teachers' bodies, such as in personal innate characteristics, interest, spatial and sociocultural circumstances.

It is difficult to generalise the student teachers' characteristics in Indonesia. The Ministry of Research Technology and Higher Education statistics (2017) record approximately 1.2 million students in bachelor degree of education (out of 6 million students in all bachelor degree level) enrolled to various teacher education programmes in private institutions (3,083 programmes) or public institutions (1,437 programmes) which are distributed in 34 provinces. Despite the doubled number of private teacher education programme choices, public institutions (692 thousands of students) are still favourable rather than the private institutions (595 thousands of students). In addition to that, each university has autonomy to set own standards of education which referring to the national standards, thus are no typical initial teacher education programmes in Indonesia.

Hence, there are broad literature that discourses what student teachers are able to do and to be in different backdrops of institutional settings or time framing. Most of previous studies contextualise the research related student teachers either in a specific teacher education programme, a particular teacher education institution or several teacher education institutions in the same province. Consequently, they tend to suggest for analytical generalisation to what the study discovered. But still, certain performance of student teachers is often cited as constitutive of unprepared teacher candidates such as lack of pedagogical content knowledge (Zein, 2015), lack of reflective skill and having weak intrinsic motivation to be teachers (Kuswandono, 2014). Kuswandono (2014) found student teachers' choice tend to be influenced by external encouragements from parents and/or teachers as well as prospectus settled career. Contrast to that study, Afrianto (2014) and Tustiawati (2017) found in different context of research in Riau and Bali province respectively, preservice English teachers had altruistic and intrinsic motivations in becoming teachers such as interest to work with young kids and enjoying teaching. These studies are realistic and imperative to count student teachers' voices which often being neglected in understanding their choices. Yet, these stories have not been able to connect the implication of those motives to what student teachers are able to do and to be in professional settings. Thus, there is a need for a framework that can describe and analyse the not only the personal motivations behind actual achievements as student teachers in the end of their teaching preparation in bachelor degree level, but also further exploration to other contextual factors that impinge student teachers' pursuit of professional capabilities as aspiring teachers.

The Capability Approach: Defining Professional Capabilities
The Capability Approach is a broad interdisciplinary evaluative framework that introduced by a philosopher and an economist Amartya Sen (1999) (Robeyns, 2005b, p. 191). Sen (1999, 2009) aspires this framework initially to complement human development evaluation measurement beyond merely income. Sen (1999) argues, human beings are unique because of their innate abilities, interest and talents, therefore a normative paradigm has to ground the assessment of the quality-of-life. This breadth of diversity is elaborated as conversion factors which comprise personal, social and environmental elements that can support or constraint individual pursuit of capabilities (Robeyns I. , 2005a). Capabilities itself is a set of real freedom or opportunities to achieve certain beings and doings that they value as important (Nussbaum, Creating Capabilities: the human development approach, 2011, p. 18). Furthermore, an individual ability to make choice or agency is critical to the achieved functionings as illustrated in Figure 1.
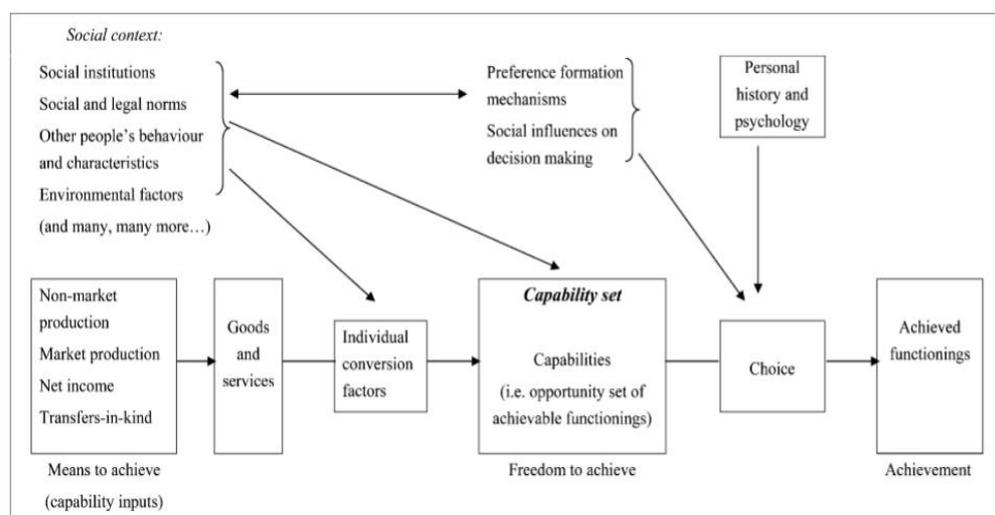

Figure 1 The Conceptualisation of Capability Approach (Robeyns I. , 2005a, p. 98)

In the past decade, a growing body of literature apply this framework, not only to evaluate public policies but also various organisations practices as a comprehensive evaluation method (Alkire, 2005). Theoretically the conceptualisation of capabilities is closely related to human rights paradigm because it is rooted on individual entitlement, therefore it can be both supplementation and critique reciprocally (Nussbaum, 2011, p. 24; Sen, , 2005; Robeyns, , 2006). However, Martha Nussbaum (2003, 2011) critiques The Capability Approach which is endorsed by Sen., due to the absence of the fundamental list of capabilities in Sen's approach. In which, Nussbaum argues it conveys potential inequality in collective sphere (Robeyns, 2005b). Nevertheless, this study is still drawing on the democratic version of Capability Approach by Sen (1999) which allowing individuals to articulate what they are able to do and to be within their context to gain a rigor and rich understanding. Therefore, the expression of agency in individual decision making is the key to this approach.

Scholars concord, education from the Capability Approach lens has not only the instrumental values as means to multiply capabilities but also encompasses intrinsic values as the goals of education itself (Sen, 1999; Unterhalter, 2013; Robeyns, , 2006). In broader perspective, Chiappero-Martinetti & Sabadash (2014) demonstrates education as the (1) means, (2) conversion factors, (3) ends of capabilities development. Drawing to the higher education context where this study concetrates, Walker and McLean (2013) operates university education as professional education which prepares students to contribute in the society, particularly to poverty-reduction. Although Walker and McLean (2013) case-study context is in South Africa is different than this study which is in Indonesia, some applicable ideas of how the framework was operated can be referred in the analysis. Walker and McLean (2013, p.2) work sheds the light to various potential normative public-good professional capabilities that are acquired through university education such as (1) knowledge and skills, (2) informed vision, (3) affiliation, (4) resilience, (5) social and collective struggle, (6) emotional reflexivity, (7) integrity and (8) assurance and confidence. These professional capabilities are shaped by a set of educational arrangements at departmental and university level, which are influenced by social, economic, political, cultural, and historical factors (Walker & McLean, 2013, p. 2). Bearing in mind these notions of professional capabilities in a general higher education context, how different students use their agency lead to various achievement depend on their their programme or specialisation are expected to be captured in a more nuanced yet specified manifestation of professional capabilities in teacher education contexts.

This study operates the Capability Approach to understand student teachers' pursuit of professional capabilities, therefore a linkage to existing literature about teachers will be also discussed due to the underexplored focus in student teachers. Alison Buckler's (2015b) work in quality teaching in Sub-Saharan Africa provides a good example of how professional capabilities notion is applied in understanding teachers' work. Buckler (2015b) suggests that evaluating teachers' agency can help the study to explore beyond a set of teachers' competences that most of governments demanding. In a broader literature, a work of Priestley, Biesta and Robinson (2015, p.29) about teacher agency suggest a correlation to what teachers perform as achievement of their agency. Although their work mainly referring to the context of in-service teachers and not using the Capability Approach, Priestley, et al., (2015) study is still helpful to contextualise the abstract idea of agency in the professional capabilities for teacher candidates which this research is aiming for. Priestley, et al., (2015) endorse the model of the achievement of agency is undoubtedly influenced by professional and personal experiences. Priestley, et al., (2015, p.30) add in the real world, agency can be restricted or reinforced by cultural, sociostructural and material circumstances. As the issue of student teachers' capabilities is still underinvestigated in the research in Indonesia, specifically on how student teachers articulate constraining and supporting factors that they experience, this research attempts be receptive to these aspects.

METHODOLOGY

For the purpose of understanding student teachers' professional capabilities, empirical data were collected from the Banten province within last two weeks of May 2017 at one suburban private university. A sequence of obtaining access and consent from the university and participants were done as a part of author's dissertation fieldwork. In-depth interviews were conducted as the data collection method (Robson, 2011; Miles, Huberman, & Saldaña, 2014). All interviews were conducted in Indonesian language for half to an hour length, audio-recorded, transcribed and translated into English. The findings in the next section will be presented anonymously, therefore each student teacher's narrative will be labelled in number. These steps are time-consuming, yet it is important to familiarise with the data before it is analysed (Robson, 2011).

Four voluntary participating student teachers were recruited with combination of different study programmes (Biology, Primary, Mathematics and Economics), gender (two women and two men) and sociocultural background to add the breadth and richness of the data to the study (Table 1).

However, all four student teachers had similarities in cohort of study (2013-2017), age range (21-23 years old), religious affiliation (Christian). Furthermore, greater homogeneity in institutional context such as holding full-ride scholarship with binding-contract, compulsory modules (religion, citizenship and Indonesian language), educational modules (Pedagogy 1-3, Curriculum Development, Study Skills, Teaching and Learning Theories, Psychological Education, Methods in Educational Research, Practicums), Theological modules and Thesis. Within this backdrop, a potential take-away from this study should be done analytically. Lastly, a thematic analysis was implemented to examine the data themes for in-depth analysis from the four student teachers by operating the Capability Approach in the following sections.

Table 1 Description of the Participants of This Study

Student teacher	Programme	Gender	Place of origins
1	Economics	Female	Banten Province
2	Primary	Female	Maluku Province
3	Biology	Male	East Nusa Tenggara Province
4	Mathematics	Male	Riau Province

FINDINGS

This finding section will draws on democratic way of defining capabilities from each student teacher's description of what they are able to do and to be as important to become good teachers in a *thick description* (Miles, Huberman, & Saldaña, 2014). Then in next discussion section, four major themes of student teachers' narratives of their professional capabilities.

Student Teacher 1 (ST1)

ST1's main motives of becoming teachers was only because the university close to her parents' house because her parents did not allow her to commute or stay far away from them. Although her family perceive teacher has a low social status and financial prospects, she decided to do so considering the benefits of the scholarship programme which can decrease parents' financial burden and opportunity to move out from her parents' house. Gradually, ST1's family turns to be supportive and encouraging her in her study. ST1 believes it is important for her to be a good role model for her future students because she was inspired by her former elementary teacher and her thesis supervisor who were so dedicated. "…If I want to be followed by my students, I have to begin with myself…". ST1 also acquires organisational skills through her experiences in university organisations. ST1 believes her teaching practices experiences help her to be able to have a broad knowledge which enables teachers to stimulate students' creativity and to design constructive consequences. Also, practicum experiences help her in developing her confidence in teaching. Additionally, ST1 exercises her reflective skills through theological and biblical classes which are included in the institutions' curriculum.

Student Teacher 2 (ST2)

ST2 has been aspiring to be a teacher since she was at school. ST2 believes her curiosity and assertiveness help her to developing a holistic and broad content knowledge and pedagogical skill. ST2 values integrity as the most important thing to be a teacher due to her bad experience with apathetic teachers at school. "Honestly, when I was at school, I felt different about teachers that I learn here. Because my teachers were mostly left school after lessons. They did not wait until the school was dismissed…for most of the time, the lessons were not for learning because the teaching was stick to the textbook so that were did not understand what she taught. We were self-studied at home, otherwise we would struggle for exams". ST2 believes what her teacher mentor in teaching practicum emphasised about building community in the classroom to make students feel accepted.

Student Teacher 3 (ST 3)

ST3's intention to be a teacher was influenced by his teacher at his senior secondary school. ST3 believes education can break poverty, yet he often feels having a low self-esteem due to his low economic background. ST3 believes his openness to receive critiques and learning new things will help him to adapt in various communities. ST3 brings regularly how his teaching practicums helped him to prepare in pedagogical and content for teaching. ST3 gains his confident which he was not owned at the first practicum. ST3 attempts to integrate his faith and subject matter in teaching as well as giving a pastoral care. "I felt how is being a teacher. that experience helps me to prepare myself when I have my own class. I understand the real feeling to teach. How to handle misbehave and alienate students…. after a while he realised that his choice was wrong… he got that holistically, content and spirituality... he finally changed and wrote a long letter to apologise and thank me. He felt his life was changed by me and he was rebuked by me...".

Student Teacher (ST 4)

ST4's family monetary crisis was the main consideration of his taking the scholarship offer to be a teacher. ST4 admits he has a low self-esteem due to his experience of being rejected with other ethnicity and religious affinities. Even though ST4 had a good intention to ease his family burden with the scholarship offer, his family perceived teacher as a low paid profession. ST4 admits his family is still money-oriented ones. ST4 believes a teacher must have a passion to teach, he admits he was inspired by one of teacher educators who showed dedication in teaching. ST4 values every interaction with his peers and TEs as well as students and teacher mentor in teaching practices help him to deal with diversities. Further, it helps ST4's to develop personal confidence and his professional confidence. "I am quite confidence with my ability to deliver materials, designing rules and procedures in a classroom so that students will listen to me. I am confident enough because of teaching practices. I am pleased and confident that I will teach well in the future".

DISCUSSION

As discussed previously, the Capability Approach can be operated to evaluate comprehensively the factors that affect individual's effective opportunities to achieve what they value as important. In this case, what student teachers think as important to be achieved aspiring teachers are often caused by multiple factors that stimulating or contending their potential functionings. Following subsections will highlight professional capabilities that expressed by the student teachers from the interview which may contrast and/or underpin the preceding study.

BECOMING A ROLE MODEL

A profound notion of a teacher as a role model is demonstrated by all student teachers who participated in this study. In glimpse, student teachers refer the significance of being a role model from the Javanese words of wisdom, teacher is respected and imitated (*guru digugu dan ditiru)*. A seminal work of Walker and McLean (2013), becoming a role model is nuanced to the importance of having knowledge and skill, also integrity in words and deeds. When this capability is explored thorough, interestingly, ST1, ST3 and ST4 associate their aspiration to be a role model for future students from some inspiring teachers, while ST2 expressed different reason. "…I felt the most important thing that I do not want to be a teacher like them (her teachers at school). I want to be a teacher who really teach and following every regulation so that my students could imitate me" (ST2). Contrast to other responses, ST2 reflects her bad experience in the past and converts this to be a supporting professional capability in becoming a role model for her future students. These various personal responses from the student teachers demonstrate the underlying assumption that Sen (1999) and Robeyns (2005) suggest in the Capability Approach that human beings are diverse. Furthermore, conversion factors as illustrated by Robeyns (2005) in figure 1, social conversion factors such as student teachers' relationships with their teachers and lecturers can be supporting element to their pursuit of professional capabilities.

HAVING A CONFIDENCE

Some responses from the student teachers indicate that having a confidence to teach is essential in their trajectories in becoming teachers. "…some of them said they enjoyed when I was teaching. This made me have more confidence to teach" (ST1). Similar response came from ST4, "I am quite confidence with my ability to deliver materials, designing rules and procedures in a classroom so that students will listen to me. I am confident enough because of teaching practices. I am pleased and confident that I will teach well in the future" (ST4). These expressions connect to what Walker and McLean (2013, p.2) inform about confidence as one of the professional capabilities. When they were asked further in the interviews, they refer to the doubt from families about financial prospects in becoming a teacher, however the teaching practices stimulate this capabilities. Therefore, teaching practices as education arrangements perform as means to achieve their professional capabilities (Walker & McLean, 2013).

DEALING WITH DIVERSITY

A prompt and honest response from ST4 who experienced being rejected by peers at school found that dealing with diversity is pivotal in becoming a teacher, particularly by realising that in the future as a teacher, he will work with diverse students and colleagues. "I have been equipped how to interact with people from different background than me…I feel satisfied with my development during more or less four years in this institution. Initially, I was so afraid to reproach people even for a good intention. I am brave enough to express my thoughts or my disagreement so I am not keeping it by myself" (ST4). As Priestley, et al., (2015) underpin about the idea of teacher agency, that social relationship influence student teachers to exercise their agency. In Walker and McLean (2013), the capabilities to deal with diversity relates to individuals' emotional reflexivity and social struggles. And even though this ST4's personal experience constrained his personal capabilities in the past, his aspiration to shift his fear to interact with people brings the fact that his experience in building relationship througout the study help them to achieve this professional capabilities.

CONCLUSION

If student teachers' capabilities are defined as achieving what they value as important to do and to be, then this article has offered bottom-up expression of student teachers' professional capabilities which is rarely measured formally and qualitatively. By investigating student teachers' pursuit of professional capabilities, this paper unpacked the factors that affecting what they are able to do and to be during their study. Moreover, by exploring student teachers' perspective, this paper also revealed that student teachers may have been able to achieve competences that the Indonesian government set for in-service teachers. Operating the Capability Approach to evaluate student teachers' capabilities also revealed that the idea of freedom has not been able to be articulated yet, they recognise it through the idea of effective opportunity.

Generally, student teachers' capabilities are evaluated through module or final grades, postgraduate in teacher education profession national selection or job application, the focus is still the competences without considering the process of achieving that outcomes. The factors behind student teachers' achievement is under-investigated in the broader debate around teacher quality and education quality, thus, the Capability Approach can unpack this process. Finally, regardless the small-sample of this research, this paper can be an example how this framework is applied to understand student teachers' capabilities.

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UZAKTAN EĞİTİM İLE VERİLEN TÜRK DİLİ VE EDEBİYATI DERSİNİN ÖĞRENCİ MOTİVASYONUNA ETKİSİ

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ÖZET
Klasik öğrenme faaliyetlerindeki yetersizlikler sebebiyle sınıf içi çalışmaların mümkün olmadığı durumlarda, hızlı iletişim kurularak uygulanan, öğrenci merkezli bir öğretim sistemi olan uzaktan eğitim, ders öncesinde hazırlanan ünitelerin elektronik ortamlar kanalıyla eğitim veren ve alan kişiler arasındaki iletişimle belli bir merkezden sağlandığı popüler bir eğitim aracıdır. Bu çalışma, uzaktan eğitimin açıklanmasıyla üniversitelerde verilen Türk Dili dersinin öğrencide oluşturduğu algı ve motivasyona yer vermektedir.

Tüm dünyada olduğu gibi ülkemizde de gün geçtikçe yaygınlığı artan uzaktan eğitim, ortaya çıkardığı farkındalıklarla öğrenci güdülenmesine de etki etmektedir. Bu makalede de teknoloji tabanlı sistemin kapsamından bahsedilerek sistemin ortaya çıkardığı yararlar ve sınırlılıklarla birlikte Türk Dili dersi üzerinden öğrencilerin algı, motivasyon ve etkileşim faktörleri incelenmiştir

Anahtar Kelimeler: Uzaktan Eğitim, Türk Dili, öğrenci, motivasyon

GİRİŞ
Eğitim ve öğretim, insanlıkla beraber başlamış; gelişen ve değişen zamanla birlikte uygulanan farklı yöntem ve yaklaşımlar öğrenmeyi en üst düzeye çıkarmayı hedeflemiştir. Bu durum, milletlerin kültür ve kişi başı milli gelir miktarına göre değişkenlik gösterse de sonuç hep aynıdır. Yani, toplumların gelişiminde eğitim başroldedir.

Teknoloji, geleneksel eğitim yöntemleriyle beraber eğitimin her safhasında kullanılmaktadır. İnternetin eğitimde yaygın olarak kullanılmaya başlanmasıyla geleneksel modellerin yanı sıra çağdaş yöntemlerle de daha etkin bir eğitim verilebilmesinin mümkünlüğü ortaya çıkmıştır. Buna paralel olarak, teknolojik gelişmelerin bir getirisi olan uzaktan eğitim, öğrencilerin fiziki okul ortamına ihtiyaç duymadan, bireysel olarak bulundukları yer ve zamanda eğitilmesinin yolunu açan bir sistemdir.

Eğitim kurumlarındaki fiziki yetersizlikler nedeniyle uzaktan eğitim, ülkemizde oldukça yaygınlaşmış ve bu sayede özellikle coğrafi uzaklık, sosyal karmaşıklık ve bireysel farklılık gibi dezavantajlı durumlar ortadan kalkmıştır. Bunun yanında öğrenci-öğretmen arasındaki geribildirimlerin hızlı olması, zaman sınırlaması olmadığı için öğrenci güdülenmesinin yüksek tutulması, maliyet azlığı, puanlama ve değerlendirme kısmının objektifliği ön plandadır.

Tüm bunlara ek olarak uzaktan eğitim sisteminin bazı olumsuzlukları da ortaya çıkmaktadır. Bunların en önemlileri arasında etkili öğrenmede çok önemli bir yere sahip olan öğrenci-öğretmen arasında göz temasının kurulamaması gösterilebilir. İkili ilişkilerin sağlıklı dönüt almadaki yeri göz önünde bulundurulduğunda bu durum ciddi sorunları beraberinde getirmektedir. Bunun yanında teknolojiye bağımlı olan sistemin alt yapı sıkıntıları ve bu sıkıntıların zamanında çözülememesi de sorunları büyütmektedir.

Ülkemizdeki üniversitelerin birçok bölümünde uzaktan eğitim üzerinden dersler verilmektedir. Son yıllarda ise üniversite akademik birimlerinin genellikle 1. sınıflarında verilen Türk Dili, İngilizce, Tarih gibi derslerin uzaktan eğitim yöntemiyle verilmesi gerekli şartları sağladığından gittikçe artan bir uygulamadır. Bu çalışmada, internet tabanlı uzaktan eğitim sisteminin avantajları ve dezavantajları üzerinden Türk Dili dersinin uzaktan eğitim sisteminde uygulanmasının öğrenci üzerindeki algı ve motivasyon açıklanmaya çalışılmıştır.

UZAKTAN EĞİTİM NEDİR?

Farklı mekânlardaki öğrenci, öğretici ve öğretim materyallerinin gelişen dünyaya ayak uydurularak iletişim teknolojileri (mektup, video, CD, televizyon) aracılığıyla bir araya getirildiği eğitim yöntemine uzaktan eğitim denir. Bir uzaktan eğitim yöntemi olan e-öğrenme ise, eğitim içeriklerinin internet veya intranet üzerinden sesli veya görüntülü biçimlerde alıcıya aktarılmasıdır. Senkron e-öğrenme, öğretim sürecinin öğrenenle öğreten, fiziksel olarak farklı mekânlardayken, eş zamanlı olarak gerçekleşmesi olurken asenkron e-öğrenme ise farklı zamanlı olarak gerçekleşmesidir.

Uzaktan eğitim, öğrencilerin fiziksel okul ortamı dışında bulundukları yer ve zaman esas alınarak eğitilmesini amaçlayan bir sistemdir. Sabit bir mekân sınırlaması olmadan, bilişim teknolojileri vasıtasıyla gerçekleştirilen etkileşimli bir eğitim çeşididir. Diğer bir deyişle uzaktan eğitim, geleneksel eğitim-öğretim yöntemlerindeki sınırlılıklar nedeniyle sınıf içi etkinliklerin yürütülemediği durumlarda eğitim çalışmalarını planlayanlar ve uygulayanlar ile öğrenenler arasında iletişim ve etkileşimin özel olarak hazırlanmış öğretim üniteleri ve çeşitli ortamlar yoluyla belli bir merkezden sağlandığı öğretim yöntemidir. (Çağıltay, 2002) Bu tanımlardan yola çıkılarak bakıldığında uzaktan eğitim, ayrı mekânlardaki öğrencileri eğitimle buluşturma merkezli bir uygulamadır. Zamandan ve mekândan bağımsız olan öğrenciler, mevcut bilgisayar teknolojileri vasıtasıyla sanal ortamdan interaktif olarak derslerin işlendiği, tutulan kayırlar aracılığıyla bilgilerin tekrar izlenebileceği teknolojik ve yenilikçi bir yaklaşımdır.

UZAKTAN EĞİTİMİN TARİHÇESİ

Başlangıcı 1728 yılına dayanan uzaktan eğitim, ilk olarak Boston gazetesinde "Steno Dersleri ile başlamıştır. Bunu 1833'de İsveç Üniversitesi bünyesinde bayanlara "Mektupla Kompozisyon Dersleri" uygulaması takip etmiştir. Buradan hareketle 1892'de Chicago Üniversitesi'nde ilk "Mektupla Eğitim" bölümü açılarak, günümüz uzaktan eğitim yaklaşımına önemli bir adım atılmıştır. 1898 yılı ise İsveç'te kurulan ve uzaktan eğitim sisteminde öncü kurumlardan birisi olan "Hermands" kuruldu ve burada dil eğitimi verildi.

1900'lü yılların başında bu çalışmalar Amerika'ya da kaymış ve 1906'da ABD'de "Yazışmalı İlköğretim" başlamıştır. 1919-1920 yıllarında profesörler tarafından eğitim amaçlı 176 radyo istasyonu kurularak gelişime devam edilmiştir. 1923 yılında ise "Mektupla Lise Eğitimi" dersleriyle gelişime devam edilmiştir.

Bu anlamdaki asıl önemli çalışmalar, 1932-1960 yıllarına dayanmaktadır. 1932 yılında ABD'de IOWA Üniversitesi'nde eğitim televizyonları yayını başlamıştır. 1939'da Fransa'da savaş yıllarında öğrencilerin eğitimleri uzaktan eğitim ile sağlanmıştır. 1960'da ise İngiltere'de British Open University açılmıştır.

Türkiye'de uzaktan eğitim ilk olarak 1927'de dönemin Milli Eğitim Bakanı Mustafa Necati tarafından fikir bazında ele alınmış; konu ile ilgili çalışmalar 1950'li yıllara kadar devam etmiştir. 1956'da Ankara Üniversitesi Hukuk Fakültesi, Banka ve Ticaret Hukuku Araştırma Enstitüsü kurulmuştur. 1961'de dünyadaki gelişmelere parelel olarak MEB bünyesinde Mektupla Öğretim Merkezi açılmıştır. Bu çalışmaları 1975-1978 yılları arasında Yaygın Öğretim Kurumu'nun(YAYKUR) etkinlikleri izlemiş, bu faaliyetler MEB'e bağlı Film- Radyo- Tv ile Eğitim Merkezi (FRTM) tarafından hazırlanan TV programları üzerinden yürütülmüş; fakat başarılı olunamamıştır.

1981'de ise Anadolu Üniversitesi Açıköğretim Fakültesi'nin açılmasıyla uzaktan eğitim sisteminin sağlam temelleri atılmıştır. Yine bu yılda Anadolu Üniversitesi, TKT ile anlaşarak okul televizyonu aracılığıyla eğitim verilmeye başlanmıştır. 1992'de MEB tarafından Açıköğretim Liseleri açılmıştır. 1996'da ODTÜ'de internet ile eğitim kullanılarak IDEA Paketi uygulamasının başlatılmasıyla bu alanda önemli bir girişimde bulunulmuştur.

YÖK'te 14 Aralık 1999'da hazırlanan "Üniversiteler Arası İletişim ve Bilgi Teknolojilerine Dayalı Uzaktan Eğitim Yönetmeliği" ile uzaktan eğitim alanında dikkat çekici bir adım atılmıştır.

Günümüzde uzaktan eğitim ile hizmet veren üniversitelerden bazıları şunlardır: University of California, Stanford University, Utah University, Yale University, Hong Kong University, Harward University, Odtü, Ankara Universitesi, Anadolu Üniversitesi, Gazi Üniversitesi, Dokuz Eylül Üniversitesi, Sakarya Üniversitesi, Karadeniz Teknik Üniversitesi, Karabük Üniversitesi, Bülent Ecevit Üniversitesi…

UZAKTAN EĞİTİMİN FAYDALARI

Bireyler arasında fırsat eşitliği sağlayan ve kitle eğitimini kolaylaştıran uzaktan eğitimin en büyük avantajlarından birisi öğrencilerin anlamadığı konularda geri dönüş yaparak konuları tekrar etmesine imkân tanımasıdır. Böylece öğrenci kendi gelişimini takip edebileceği için konuların ilerleyişini ve takibini ayarlama olanağına kavuşmaktadır. Bu modelde geleneksel öğrenme modelinden farklı olarak seviye farkı ortadan kalkmakta ve böylece öğrencilerin eğitimi kolaylaşmaktadır.

Uzaktan eğitimin bir diğer avantajı da ulaşım sorununa çözüm getirmiş olmasıdır. Uzak mekânlardaki öğrenciler, bu sayede bilgisayar karşısında eğitimlerine devam edebilmektedir.

Puanlama sisteminin klasik yöntemlere nazaran daha objektif olması, materyal kullanımının azlığı sebebiyle eğitim maliyetinin düşmesi de diğer önemli faydalardandır.

Tüm dünyaya eğitim odaklı bilginin merkez tarafından gönderildiği uzaktan eğitim sisteminde, özellikle çalışan kesimin eğitim alması da kolaylaşmıştır.

Tüm bunlardan yola çıkarak uzaktan eğitimin kavramsal dayanaklarını şu şekilde maddeleyebiliriz:

- Yeni olanaklar yaratma
- İş ve eğitim arasında bütünlük sağlama
- Eğitim sürecini demokratikleştirme
- Yaşam boyu eğitim sağlama
- Eğitimde bireysellik
- Mevcut eğitim kurumlarından etkili yararlanma
- Teknolojinin eğitimde etkili kullanımı
- Birey, toplum ve teknoloji gereksinimlerine yönelme
- Büyük kitlelere ulaşma
- Bireysel ve kitlesel eğitimin bütünlüğünü sağlama
- Eğitim isteği ile mali olanakları dengede tutma şeklinde sıralanabilir(Alkan, 1996).

UZAKTAN EĞİTİMİN SINIRLILIKLARI

Birçok faydası olan bu eğitim sistemi, farklı açılardan değerlendirildiğinde bazı sınırlılıkları da beraberinde getirmektedir. Uzaktan eğitimde bireylerin motivasyon düzeylerinin yüksek olması temel koşuldur. Kendi öğrenme sürecini yönetme konusunda, iyi olmayan ve bağımsız olarak öğrenmede yetersiz olan bireyler, bu süreçte aktif konumdan pasif bir konuma düşebilirler. Sosyal etkileşim açısından uzaktan eğitimin yüz yüze ortamlara göre sınırlılıkları daha fazladır. Bireyler topluluk hissi ve gruba aidiyet duyguları geliştirmede güçlükler yaşayabilirler. (Rovai, 2002)

Bu bilgilerden yola çıkılarak söylenebilir ki sistemin en önemli sınırlılığı, öğrenci- eğitimci ilişkisinin olmaması sebebiyle anlaşılabilirliği sağlayan göz temasının kurulamamasıdır. Eğitim verenler ve eğitimi alanlar arasındaki bu iletişim kopukluğu, dersin anlaşılabilmesini zorlaştırmaktadır. Bununla birlikte her ne kadar derslerin tekrar tekrar izlenebilmesi mümkünse de öğrencilerin sorularına anında cevap alamaması bir diğer olumsuz faktördür. Geleneksel modele alışan birçok öğrenci de kendi kendine çalışamama ve dolayısıyla ardında başarısızlık görülmektedir.

Tüm bunlara ek olarak uzaktan eğitimde öğrenci sayısının fazlalığı eğitimci ve öğrenci arasında iletişim kopukluğuna neden olmakta ve yaşanabilecek teknik aksaklıklar eğitim alınmasını zorlaştırmaktadır. Oluşabilecek teknik sorunlar da katılımcıların performanslarını ve güdülenmelerini etkileyen önemli etkendir. (Keller & Suzuki, 2004) Bireylerin bilgi iletişim teknolojilerini kullanabilme becerileri, süreçte karşılaşabilecekleri teknik sorunlarla birlikte ortamdan soğumalarına neden olabilir. Bireysel ve teknik sorunlar olarak iki kategoriye alınabilecek dezavantajların çözümü mümkündür. Bireysel sorunlarda en önemli anahtar, kurumsal destek ve öğretmen desteğidir. Örgün eğitimdeki rollerinden farklı olarak sanal ortamlarda öğretmenlere ek roller gelmektedir. Öğretmenler hem alan uzmanı hem de iyi bir yönlendirici olarak öğrencilerin sürecini takip edip onlara yüz yüze ortamda var olan ancak uzaktan eğitimde geç iletilen geri bildirimlere önem vermelidir. (Beaudoin, 1990)

Tüm bunlardan yola çıkarak uzaktan eğitimin sınırlılıklarını şu şekilde maddeleyebiliriz:

- Öğrenme ortamlarında önemli görülen yüz yüze etkileşim imkânlarının ortadan kalkması
- Kendi kendine çalışma alışkanlığı olmayan bireyler için ders çalışma planlama sıkıntısı
- Öğrenme güçlüklerinin anında çözülememesi ve devamında görülebilecek sorunlar
- Laboratuvar, atölye gibi uygulama gerektiren sahası gerektiren konuların işlenmesindeki sınırlılıklar
- Öğrenci sayısındaki fazlalık nedeni ile iletişimdeki yetersizlikler.

TÜRK DİLİ DERSİNİN UZAKTAN EĞİTİM SİSTEMİ İLE VERİLMESİNİN ÖĞRENCİ MOTİVASYONUNA ETKİSİ

Üniversitelere yeni bölümlerin açılması, buradaki öğrenci kapasitelerinin artması göz önüne alındığında fakülteler ve meslek yüksekokulları bünyesindeki derslikler yetersiz kalmakta ve eğitim zorlaşmaktadır. Son yıllarda hızla yayılan uzaktan eğitim sistemi, üniversitelerdeki bu sınıf yetersizliği sorununa büyük ölçüde çözüm getirmiştir.

Bununla birlikte, dersleri veren öğretim elemanlarının akademik gelişimini tamamlaması kolaylaşmış, sistem zamana bağlı olarak ortaya çıkan sorunları ortadan kaldırmıştır. Sene başlarında hazırlanan eğitim materyallerinin sisteme yüklenmesi ve dersleri ders programında belirtilen saatlerde öğretim elemanının ofisindeki bilgisayar başından takibi derslerin sorunsuz ilerlemesini ve öğrencilerin anında dönüt yapmalarını kolaylaştırmaktadır.

Bununla birlikte hayatlarını çalışarak devam ettirme zorunluluğu olan öğrenciler için de ortak zorunlu derslerin bu sistemle verilmesi ekstra bir iş yükünü ortadan kaldırmaktadır. Ayrıca öğrencilerin anlamadığı yerleri tekrar tekrar açıp izlemesi, haftalık konu dağılımlarının ardındaki soruları çözmesi, tüm bunlara karşın anlamadığı yerler olursa öğretim elemanına ister odasında ister mail yoluyla ulaşarak sorularına cevap alma olanağı bulmaktadır.

Üniversitelerdeki eğitimlerde vize, mazeret, final ve bütünleme sınavları her ders için ayrı gün ve saatte tüm aynı anda yapılmaktadır. Bu durum sınavların objektifliğini sağlamak açısından oldukça önemlidir. Ancak, öğrencilerin aynı anda sınava alınmaları fakülte ve meslek yüksekokullarında derslik yetersizliği sorununu ve karmaşıklığı ortaya çıkarmaktadır. Bu da uzaktan eğitim sınırlılıklarından birisini daha gözler önüne sermektedir.

Geleneksel eğitime göre avantaj ve dezavantajları olsa da uzaktan eğitim sistemi yaygın bir biçimde kullanılmakta ve öğrenci kitleleri yoğun bir şekilde artık bu şekilde eğitilmektedir. Artık uzaktan eğitimin varlığı ile ilgili tartışmalar azalmakta, tartışma, etkili bir uzaktan eğitimin nasıl olması gerektiği ile ilgili bir zemine kaymaktadır. Başarılı bir uzaktan eğitim uygulamasına hangi faktörlerin etki ettiği ile ilgili geniş bir literatür oluşmaya başlamıştır. Önceleri uzaktan eğitimin, içerik hazırlanması, alt yapı oluşturulması gibi, teknik yönlerinin etkililiği üzerine çalışmalar daha yaygın iken sonradan psikolojik ve sosyolojik etmenlerin etkili bir uzaktan eğitim uygulamasının gerçekleştirilmesi üzerindeki etkileri ile ilgili araştırmalar ivme kazanmıştır. (İbicioğlu ve Antalyalı,2005)

Öğrencilerin motivasyonunu etkileyen faktörlerin başında cinsiyet, yaş, meslek ve iş tecrübesi, medeni hal gelmektedir. Tüm bu durumlar öğrencilerin psikolojik ve sosyolojik durumlarını da etkilemektedir. Yapılan araştırmalar göstermiştir ki öğrencilerin kişilik yapısıyla eğitim durumları birbirlerine paraleldir. İyi eğitimli ve teknolojiye uyumlu bir kesimde, kişilik yapısının başarıya fazla etki etmediği fakat böyle bir düzeye ulaşmamış bir kitlede kişilik yapısının etkili olduğu anlaşılmıştır. (Kanuka, ve Nocente, 2003: 241)

Uzaktan eğitimin en büyük sınırlılıklarından birisi olan öğrenci ile öğretim elemanı arasındaki iletişim kopukluğu yanlış anlaşılmalara kapı açmaktadır. Bu sebeple öğretim elemanının anlatmak istediği ile öğrencinin anladığı birbirinden farklılıklar gösterebilmektedir. Bu da uzaktan eğitim üzerinde olan önyargıyı artırmaktadır. Bu sebeple, Uzaktan eğitimde etkileşime önem verilmesinin ve öğrencinin sorunlarının en hızlı biçimde çözülmesinin ve destekleyici bir dil kullanılmasının uzaktan eğitimdeki başarıya önemli oranda etki ettiği çeşitli çalışmalarla ortaya konulmuştur. (Baker, 2004; Wheeler, 2002, Huff, 2000).

Uzaktan eğitimle ders alan öğrenciler ile örgün eğitimle ders alan öğrenciler arasındaki mutsuzluk sorunu bir diğer sıkıntıdır. Geleneksel eğitimle ders alan öğrenciler, yüz yüze iletişimin verdiği olumlulukla derslerinde

daha başarılı olurken uzaktan eğitim öğrencileri iletişim kopukluğunun verdiği dezavantajla başarısız ve mutsuz olmaktadır.

SONUÇ

Dünyadaki ve ülkemizdeki teknolojik gelişmelere paralel olarak ilerleyen eğitim sistemi, her geçen gün biraz daha yenilenmekte ve değişmektedir. Eğitimin kolaylaşmasıyla birlikte ortaya çıkan öğrenci fazlalığı gibi durumların giderilmesinde ise alternatif çözüm arayışları bulunmaya çalışılmaktadır. Bu çözümlerden birisi olan uzaktan eğitim sistemi, öğrencilerin bilgisayar destekli ortamlarda ders almalarına imkân sağlayarak, zaman ve mekân sınırlamasını ortadan kaldırmaktadır. Ayrıca öğrencilerin bilgiye her daim ulaşabildikleri kayıtlar sayesinde bilgiye tekrar tekrar ulaşmalarına olanak sağlanmaktadır.

Tabi bu durumun olumlu taraflarının yanında olumsuz yönleri de bulunmaktadır. Öncelikle teknolojinin olduğu bir ortamdaki teknik aksaklıklar eğitim kalitesini ve zamanını sınırlandırabilmektedir. Ayrıca geleneksel yöntemlerden farklı olarak verilen uzaktan eğitim derslerinde göz teması ve sınıf ortamı bulunmadığı için özellikle içe kapalı öğrencilerin başarı seviyeleri düşebilmektedir. Sınav zamanlarındaki aksaklıklar da diğer bir sınırlılıktır.

Uzaktan eğitimdeki kalite göstergeleri etkili öğrenme, erişim, öğrenci memnuniyeti, öğretim elemanı memnuniyeti ve maliyet etkililiği olmak üzere beş ana başlık altında değerlendirilebilir. (Şimşek, 2012; Moore, 2005)

Sonuç olarak, uzaktan eğitim sistemi ve uzaktan eğitim dersleri, bilgiye ulaşmasını bilen öğrenciler için faydalı; geleneksel metodla eğitim almaya alışmış öğrenciler için maalesef dezavantajlı bir hal almaktadır. Dezavantajları avantaja çevirmek de avantajları doğru kullanamayıp dezavantaja çevirmek de sisteme dâhil olan kişilerin ellerindedir. En son çıkan donanımlara sahip olmak ya da en pahalı yazılımları kullanıyor olmak uzaktan eğitimde başarıyı getirmeyecektir. (Ilgaz, 2015). Şüphesiz, hızla gelişen teknolojiler sayesinde gelecek yıllarda da uzaktan eğitim modellerinin daha da çeşitlendiğine ve bu teknolojiler ışığında geliştiğine ve evrildiğine şahit olunacaktır. (Ergüney, 2005)

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VALIDATION OF ACONCEPTUAL QUALITY FRAMEWORK FOR ONLINE AND BLENDED LEARNING WITH SUCCESS FACTORS AND INDICATORS İN ADULT EDUCATION: A QUALITATIVE STUDY

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This qualitative study was designed to identify a framework for the quality of Online and Blended learning (OBL) in adult education (AE), which are of interest to the needs of students. Following a review of the literature, we opted for the theoretical framework as proposed by Ossiannilsson and Landgren (2012). This framework suggests success factors for OBL which are of interest to the needs of students. Qualitative data was collected through group interviews (n=12 groups) with stakeholders involved in AE. Professionalsfrom five institutions, at the policy level (n=17) or programme level (n=20) were interviewed. Findings were discussed and agreed upon by the researchers to validate a quality framework for OBL in AE. At the level of the success factors, it is useful to underpin the adoption of OBL, to formulate a mission statement. The indicators can help set goals, identify resources and strategies and measure whether the provision aligns with adult students' needs. All success factors and indicators are linked to quality areas and dimensions most existing quality frames are built on. At this level the framework is useful to mainstream the quality of OBL into traditional frameworks.

VALUE-BASED INTERACTİVE MULTİMEDİA DEVELOPMENT THROUGH INTEGRATED PRACTİCE FOR THE FORMATİON OF STUDENTS' CHARACTER

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ABSTRACT

This study aims to describe the development of value-based interactive multimedia through integrated practice for the formation of students' character. This study uses Research and Development Design at the Department of Social Sciences Education at Indonesia University of Education. Conceptually, the design in question is integration of living values and social studies learning materials into interactive multimedia by involving students through an integrated practice in schools (university and junior high school). Implementation of the design is realized through several steps: negotiation of subject matter and character, presentation of materials, group distribution based on social science topics, exploration of character values according to the topics, integrated practice (initial observation to school, multimedia scenario development, multimedia production, multimedia simulations in class, and multimedia utilization in school). Implementation of the interactive multimedia design significantly affects the formation of students' character.

Keyword: interactive multimedia, value, integrated practice, character, student

INTRODUCTION

Higher Education as an educational institution responsible for shaping younger generation for future leaders holds a very strategic role in the formation of local wisdom-based character. According to Komalasari and Sapriya (2016) and Saripudin and Komalasari (2015) on the implementation of character education models in colleges and schools, it is necessary to cultivate methods of character education that meet the following characteristics: value-based education; college culture-based character education; and character education which involves aspects of "knowing the good, desiring the good/loving the good and acting the good" (Lickona, 1991). The above characteristics must be integrated into learning activities as core activities in college. This is in accordance with the format of character education developed by the Ministry of National Education (2010: 43), namely integration of character values in classroom learning activities in all subjects, which encompasses entire learning components, namely materials, methods, media, resources, and evaluation (Komalasari, 2010; Komalasari and Saripudin, 2015; Saripudin and Komalasari, 2016a). Thus, learning media is among the principal learning components.

In the global era, selection and use of media should consider the development of science and technology by heeding the values to nurture the character of students. A type of media that is viewed effective in learning is value-based interactive multimedia. Multimedia is a blend or a mix of two or more media formats such as texts, graphics, animations, and videos to integrate information into computer (Heinich et al, 2005; Vaughan, 2004: Mayer, 2009). Interactive multimedia is the use of a computer to blend texts, graphics, audio, moving images (video and animation) into a single entity with proper links and tools to enable users of multimedia to navigate, interact, create, and communicate" (Hofstetter, 2001). Interactive multimedia exhibits these characteristics: displaying more than one converging media, interactive, and independent (Munir, 2012; Sutopo, 2003).

Utilization of multimedia in learning serves as a possible solution to enhance the quality of learning in class, and as a viable alternative to overcome the limitations of teachers in teaching (Daryanto, 2010). In addition, multimedia in learning functions as a facilitator, a transmitter, a connector, and others. Multimedia in learning may allow the communication process to be more effective in order to reach the desired goal, i.e. changes in students' behavior (Munadi, 2008).

Instructional multimedia should involve students in its creation and utilization, so as to elevate students' creativity. It can also empower students in active learning. Institutes of teachers' education offer a specific course of Instructional Media and Information Communication and Technology (ICT). In this course, instructional multimedia should be developed and implemented as part of students' project through integrated practice. This means that the students establish their own instructional multimedia to be presented in class, which later can be applied in teaching practicum in school.

Therefore, a Research and Development-based study on a modest scale to produce a value-based interactive multimedia integrated practice assumed to effectively nurture students' character is called for. This type of model will be developed in the course of "Instructional Media and ICT in Social Science Education" at the Department of Social Sciences Education and its application will be integrated into teaching practicum in school.

This study aims to describe the development of value-based interactive multimedia in teaching social science education through integrated practice and its impact on the character formation of students. In particular, this study aims to describe: i) a conceptual model of value-based interactive multimedia through integrated practice for the formation of students' character; ii) its implementation; and iii) its impact on the character formation of students.

RESEARCH METHODOLOGY

This research was conducted using Research and Development Design (R&D) of Borg and Gall (1989). The method used is an explorative method to discover a model and an experimental method to test the model. Subjects were students of the Department of Social Science Education at Indonesia University of Education in the course of Instructional Media and ICT in Social Science Education academic year 2016/2017, totaling 92 people: 50 students of the experimental group and 42 the control.

Data collection instruments used in this study include: (i) observation sheets (ii) documentation study; (iii) focus group discussion; and (iv) questionnaires. Borg and Gall's (1989) model is adapted and modified into four stages, namely: 1) a preliminary study; 2) preparation of a conceptual model; and 3) validation and revision of the model; and 4) implementation of the model.

Qualitative data analysis is carried out through the following steps: (1) data reduction by summarizing reports, noting the key points that are relevant to the research focus; (2) systematic data organization based on specific categories and classifications; (3) data display in the form of tables or graphics so that the relationship among the data is clear and coherent; (4) cross-site analysis by comparing and analyzing the data in depth; and (5) presentation of the findings, drawing conclusions in the form of general trends and the implications of its implementation, and recommendations for the development (Fraenkel and Wallen, 2006). Quantitative analysis is performed through attitude scale by using two different tests of mean/gain score (Shadish, et.al:2002).

RESEARCH RESULTS

The conceptual model of value-based interactive multimedia development through integrated practice

Value-based interactive multimedia in social science education is integration of the values of life and social studies learning materials into interactive multimedia by involving students through an integrated practice in college and school. In light of this, a number of developmental principles emerge.

1. Developing core competencies and basic competencies in the social studies curriculum of 2013 and developing the values of character, unearthed through "contract of character" at the beginning of the semester.

2. Developing principles of living values education (Tillman, 2004: xv; Yunianto, 2009) which include: undertaking reflection, imagining widely, training relaxation and focus, expressing artistic creation, cultivating social skills, enhancing cognitive awareness about justice, nurturing social harmony, and gathering cultural values.

3. Applying the principle of interactive multimedia development. The interactive multimedia concept under examination combines and synergizes all sorts of media consisting of texts, graphics, audio, video, and interactivity (Green & Brown, 2002). Interactivity is designed to enable a person (student) as a user to access various forms of media as a new way to present and share group work so as to provide motivation and satisfaction for the students. Among the media types integrated into multimedia are texts, pictures/photographs/ posters, animations, videos, and list of Value Clarification Technique (VCT) in a single power point material. Each media has the following contents:

a. Texts, containing facts, data, concepts, principles, procedures, and values-moral norms (living values);

b. Pictures, photos, posters, comics, used as a stimulus to clarify learning materials and values;

c. Graphs, charts, and diagrams, used to present data issues/problems/phenomena that exist in the real life;

d.   Animation, in the form of audio-visual media that contains cartoon stories packed with interesting, rich, and conflicting values, and stimulates students to think, clarify, reflect and apply the values of life;

e.   Sounds, intended to give effect to make the material more attractive and easy to understand;

f.   Learning material videos, containing clarification of learning material in the form of facts, data, concepts, principles and procedures presented in the form of video lessons;

g.   Video reflection, in the form of audio-visual media which contains a movie about the phenomenon in everyday life that motivates students to apply the values of life;

h.   VCT List, containing a list of symptoms in the form of behavior statements and how the frequency of such behavior is applicable in everyday life, along with the rationale for the application of such behavior.

Interactivity involving some of the above components facilitates students as teacher candidates to make a power point that integrates a mix of media types (multimedia) that have been selected and developed. Value-based multimedia interactivity can be seen in figure 1.
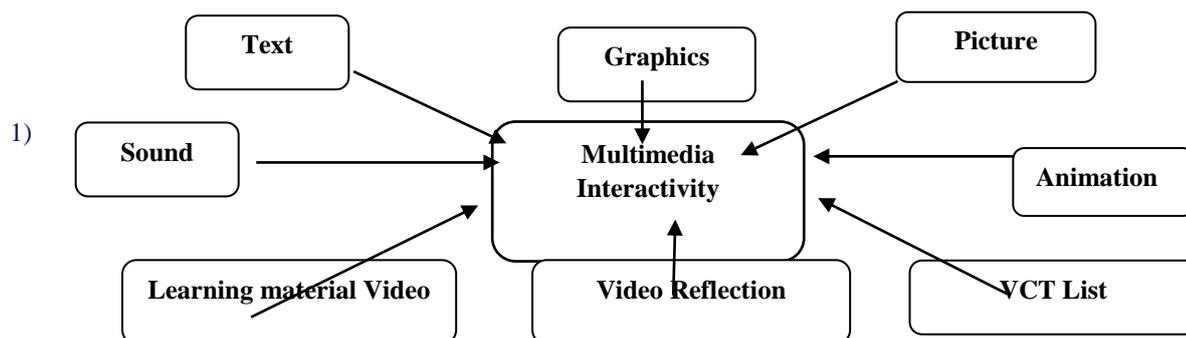
Figure 1: Interactivity as the Center for Multimedia Applications

The development of value-based interactive multimedia in instructional media and ICT in social science education is to:

a.   foster capacities of social science student teachers in analyzing core competencies, basic competencies, indicators, and materials to be developed into a more appropriate and effective instructional media in achieving social science competences (social knowledge, social attitudes, and social skills) of the students;

b.   assist student teachers in establishing the criteria of value-based instructional media in accordance with the material to be covered.

c.   assist student teachers in choosing various types of media combined into a multimedia (texts, pictures/ photographs/posters, animations, videos, and VCT-list) in a single power point material.

d.   assist student teachers in making a power point that integrates a variety of media (multimedia) that have been selected and developed. The power point is then burned into a Multimedia CD per subject matter.

4. Applying the integrated practice

Practical integrated activities refer to an experience-based curriculum prepared with the motivation and experience of students involved in a particular activity. Practical integrated activities are defined as an integrated practicum activities, where the integration is performed through interactive multimedia production practices in classrooms in colleges and in schools. With the experience gained from the practical integrated activities, students' desire to investigate the use of media in real terms in schools, the operational capability of value-based interactive media, and of course students' knowledge-attitude-social skills is developed simultaneously, comprehensively, and an integrated manner. This practical integrated approach blends project-based learning model and work-based learning in lectures.

Implementation of Value-based Interactive Multimedia through Integrated Practice

Following are measures in developing interactive multimedia through integrated practice in Instructional Media and ICT of Social Science Education:

1.   Negotiation of Subject Matter and Character

At the first meeting, students and faculty brainstorm the instructional material to be studied and learning strategies to be implemented as well as the assessment systems. In addition, characters to be developed in the classroom are clarified and agreed upon. Results of the negotiation of subject matter and character are then formulated into classroom manuals that will serve as a joint commitment among the teacher and students.

2.   Presentation of instructional media about social studies learning and life values.

At several meetings, learning materials related to instructional media and ICT in social science education will be presented according to the syllabus and lecture reports.

3. The class is divided into 12 groups on the basis of the topics of social science education of junior high school with regard to the core competencies and basic competencies in social studies curriculum of 2013.

4. Exploration of life values based on the social science topics in line with the curriculum of 2013, which include religious and social values.

5. Integrated Practice

Integrated practice integrates theory and practice in making the media, as well as classroom lectures with practice in schools. Steps under integrated practice activities include:

a.   School observation, whereby students make observations in social studies teaching in school, with a focus on its instructional media and its utilization in learning. In this activity, students together with the teacher explore the various types of learning media, problems in the construction of instructional media, and the solution.

b.   Developing value-based interactive multimedia. In this activity, students integrate the social science learning material with values of life into interactive multimedia. Through project-based learning, students generate products in the form of learning scenarios by utilizing interactive multimedia and developing interactive multimedia based on values in accordance with the relevant topics and subtopics, core competencies and basic competencies in the curriculum of 2013.

c.   Teaching simulation by using value-based interactive multimedia. This is done through the following steps: i) describing the learning scenario; ii) presenting the learning materials using the prepared multimedia; and iii) exploring and clarifying the values extracted from the learning material presented in the interactive multimedia. This simulation process of teaching is reviewed by another student assigned as an observer.

d.   Review of the simulation is undertaken by the lecturer. At the end of the interactive multimedia presentation, the lecturer provides clarification and review of the student's presentation. The review includes evaluation of the learning scenario, presentation/simulation of interactive multimedia, and interactive multimedia content (creativity, appropriateness of the content with the purpose, and clarity of the message), as well as a wealth of values in interactive multimedia.

e.   Reflection on life values (character). The lecturer together with the students reflect on the values of life embedded in the interactive multimedia that the presenting group is exhibiting. In this respect, the lecturer and the students explore, clarify, internalize, and create an action plan regarding the application of values in everyday life in a family environment, campus, community, and the country.

f.   Implementation of value-based interactive multimedia in teaching social studies at school by involving teaching practicum students by way of work-based learning. The interactive multimedia the students developed is then utilized in the teaching practicum process in school in order to enhance the quality of social science learning.

Developing value-based interactive multimedia through integrated practice can be seen in figure 2.
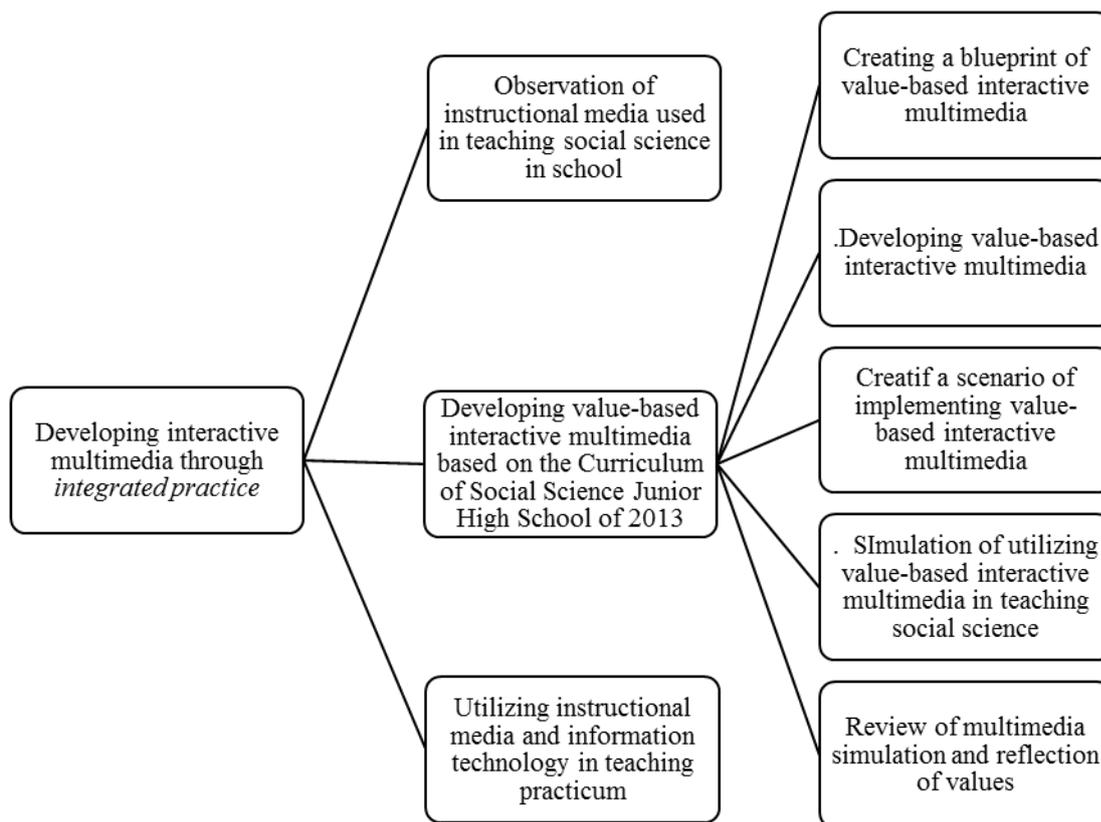
Figure 2: Developing Value-based Interactive Multimedia through Integrated Practice

Effect of Application of Value-Based Interactive Multimedia through Integrated Practice on Students' Character Development

The test analysis of n – gain reveals that in each class, the experimental class and control class, students character increased, but there is a difference in the degree of increase between these two classes. In the control class, the increase is 0.30, which means that the increase is at n-gain g<0.7, a category of medium. Meanwhile, the increase in the experimental class occurs at 1.04, equivalent of n-gain>0.7, a high category. N-gain test results can be seen in the table 1.

Table 1: Increase in Character Score in Pretest and Posttest of Control and Experiment Groups

Data	Mean	Standard Deviation	Variants	Gain	N Gain
Pretest in control	56.65	5.641	31.823		
Postest in control	69.93	4.752	22.584	1.32	0.30
Pretest in experiment	57.27	5.511	30.369		
Postest in experiment	106.28	8.693	75.576	4.48	1.04

Based on the analysis of n - gain test, it can be concluded that in both experimental and control classes increase occurs; however, increase in the experimental is greater than that in the control. Based on calculation of n-gain significance, the significant value is smaller than α (0.05), indicating that there is a significant difference in the character development of the students in the experimental and control groups.

Value-based interactive multimedia through integrated practice in instructional media and ICT of social science education can nurture the character of students. This is apparent on the students' behavioral patterns in the process of developing the media. Descriptions of Students character that developed through Value-Based Interactive multimedia development can be seen on table 2.

Table 2: Characteristics of Students in Value-Based Interactive Multimedia Development

No	Character	Behavioral Patterns in Developing Interactive Multimedia
1	Creativity	Creativity in making instructional scenarios and produce value-based interactive multimedia products
2	Curiosity	Increased curiosity on technology, as demonstrated by willingness to learn to develop interactive multimedia
3	Appreciation	the ability to appreciate and review interactive multimedia work of their own and other students
4	Hard work	Optimal performance in planning/designing media/creating a scenario, developing multimedia, and simulating it in class, as well as utilizing it in school;
5	Self-reliance	Individual work management in accordance with sub-topics and simultaneously coordinating with the groups of the same topic
6	Honesty	Citing sources from the internet and others and using them as materials used in developing value-based interactive multimedia
7	Discipline	Accuracy in completing the task in accordance with the agreed upon timetable and goals

DISCUSSION

Interactive multimedia evinces characteristics that distinguish it from other types of instructional media, namely, it is interactive; has more than one converging media (audio and visual); provides convenience of feedback; give the freedom to independently determine the topic of learning and conduct the ease of systematic control in teaching social science (Sutopo, 2003; Munir, 2012). In addition, interactive multimedia offers the following advantages: 1) learning is more innovative and interactive; 2) teachers will always be required to be innovative in seeking a breakthrough in teaching; 3) it combines texts, pictures, audio, music, animated images or video in a single entity in order to achieve the learning objectives; 4) it boosts students' motivation in the learning process; 5) it visualizes the material perceived difficult to be explained merely through a lecture or a conventional props; and 6) it trains students to be more independent in gaining knowledge. Given these characteristics and advantages, the students are more motivated to attend lectures and understand the learning material.

Interactive multimedia applied in social science education classrooms is a value-based one. The values of life are integrated in interactive multimedia, so that the instructional media not only motivate the students to learn and understand the material, but also explore, clarify, internalize the values and apply them in everyday life. This is in accordance with the concept of micro character education in schools (Ministry of National Education, 2010) that values should be integrated in the learning activities. Komalasari (2012) and Komalasari et al. (2014) assert that character values must be integrated in learning across all of its components, including materials, methods, media, resources, and assessment. Thus, media as one component of learning should be based on values. Value-based interactive multimedia complement character education in class, namely teaching or guidance to the students to make them realize the truth, virtues, and beauty through the process of considering the proper value and consistent actions. Character education is aimed to help students to understand, realize and experience values and be able to apply them in their life (Mulyasa, 2005).

Value Integration in interactive multimedia can be done through a variety of character educational approaches as stated by Banks (1990) as follows: 1) Evocation, an approach that provides the students the opportunity and freedom to freely express their affective response to stimuli they receive; 2) Inculcation, an approach in which the students receive a stimulus directed toward a poised state; 3) Moral Reasoning, an approach in which intellectual taxonomic transactions occur in seeking a solution to a problem; 4) Value Clarification, an approach through targeted stimulus in which the students are invited to seek clarity of the message of moral values; 5) Value Analysis, an approach in which the students are stimulated to perform analysis of moral values; 6) Moral Awareness, an approach in which the students receive a stimulus and raise an awareness of certain values; 7) Commitment Approach, an approach in which the students are invited to agree on the existence of a mindset in the character educational process from the outset; and 8) Union Approach, an approach in which the students are directed to implement values in their real life. Thus, value-based interactive multimedia can exhibit the knowledge, skills, and attitudes of values. Values can be presented in a variety of interactive multimedia, for example, through a motivational video or a video of character. Not only that, the lecturer should facilitate the

students to clarify the value out of the video, and reflect on how it is applied in everyday life in a family environment, campus, community, and the country.

Interactive multimedia in instructional media and ICT learning of social science education is done through integrated practice (Xiaoman, 2006). This shows two forms of integrated practices, namely:

1. Integration of theory and practice in manufacturing instructional media in social science education; the students are equipped with an understanding of the relevant theory of instructional media and ICT as well as how to develop the practice of instructional media and ICT according to the curriculum of 2013.

2. The integration of classroom lectures with practice in schools; the students develop instructional media and ICT in social science education in classroom lectures based on the analysis of observation of instructional media used in schools, and the result of the development of instructional media and ICT will then be utilized in schools in teaching practicum activities.

This activity will be more beneficial to the students of social science education as future teachers in developing and utilizing instructional media and ICT in social science education. It is also in line with the notion of Edgar Dale (Heinich, et al., 2005) that hands-on experience is the most effective medium for the achievement of learning outcomes because it provides a concrete experience to the students.

Value-based interactive multimedia development through integrated practice can develop the character of the students. This further confirms that character education can be integrated in the lectures, either through direct learning in the classroom and outside the classroom, and learning is not directly in the form of nurturant effects of learning activities (Ministry of National Education, 2010; Komalasari, 2012). The substance of value is not solely captured and taught, but it is rather internalized, and standardized as an inherent part of the personal qualities of a person through the learning process. Therefore, the educational process is basically a civilizing process that produces a civilized man, including a cultured man (Hermann, 1972; Saripudin and Komalasari, 2016b)

CONCLUSION

Value-based interactive multimedia in social science learning is the integration of the values of life and social studies learning materials into interactive multimedia by involving students through an integrated practice in classrooms. The model was carried out through several steps: negotiation of subject matter and character, material presentation, group division based on the social science topics of junior high school, exploration of character values according to the topics, and integrated practice (initial observation to school, development of multimedia scenario, multimedia production, multimedia simulation in the classroom, and practice on the use of multimedia in school). There is a significant difference between the class using value-based interactive multimedia through integrated practice with that of a conventional classroom. Therefore, students at institutes of teacher education, as prospective teachers, should be equipped with the ability to craft value-based interactive multimedia through a combination of theory with practice, and a combination of practices in the classroom and in school.

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VESTIGES OF DIGITAL CITIZENSHIP IN STUDENTS OF A MEXICAN UNIVERSITY

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ABSTRACT
The purpose of this document is to identify the actions that students perform as digital citizens. This is a qualitative study carried out to students of three degrees: Administration, Tourism Administration and Administrative Computational Systems in the Faculty of Administration of the Veracruzana University in Mexico. For this, an interview guide was developed that allowed to understand the daily practices and habits of the students. The collection technique used was the discussion groups, the interviews were recorded, the transcripts were later made and the codification and interpretation of the data were carried out. Evidence indicates that the role of the University in the process of building digital citizenship is modest. Given the weaknesses detected by the low rate of actions that students perform as digital citizens, it is necessary to redouble their efforts in the complex process of building digital citizenship.

INTRODUCTION
Many universities around the world accept the fact that a change is necessary to make at this time. This fact is related with the relevant function of the university in order to fight against digital divide in the society and their responsibility to develop attitudes, skills and knowledge in students. One of these key competencies needed to be developed is Digital citizenship.

According to Mossberger, Tolbert and McNeal (2007) Digital citizenship is related with the ability to participate in society online and requires regular and effective Internet access and the skills to use the technology. These authors said that Digital citizenship can be measured by the political and economic activities that individuals engage in online. In order to get a Digital Citizenship there must be present so many aspects, for instance access to high-speed connections at home, hardware and software, technical skills, basic literacy, and information literacy, including critical thinking skills needed to evaluate and utilize information online (Mossberger, Tolbert and Stansbury 2003; Hargittai 2002; DiMaggio et al. 2004; Warschauer 2003; Van Dijk 2009).

However Ribble, Bailey and Ross (2004) emphasized that Digital citizenship can be defined as the norms of behavior with regard to technology use. As a way of understanding the complexity of digital citizenship and the issues of technology use, abuse, and misuse, these authors identified nine general areas of behavior that make up digital citizenship: (1) *Etiquette:* electronic standards of conduct or procedure; (2) *Communication:* electronic exchange of information; (3) *Education:* the process of teaching and learning about technology and the use of technology; (4) *Access:* full electronic participation in society; (5) *Commerce:* electronic buying and selling of goods; (6) *Responsibility:* electronic responsibility for actions and deeds; (7) *Rights:* those freedoms extended to everyone in a digital world; (8) *Safety:* physical well-being in a digital technology world; and (9) *Security* (self-protection): electronic precautions to guarantee safety.

So, we could say that there are so many different dimensions to take care in consideration during the teaching process of digital citizenship. This process should begin in basic education and continue until university level. In this sense, Rivero (2014, p. 6) explains: "Teaching digital citizenship leads to the discussion of issues such as cyberbullying, online privacy, sexting, digital footprints, online image, reputation management, acceptable use policies, and much more".

One key point related with digital citizenship is related with information inequalities and possibly to prevent them. This is a very crucial task around the world, but specially in Latinamericans countries where there are so many matters to develop. There is a big risk of increasing the prevailing tendency in World Information Society of exclusive. So, the idea to be inclusive is related with the understanding of the role of ICT in relation to people´s ability to participate in society. In this sense, one big responsibility in the process of an integral education is in charge of the university. This entity should be able to develop attitudes, skills and knowledge to their students in order to prepare them to be inserted in the society as digital citizenship. This becomes a huge task and demands to be creative in the ways to perform it.

According to Wahl-Jorgensen, Bennett and Taylor (2017) the impact of new ICT on civil society, participatory democracy and citizenship is of immense contemporary concern. This impact is usually associated with the demand of universal access. but universal access/service alone does not suffice. So, in Latinamericans countries remains as a pending task to complete the universal access and the provision of technological issues such connectivity and equipments, and now emerges the need to develop an e-culture in the society providing information about the proper rights and responsibilities in the conditions and complexities of the Knowledge Society. In this terms, this becomes a new gap era: not just people online and offline, because there will be new classification of people. Those who are literate in digital citizenship participation and those who are illiterate in those matters.

METHODOLOGY

This is a qualitative study who uses an interview guide to students in the Faculty of Administration of Veracruzana University in Mexico. The bachelor degrees selected were Administration, Tourism Administration and Administrative Computational Systems. Seventeen students were chosen registered in the seventh semester during the period from August 2016 to January 2017. For this, 3 discussion groups were held. The first one with 7 students of the Administration bachelor degree, the second with 5 students of the bachelor degree of Tourist Administration and the third with 5 students of the bachelor degree in Administrative Computational Systems.

The interview guide included 14 specific questions that addressed aspects about the actions they perform as digital citizens, the forms of manifestation of their digital citizenship on the Internet, as well as the ways in which they make valid their citizenship with the authorities. The interviews were recorded, the transcripts were made, the content analyzed, the categories extracted and the interpretation of the findings generated. At the end of this process, we noticed the marked trends that existed and it was decided to convert the qualitative evidence to a database with quantitative answers and proceeded to perform the calculations of descriptive statistics. This paper presents the numerical results of the main findings in percentages. As well as some inferences obtained based on the analysis of content in the speeches of the students.

For the purposes of this study, it is important to recognize that there are several circulating versions of what the concept of digital citizenship means (Gutiérrez, 2003, Casablancas, Schwartzman, Burghi, 2014, Dussel, 2014), both in broad social discourse and in one review of scholarly publications. Thus, we find conceptualizations that are more linked to the political rights and obligations of the subjects in the context of the information society, others related to human rights, and finally some that circumscribe their influence to concepts related to digital literacy.

With regard to participation, we agree on what was found with Dussel (2014) who proposes a new look on this concept, invites to revise it understanding that there are old and new citizenships that make an analytical appearance as a result of digital technologies. So, the approach of this study to digital citizenship does not only deal with the artefactual dimension of technologies (Álvarez and Méndez, 1995), but also with the conception of technology as a cultural resource (Casablancas, 2008) and Internet as a territory for action (Schwartzman, Tarasow and Trech, 2014).

In this sense, the current society is immersed in a process of construction of the concept of digital citizenship that involves the redefinition and assimilation of new ways of doing things, of communicating with others, of consulting information and building knowledge through of these virtual interactions. Therefore, the creation of spaces in the network that facilitate social participation is encouraged as a mechanism to strengthen democracy.

FINDINGS

The first category referring to the practices that students carry out as digital citizens addresses four questions (Figure 1). 82% of university students say they know their rights and obligations as digital citizens, while 18%

say they do not know them. While all of them consider that they exercise their rights and obligations as digital citizens. In the same sense, all students consider that they exercise their digital citizenship in a positive way.

It should be noted that the participants identified themselves as digital citizens by simply surfing the Internet: "... *I think that a digital citizen is that person who uses technology ... I think everyone at this time is a digital citizen because we live with the Technology, we use social networks and different media ...* " (Joshua - Student of Tourism Administration).

However, this restrictive view that some of the students pointed to regarding access to technology as the differentiating element is simplistic and far from an integral concept of digital citizenship in terms of exercising with full awareness and fullness its role, specifically in terms of their participation online either as routine social practices or by ways of intervening in public affairs over the Internet.

Figure 1. Practices of the students that make as digital citizen

	Do you know your rights and duties as a digital citizen?	Do you consider that you exercise your rights and obligations as a digital citizen?	Do you consider that the university has contributed to your training as a digital citizen?	Do you consider that you exercise your digital citizenship in a positive way?
Positive Attitude	82%	100%	59%	100%
Negative Attitude	18%	0%	41%	0%
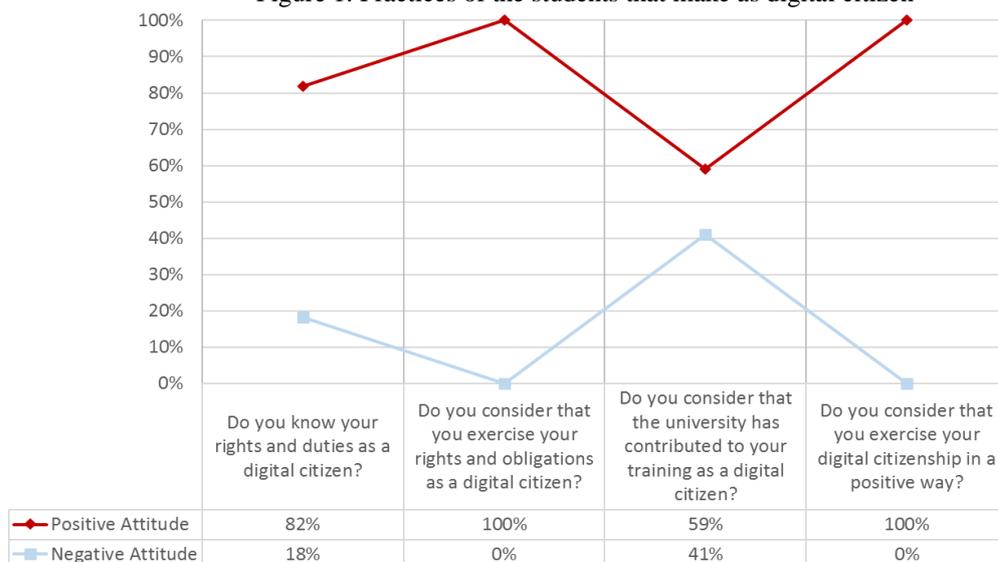
On the other hand, 59% of the participants consider that the university has contributed to their training as digital citizens, while 41% think that the university has not contributed to this training process. The training that the University has adopted has focused on incorporating ICT in the teaching-learning process: "... *the university is changing the way I see the Internet because more and more the internet is needed, Another way although we do not want to see it like this ... in fact, before entering university I almost did not upload tasks or things like this, almost everything written or printed paper and now almost everything is through the internet, I sent my tasks, I check my files and Other ... in fact I do not even look for books anymore or is almost everything searched on the internet, I look for books on the internet in fact ...* " (Joshua - Student of Tourism Administration).

However, the role of the University in the formation of a digital ethic is considered as a partially covered task: "...*I think that in college, the only thing they have done is to remind me of the teachers what I already know...Because I feel that the school does not have to take care of that, rather the school simply … and more at the university level is in charge of your professional training, it is rather to know that is right and that is wrong, there is a question of ethics...there are some teachers who among the talks in class emphasize that it is what is good, what is bad ...* " (Daniel – Student of Administration).

On the other hand, some informants consider that the University has helped in the process of training them as digital citizens since they have approached them to become acquainted with a range of technological tools and applications that allows them to understand that this should be done in the near future as citizens : "... *here in the university they have given us the tools to exercise more our digital citizenship, as the applications that we handle to make formalities, to register, to see our qualifications ...*" (Melissa – Student of Administrative Computational Systems).

In this sense, Lara (2009) points out that the University is in a critical moment to redefine its role in society so that its work maintains its social legitimacy as the mechanism for the integral formation of future citizens. To do this, it is required that the University incorporates the development of a digital culture as part of the learning experiences in students. Within the aspects of the digital culture that are advisable to incorporate in the formative

process of the students are the diverse forms of participation, interaction, collaboration and behavior required as digital citizens. The challenge of the University is to train future digital citizens to be ready to join the knowledge society.

In the second category related to online participation as citizens is comprised of five questions (Figure 2). 90% of university students indicated that they have expressed their opinion in some mass media (twitter, blog, Facebook, etc.). While only 10% said they have not expressed their opinion in these media. Concerning the questioning of whether students have expressed their opinion on any local, regional, national or international news or event, 79% said yes, while 21% said no. However, in relation to whether the participants have expressed their opinion on social demands, a clear trend was not achieved since in both cases 50% was obtained. This result contrasts with the fact that only 30% of the participants indicated that they have developed or enriched proposals of social, economic or political change. Therefore 70% recognize that this is an aspect in which they do not participate.

Figure 2. Online Participation as Citizen

	Have you expressed your opinion in any mass media (twitter, blog, facebook, etc.)?	Have you participated by saying what you think about any local, regional, national or international news or event?	Have you participated in debates about public issues?	Has elaborated or enriched proposals for social, economic or political change?	Do you express your opinion on social demands?
Positive Attitude	90%	79%	50%	30%	89%
Negative Attitude	10%	21%	50%	70%	11%

Regarding whether university students have expressed their opinion in some mass media, the evidence indicates that they come to publish their comments mainly on Facebook, and restrict it to their circle of friends: "...*Sometimes I have published on Facebook, respect to political issues, to the problems we have had for example with the new president in our country ... some time ago if I published things referring to that we are not well in Mexico ... referent to homosexuality because I am in favor of this movement...*" (Susana – Student of Tourism Administration).

At the same time, a collective conscience has developed in relation to the prudence and moderation in the publication of his comments in mass media, partly because of the fear of the subsequent implications: "...*I do not remember if I have participated giving my opinion in some mass media...maybe some news. Because I do have some fear that they will retaliate simply by my point of view, so I am careful not to do so. Although, if there is a way that I can participate that I really know is going to help someone, then I do, but I just do not give my public opinion...*" (Alexa – Student of Tourism Administration).

In some cases, students pointed out that rather than being content producers, they are considered as content consumers and their work is limited to sharing something that was already posted on the web: "...*when I see some news I generally try not to give my opinion, I prefer to share it...perhaps for security reasons and avoid reprisals, you never know what can happen or how other people can take your comment and something so insignificant could create a bigger problem...*" (Mayra - Student of Tourism Administration). Students become socializing mechanisms of what happens in their environment: "...*it depends on the relevance of the topic, if it is something that is very important and that society really needs to know and be informed, whether it should share it, but it is something trivial has no case...*" (Montserrat – Student of Tourism Administration).

In the third category on the participation of university students in public affairs over the Internet, five questions were asked (Figure 3). This dimension reflects a clear tendency towards the absence of participation in most of the items. First, 90% of students said they had not filed an online complaint with public institutions, contrasting with 10% who said they had. In this same sense, 84% of university students said they had not made a protest in

public institutions, while 14% indicated that they had ever made a protest in at least one public institution. Regarding whether they have made an online petition to private institutions, 70% of university students said no, and only 30% indicated that they had done so. Regarding whether they have ever shared other people's opinions online (as election candidates, political parties), 57% of university students said no, contrasting with 43% who said that they had shared their views on this subject. The only question in which there was a greater positive trend was when 77% of participants indicated that they have considered supporting solidarity initiatives through their digital signature, while 23% said they had not considered it to date.

Figure 3. Participation in public issues through the Internet

	Have you ever shared other people's opinions online (such as election candidates, political parties)?	Have you made an online petition to private institutions?	Have you made an online complaint to public institutions?	Have you ever made a protest to public institutions?	Have you considered supporting solidarity initiatives through your digital signature?
Positive Attitude	43%	30%	10%	16%	77%
Negative Attitude	57%	70%	90%	84%	23%

In this category, the aspect in which the students showed a greater positive attitude is related to the support for solidarity initiatives through their digital signature: "... *if I have shared my opinion, for example, when it comes to discussing some energy reform and other reforms. I even signed some change.org initiatives there, although I'm not sure if it serves anything, but I think it's a way of expressing my digital citizen*ship... "(Ali - Student of Administration).

Although the students are open to supporting different types of initiatives, they do not follow up on the cause they supported, nor do they noticed about the outcome of this initiative: "...*If I have signed on several occasions, Is very interesting but I never finish knowing if they do what they set out…* " (Nahomy - Student of Administrative Computational Systems).

Also, some of the students expressed their interest in supporting initiatives for the preservation of the environment or for the conservation of animal species: "...*if I am interested when it comes to environmental problems or to save animals, I am not interested when it comes to People...*" (Karla - Student of Tourism Administration).

The second aspect that presented a greater positive attitude of university students was if they had ever shared opinions online about political issues such as election candidates or political parties: "...*I have commented on this issue but only with regard to proposals made by candidates ... not so much if you like the politician or not ... I think it's about taking the necessary data to make an electoral decision and not so much if you like it, but identify what that candidate is going to do if he wins*" (Liliana – Student of Administration).

In Figure 4 shows the global results by dimension. The first dimension related with the action the university student perform as digital citizen shows a clear tendency of positive attitude (85.2%). That means that college students consider themselves as individuals formed in their role as digital citizens. Although it is clear that they have a limited conception on the ways to exercise their digital citizenship. Partly because they have not yet acquired other responsibilities. Remember that most college students still depend economically on their parents and have no work experience. On the other hand, in Mexico the right to vote for the election of governors is when they turn 18, the average age of the participants was 21 years, so at least they already had a democratic exercise experience of 3 years.

Because the University plays a central role in the lives of these young people as it is the main activity that most of them play, and taking into account the short vision that the students identify when associating digital

citizenship with the simple fact Being on the Internet, it seems vital to reflect on the ways in which the university and the government are attending to the integral formation of those who in the near future will be the digital citizens.

The second dimension referring to online participation as citizen also shows a positive tendency (67.4%). The university students state that they have expressed their opinion in some mass media, as well as that they have expressed their opinion about some news or event. However, most of them show an active online participation that is limited to their acquaintances in social networks since when it comes to evidence their online activity on public debates or their contribution in the elaboration or improvement of proposals the university students have a low level of participation. The evidence suggests that it is necessary to strengthen the level of maturity as digital citizens in terms of being aware of their environment, their city and in general by the Society.

The third dimension attends the forms of manifestation of the students about their digital citizenship on the internet, in this case there is a tendency by a negative attitude. Evidence of this dimension reflects a greater weakness in the training process of university students in their performance as digital citizens. The most positive aspect in this area is that all students have made an online complaint to public institutions, although most of the complaints are of individual interest, showing a low concern for the collective interest.

Possible causes in the low rate of participation in public affairs through the Internet in university students may be associated with at least two factors that were detected in the evidence: apathy and insecurity. The apathy of university students towards their participation in public affairs is associated with a lack of credibility towards institutions due to corruption and impunity. While the insecurity is related to the fear that exists in the Mexican Society due to the increase of violence and delinquency.

Figure 4. Global results by dimension
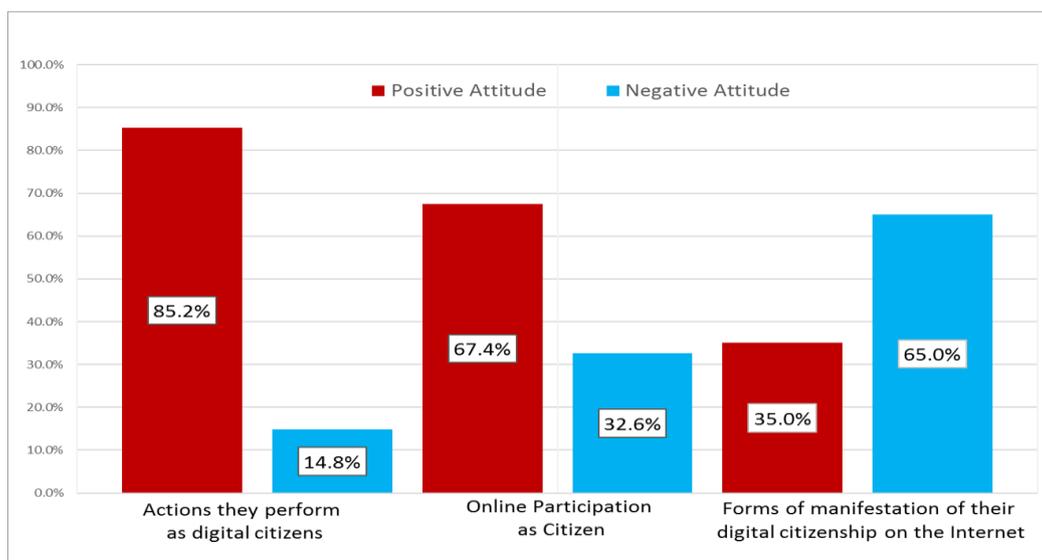
In Figure 5 appears the tendency of the university students organized by the three bachelors: Administration bachelor degree (LA), Tourist Administration bachelor degree (LAT) and Administrative Computational Systems bachelor degree (LSCA). In general, as you can see in Figure 5 the opinion of the students is very similar even if they are studying a different bachelor. However, it is recommendable to make an extensive Statistical study with a significant sample in order to verify these tendencies.

However, the qualitative fieldwork made it possible to understand a little more the positioning that students have regarding the construct of digital citizenship. It was also useful for the development of a quantitative instrument in order to be applied to a significant sample and to continue with the comparative analysis stage of the study.

Figure 5. Attitude tendency by bachelor
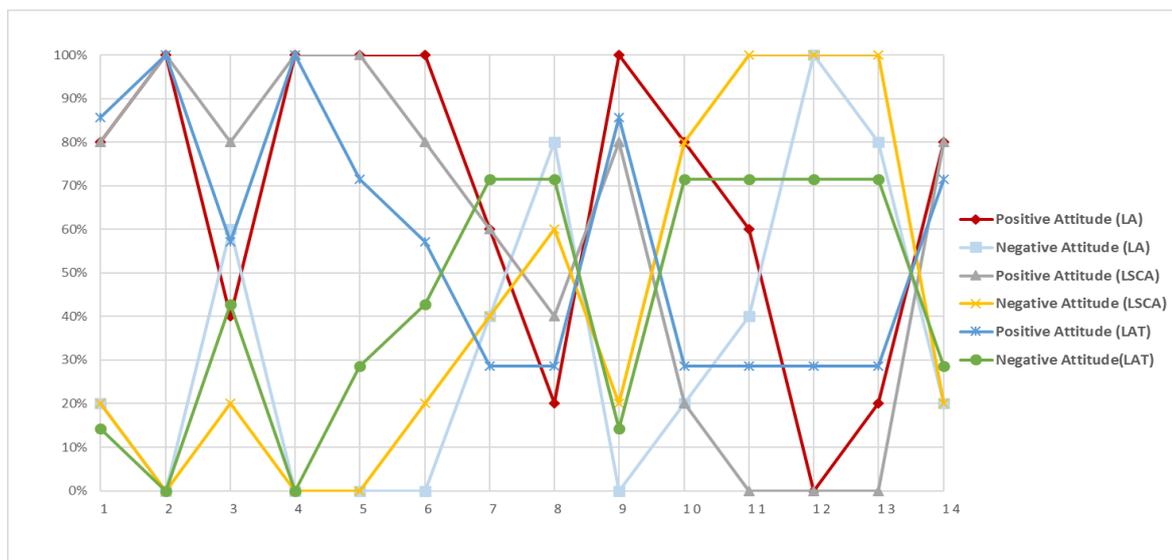
CONCLUSIONS

In general terms, there is a certain reserve in the participation as digital citizen, partly due to the uncertainty and insecurity that afflicts the Mexican society. It shows an interest in the great themes and daily events that afflict the country, but it does not participate in open sectors.

The manifestations of their opinions as digital citizens are scarce. They link their role almost exclusively in terms of their social networks and in a relaxed, uncritical environment and with no desire to make any contribution to society. Their online participation is visualized as an extension of their social life in their immediate circles, but it is not possible to glimpse the potential of their voice in the virtual environment.

The level of participation is expressed as a spectator, they like to know what happens in society, but they maintain discretion regarding their opinions and the means they occupy. The interviewees' actions on demands or petitions adopt positions of personal interest, and not so much to attend to community issues, being evident an individualistic personality in their digital act.

On the other hand, online participation in political interests is limited, partly to avoid conflicts or online discussions. There is evidence of a high sense of discretion in public affairs, partly because of the fear of reprisals or to maintain a harmonious situation in virtual interactivity.

They identify that they have had an evolution in the last 3 or 4 years that has allowed them to be more mature in the forms of social interaction in virtuality. Specifically what they say, how they say it and who they tell it to. A selective debug scheme has been generated on when and how to manifest on the Internet.

Finally, university students emphasize the value of the University and recognize the development of skills and knowledge they have obtained, but they are limited to identifying the acquisition of technological competencies in relation to the use of a range of technological tools. For what remains a task pending the strengthening of a ethics behaviour to become in responsible digital citizenship.

Therefore, the role that the University has played requires to be analyzed and to take measures so that, through its formative process, it fights against social inequality and cultural difference by seeking the development of digital competences. In particular, it is necessary to generate strategies to strengthen literacy, not only in terms of the use of ICT, but also in the indoctrination of the ethics to become in digital citizens.

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VİDEO PAYLAŞIM AĞLARININ EĞİTİM AMAÇLI KULLANIMI: YOUTUBE ÜZERİNDEN İNGİLİZCE ÖĞRENİM ÖRNEĞİ

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Bilgi teknolojilerinin gelişimiyle beraber modern teknolojinin ürünü bilgisayarları ele almak gerekir. Bilgisayarlar, gerekli görülen bilgileri istenildiği kadar depolayabilen mecralar durumuna gelmiştir. Dolayısıyla depolanan bilgileri işleyen insanlar bu sayede yeni bilgileri de üretebilmektedir. Bilgi teknolojilerinin en başta gelen enstrümanlarından bilgisayarlar ve ardından ortaya çıkan İnternet sayesinde yeni eğitim ve öğretim teknolojilerinin ve öğretme yöntemlerinin de değişim yaşadığı görülmektedir. İnternet 'bilgisayar ağlarının ağı' olarak ifade edilirken bu sistem sayesinde dünya çapında milyonlarca bilgisayar birbirine bağlanmaktadır. Ayrıca sanal alem olarak da adlandırılan (cyberspace) İnternet yoluyla insanlar günlük hayatlarında çok farklı yaşam biçimlerine, iletişim yöntemleri ve alışkanlıklara sahip olmaya devam etmektedirler. Bu sayede İnternet, mecra olarak çok geniş uygulamalara ve kullanım alanlarına sahip bir alem durumundadır. Burada bireylerin ve her türlü resmi, resmi olmayan kurumların, şirketlerin web sitelerinin yanı sıra sosyal paylaşım ağlarının, video, ses, fotoğraf v.b. paylaşım ortamlarının da bulunduğu sonsuz bir alem vardır. Bu paylaşım sitelerinden birisi ve en önemlilerinin başında ise Youtube gelmektedir. Günümüzde ortalama günde 66 bin tane görüntülü ve sesli videolar yüklenen Youtube, kendini yenileyen ve kullanıcıların kullanımı konusunda kolaylıklar sağlayan bir paylaşım ağı konumuna gelmiştir. Bu bağlamda Youtube üzerinden birçok alanda, konuda eğitim amaçlı yayın yapan, video içerikleri paylaşan yüzlerce site bulunmaktadır. Çalışmada Youtube üzerinden yayın yapan ve çok fazla sayıda izleyicilerin/takipçilerin yararlandığı İngilizce öğreten mecralar belirlenecek ve bunların analizi yapılacaktır. Çalışmanın yöntemi olarak ise W3C'nin web erişilebilirlik standartları referans alınarak değerlendirme yapılacaktır

VIDEO-RECORDED DISCUSSION AND REFLECTION TASKS FOR SECOND LANGUAGE LEARNING

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This paper offers a rationale for the use of video-recorded group discussion and reflection tasks for the promotion of second language (L2) learning in a postsecondary educational context. First, an overview of a yearlong series of video-recorded 10-minute group discussion and reflection tasks employed in five sections of a required English Oral Communication class at a Japanese university will be provided. Then, data collected from the tasks, survey responses, and focus group and individual interviews will be discussed in order to outline the major strengths and weaknesses identified.

VISIONS OF STUDENTS OF PEDAGOGY ABOUT KINDERGARTENS

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ABSTRACT
This paper discusses female pedagogy students' visions of kindergartens. Visions are operationalized as a sort of reconstructing procedure of previously experienced things, but they also leave space for creativity, and can be variously combined into new, unique visions that are no longer mental reflections of reality. The research method was thematic writing about the visions of the students. The research sample consisted of 40 female students enrolled in the 1st year of the bachelor's degree programme Kindergarten Education. It was an intentional decision to choose students at the beginning of their studies, as at that time they are not yet much influenced by the knowledge acquired during their studies. The aim of the research was to discover how female students envision kindergartens, how kindergarten has changed since they attended it as children, what kindergartens should be like, and also what the kindergarten teacher should be like. Consequently, content analysis of all obtained data was carried out. The results show that the students' visions of kindergartens are connected mostly to the kindergarten environment, and the appropriate kindergarten activities. For the students, cooperation between the kindergartens and the families is of key importance. Moreover, students consider kindergarten an institution that should prepare children for future life. Changes which the students noticed in comparison to when they attended kindergarten were predominantly in the attitude towards children in the kindergarten environment and in the legislation. As far as the female students' visions of kindergarten teachers go, they consider it crucial that the teacher has a positive attitude towards children and a university degree.

INTRODUCTION
When one decides to study the Kindergarten Education degree programme, it is likely that they take a genuine interest in this field and also that they have certain visions of kindergartens. It can be assumed that these visions stem from their own kindergarten experience, as the majority of the students attended kindergarten in their childhood. As with any other type of visions, female students' visions about kindergartens stem from their memories and the experience they have gained so far. Visions can be defined as a reconstruction of what has been perceived, but they also leave space for creativity, and can be variously combined into new shapes that are consequently no longer a mental picture of reality, but rather a specific mental structure (Nakonečný, 1997). This definition was crucial for the purposes of the research. Female students' visions captured by this research arise from their own kindergarten experience, with which they further operated in their minds. And, based upon these experiences, they created and defined their own new kindergarten visions.

Our visions are formed by experience. Experience stems from a person's own reality and is very individual - subjective for everyone. Hence, visions, which are influenced by our experience, are subjective as well. Experience can be defined as what has been experienced and stored in the memory of an individual. It is not a passive item stored in the memory, but rather an active element. The process of gaining experience, and changes that experience consequently evokes, is the essence of learning. Experience is the source of knowledge for humans, and also the means for interaction with the environment (Hartl, Hartlová, 2010).

Visions are closely connected to memories. In some interpretations, a combination of these two concepts can be found. These are the so-called memory visions. It can be said that the memories we are able to recall in our minds at the present are notions of once real-life events. Our own memories very strongly influence the new visions that we create in our minds. The assumption is that the female students' memories of kindergarten influence their current visions of it.

Memories can be also described as notions which revive previously experienced events. These notions are accompanied by the emotional experience related to the moment of their origin. They can be influenced by the emotional state at the moment of their recall. Long forgotten and artificially recalled memories always have a strong emotional accompaniment. Based on this, it can be concluded that for the most part, emotional memory is more lasting than factographic memory. This was obvious in the statements of the research participants as well. Participants recall predominantly emotionally stronger memories from their childhood.

So, how do the pedagogy students picture kindergarten, what scope do their visions possess and what are they based on? Are the female students' visions similar or do they differ in some aspects? In the following segment, it will be attempted to find answers to these questions.

THE STUDY
As suggested before, the aim of this research was to fulfil certain goals. The aim of this research was:
- to clarify the visions of the pedagogy students about kindergartens;
- to uncover how the pedagogy students picture the kindergarten environment;
- to uncover the visions of female pedagogy students about the philosophy and concept of kindergarten;
- to describe the visions of the female students about the profession of a kindergarten teacher

The methodology used for the data collection was thematic writing. This is a free style of writing, where the participants write an assignment based on a topic announced beforehand. As the writing is free, the researcher does not control or interfere in the process, and the final text is not limited in scope. In thematic writing, the participants are able to express their subjective views (Wiegerová, Gavora, 2014). 1st year kindergarten pedagogy students were approached for the purpose of this research. They willingly described their visions regarding kindergartens. Participation in this research was voluntary. The assignments were written by hand, and later re-written into an electronic version. The participants were not restricted by the word count or limited by time. Texts were submitted anonymously.

The selected sample consisted of 40 participants, future kindergarten teachers. The way the research sample was selected for the purpose of this research was evaluated as available. The research group therefore consisted of 40 female full-time students aged 19-20. As a research group, 1st year students were selected as it was assumed that their visions are not yet much influenced by their university studies, but rather are mostly based on their own kindergarten experiences.

For the data evaluation, content analysis of the products - written assignments - was used. Open coding was used. In the analysis process, texts were divided into segments - meaning units. Consequently, the meanings were identified using open coding in the segments and the meanings were marked with codes. The individual segments were repeatedly read, the codes were modified and revised with the intent to best capture the range of data obtained. It was followed by grouping the codes into categories with similar meanings, followed by their description and explanation. There were some limitations to the research process. These mainly relate to the construction of the research sample.

The sample selection may indicate decreased credibility of the research. In this case, this is connected to the fact that the students were already part of the academic environment, where they were gaining and deepening their theoretical knowledge as well as developing their pedagogical competencies for kindergarten work. Distortions in the research results could have been caused by the researchers. Thorough knowledge of the research field can mean higher credibility of the results, but on the other hand, it might also contribute to data distortion caused by the researchers themselves. In this case, the in-detail knowledge of the academic environment, personal contacts with the students, and also knowledge of the institutionalized kindergarten environment might have a similar effect.

FINDINGS
There were five main topics detected in the participants' accounts that they commented on. These are the following: memories of the kindergarten years, memories of kindergarten teachers, changes in kindergartens, what the kindergarten environment should be like, and what the kindergarten teacher should be like.

Memories of the kindergarten years
One of the topics that occurred in the statements was memories of the kindergarten years. As mentioned earlier, the visions are based on one's own experience, and are heavily influenced by it. Analogically, participants very frequently mentioned their own childhood memories and kindergarten experience in their accounts. Positive as

well as negative memories of particular activities they were forced to participate in came up. Based on their testimonies, it can be observed that the participants tend to recall mostly various extraordinary happenings that took place in the kindergarten, or other key moments that affected the participants enough to remember them. The majority of the participants agreed that they do not recollect the day-to-day running of the kindergarten or the activities the teachers did with them.

"But I greatly enjoyed carnivals, where we were in disguise, and also birthday parties. During these, each birthday boy/girl was nicely dressed, received a candle cake, and was sat down on a blue throne and photographed. We were looking forward to it all year."

These memories were further divided into memories of one's own childhood and memories of a kindergarten pedagogical practice, which took place either during high school or at university. Havel and Janík (2004) stress the importance of the pedagogical praxis. They perceive it as an opportunity for the students to use their acquired theoretical and professional knowledge in practice. The student is given a certain degree of responsibility for his/her decision-making at this stage. That is why consequent reflection is important as well. Thanks to this reflection, the student can become aware of their limitations and gaps in their professional competence.

Memories of kindergarten teachers
Another type of memory that appeared in the data was those of kindergarten teachers dating back to the time participants attended kindergarten. These memories were positive as well as negative. From the interviews with the participants, it is obvious that kindergarten teachers play an important role in the memories of participants and that they influenced these memories heavily. The students relied in their statements on their own experience with the teachers. Among the positive memories of the teachers, personal characteristics such as smiling, popular, inventive, and a positive attitude towards children prevailed.

"We had a teacher who had a truly amazing relationship with the children and it was thanks to her that many children enjoyed kindergarten. She was always playing with the children, when we arrived at the kindergarten she always greeted us, hugged and took us to the other children."

In terms of good relationships with the children, the concept of pedagogical love is also mentioned in the literature (Lukášová, 2015). Pedagogical love is an expression of an emotion towards the child. It is an emotion that helps children to cultivate their own feelings for the educational efforts of the school. Further, it reassures the children that they will get understanding and support in their efforts.

As far as the negative memories of teachers are concerned, personal characteristics with a negative colour occur, such as unlikeable. Here, mostly negative or conflict situations occur, in which the teacher appears or which were directly caused by her. In two papers, memories of physical punishment on the part of the kindergarten teachers appeared.

Changes in kindergarten education
As the students mentioned in their statements, kindergarten has undergone some changes since the time they attended it. Participants compared what has changed in the kindergartens since their childhood. They also assessed whether they perceived these changes as positive or, rather, as negative. The first area the students point to in this part of their accounts is related to the changes in the kindergarten environment and kindergarten equipment. Students identified implementation of modern technologies into kindergartens. Further, students noticed changes in the approach of the teachers towards children. They pointed out the efforts to support the child's individuality, whether in choosing an activity or choosing food.

"I dare to say the approach of the teachers has changed. No one forces the children to participate in any activities, or to eat certain foods any longer. They have a choice. Today's children have the opportunity to do what they want to and how they want to. We did not have such an opportunity."

Another key change from the students' point of view is the inclusion of two-year-olds into kindergartens. Because this question is gaining in prominence, scientific literature comments on it as well. This issue is discussed on various levels and in several spheres. Overall, however, it is clear that for the successful inclusion of two-year-olds in kindergartens it will be necessary to adjust the conditions - e.g. reducing the number of children in the classroom, enhancing pedagogical and non-pedagogical staff, adjusting the daily regime, psychohygienic conditions, space, equipment, etc. It is necessary to accept the evolutionary particularities and needs of the children of this age category. These changes should be reflected in the teachers' preparation for the

classes and in their education (Opravilová, 2016). Consequently, the students pointed at the genesis of kindergarten pedagogy as a scientific field that has lately been developing rapidly.

"I observe higher professionalism and higher interest in children, more scientific books and studies about preschool children and how to approach them."

One of the transformations that kindergartens have undergone was the penetration of elements of alternative pedagogy into the current " kindergarten market" in the Czech environment. In comparison to the present, in times when the participants attended kindergarten, there was a model for the kindergartens and all kindergartens were based on that same concept. At the present time, the parents have more options, there are more types of schools with various focuses and there is a broad range of alternative kindergartens.
Further, the students commented on the system and legislative changes in kindergartens.

"Kindergartens were changed a lot due to the implementation of the Framework Educational Programme for Pre-school Education. Teachers had to change almost everything and with the help of this programme the daily schedule changed a lot as well."

However, claims that some kindergartens have remained the same occurred in the accounts as well.

How the kindergarten should look
The most significant results extracted from the data obtained from students were their visions of kindergartens. The participants pretty much stated in their texts what an ideal kindergarten should look like from their perspective, or what a kindergarten where the participants would like to work in the future should look like. The first area mentioned by the participants in their statements concerns the opinion that a kindergarten should offer an interesting, pleasant and, above all, motivating environment.

"Children usually spend all their days in the kindergarten. Hence, an environment that will provide them with various activities and will enable their individual development should be created."

The kindergarten environment is specific in that it is adjusted to the height of the preschool children. Objects are accessible to the children so they can easily reach them. Preschool children explore the environment through their senses, and the environment is adjusted accordingly. The kindergarten environment should be colourful, diverse in terms of materials and shapes, and there should be enough room for free movement of the children (Koťátková, 2008). Participants' statements were in concordance with the above-stated definition.

Further, participants commented on the type of activities that take place in kindergartens. They agree that the activities offered should be diverse, and they also commented on their level of organization. An interesting topic that came up in the statements is the development of one's individuality vs. its suppression for the purposes of adaptation to the group. Whereas the majority of the participants believe that it is crucial to support children's individuality and to adapt their work accordingly, one participant opposes this idea and puts the interests of the group first. Even if this should be at the expense of one's individuality. She even suggests the suppression of the child's identity.

The students also mentioned that kindergarten should ensure a quality preparation of the children for entering primary school. Further, they agreed that kindergarten should support the socialization process of the children in the kindergarten.

Cooperation between kindergartens and families was another of the areas that the participants commented on. Successful cooperation with the parents enables the teacher to gain a lot of precious information about the child, and it helps him/her to get to know the child better. This enables the teacher to more effectively educate the child, which was something the students agreed with. Studies show that to incorporate the parents into the educational process leads to the child's success at school and is connected to their socio-economic development (Syslová, Borkovcová, Průcha, 2014).

Further, the students also express their opinions on the composition of children in a kindergarten class both in terms of the number of children in class as well as in terms of homogeneous and heterogeneous classes. Last but not least, the students stress the importance of versatile development of children.

"The main aspect that a kindergarten should have or, more precisely, offer to the children are opportunities. Within the kindergarten environment, I would see this more so as an opportunity to express their creativity, an opportunity to make a decision (what I want to do) etc....It should support the children's development and give them an opportunity for self-expression."

Visions about kindergarten teachers
The final area which occurred in the students' statements was related to how the students picture kindergarten teachers. Similarly to the previous area, the participants also described their rather idealised visions. As is obvious from the research "Child´s learning" (Wiegerová, Gavora, 2016), students are aware that kindergarten children learn by observation and imitation of the people who influence them at that age. Kindergarten teachers are undoubtedly among such people. In the first part, the participants expressed their opinions about general characteristics of the kindergarten teacher. Here, the students mentioned what the teacher should be like in terms of his/her personal characteristics and what his/her skills and abilities should be.

"…a key element is the teacher who should help to create a pleasant environment. The teacher should be friendly, nice to children, but children should listen to her and respect her. Teachers should be active, try to motivate children and always capture their attention with something new."

Based on students' descriptions about what the ideal kindergarten teacher should be like, it can be assumed that this is the kind of teacher they would like to become in the future. As results from the research entitled "Self-efficacy of Students" (Gavora, Wiegerová, 2017) show, preschool education students generally show a high degree of self-efficacy, self-confidence, confidence in their abilities and their own potential for future employment. The majority of the students mention that the teacher should have a positive attitude towards children, and also enthusiasm for the job. Personal characteristics of teachers are very important as well. The personal characteristics of the kindergarten teachers are key elements of the kindergarten climate. The willingness to communicate with the children, as well as with their parents, is crucial. Hence, the teacher should be able to communicate on two different communicative levels. Communication with the parents is different from communication with the children. One of the key characteristics of the kindergarten teacher is the ability to be emotionally engaging. Students agree that kindergarten teachers should like children. This claim is rooted in the fact that, in reality, they often come across teachers who are very unlike this.
Students also agree on the issue that the teacher should be a qualified professional. In terms of qualification, this area is closely connected to another one. Students express their opinion on the education of kindergarten teachers; many students believe that it is necessary for kindergarten teachers. Due to the increasing demands on kindergarten teachers, their university education at bachelor level should be ensured. This measure can be understood as an effort to upgrade their social and professional status (Rýdl, Šmelová, 2015).

"This, however, greatly depends on the teachers, and it depends on them what kind of atmosphere they are capable of creating... That is why I believe that university education is of a crucial importance as well as a good relationship with the children."

The research entitled "*Professionalization of university students of preschool education*" (Wiegerová, Svěrkošová, 2016) shows that the students realise that increasing kindergarten teachers' education helps not only improve the status of the teaching profession in the eyes of the public, but it primarily helps improve the quality of work of the kindergarten teacher. Thanks to the university studies, the student penetrates more deeply into this field, especially with regard to the theoretical background.
Another issue discussed was related to salaries. Students believe that it is important to raise the salaries of kindergarten teachers. Students claim that the salary raise would have a positive impact on the quality of the pedagogical work, and it would also raise the prestige of this occupation in the public eye.

CONCLUSIONS
The accounts of the students in this research were very interesting and managed to cover a wide area of topics that relate to kindergarten. As was assumed, the students relied on their own kindergarten memories. The students discussed the activities and experiences they remember from their kindergarten times. Further, memories of the kindergarten teachers turned out to be of crucial importance. From the students' accounts, it is obvious that the teachers heavily influenced their kindergarten memories.

Since students have experience with kindergarten both from the time of their childhood as well as from the present time, from their studies and visits during school placements, the statements also contained a certain comparison of what kindergartens were like at the time when the students themselves were attending them as children, and of what kindergartens are like now.

Moreover, the students described their own visions of kindergartens, and it can be said that their visions were idealized. Hence the students described what the ideal kindergarten should be like. Last but not least, students expressed their opinions on the profession of a kindergarten teacher. These visions were idealized as well, as the students were describing some kind of ideal kindergarten teacher.

In the course of this research, it was successfully clarified what the visions of the pedagogy students about kindergartens are. Consequently, it was uncovered how pedagogy students picture the kindergarten environment. In addition, it was uncovered what the visions of the students regarding the philosophy and concept of the kindergartens are. Also, it was described how students view the profession of the kindergarten teacher. Hence, the research provided an opportunity to take a peek into future teachers' visions and showed what the nature of kindergartens as well ideal kindergarten teachers should be like.

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WEB-CONFERENCING: INTERACTIVE, ENGAGING, AND COLLABORATIVE ONLINE LEARNING

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ABSTRACT
The inclusion of a web-conferencing room within an online course offers many new and exciting ways to support student learning. This virtual environment provides participants with face-to-face meetings where they can talk, question, and discuss a given topic in real time using both asynchronous and synchronous formats. With continuous improvements, a web-conferencing room is now more user-friendly and often includes a wide-range of embedded tools to heighten interaction during a live session. Teachers, who increase their knowledge and skill-set by exploring and utilizing a web-conferencing application, may find that it offers new ways to expand interaction, extend periods of student engagement, and enhance collaboration within an online course.
Keywords*:* collaboration, engagement, interactivity, online learning, web-conferencing

INTRODUCTION
As teachers consider ways to extend learning opportunities within their online courses, a variety of digital tools offer a platform for the development of creative instructional lessons and activities that have the potential to engage students and increase learning. Tools such as discussion boards, blogs, journals, and wikis have the capacity to open lines of communication between members in an asynchronous format. Many teachers are using these tools to encourage written dialogue between members. The addition of a web-conferencing room, within the online course, offers a stage for real-time sessions that include both written and verbal communication between members. The web-conferencing room steps up opportunities for engagement by also providing a live video feed that enables members to see and hear each other during face-to-face sessions in the virtual room. With a wide-range of additional digital tools embedded in the web-conferencing room, a live session can deliver a new facet in the way students can interact online. Teachers can design and conduct live sessions with students for orientations, mini lectures, tutorials, and demonstrations. During student-lead sessions, they can chat, discuss a topic, present, record sessions, and in addition to or as well as share content.

Teachers and students can interact in a web-conferencing room for presentations or meet with members for brain-storming and problem solving sessions. It is the perfect place to begin a course by providing an orientation session. This virtual environment offers real time meetings where members can talk, question, or discuss a given topic. Most web-conferencing rooms can also deliver a virtual learning space where members can interact by using a white board, participate in polls, share an application, or work together on content. Live sessions can even be recorded for students that might not be present.

With the wide-range of digital writing tools, many online teachers have not included the face-to-face sessions that can be provided through a web-conferencing room. With continuous improvements, most web-conferencing software are more user-friendly and often include a wide-range of embedded tools to support interaction during a live session. Teachers, who are willing to increase their knowledge and skill-set by exploring and utilizing a web-conferencing application, might just find that it offers new ways to enhance student learning. With numerous

possibilities for the development and facilitation of learning activities and projects in an online course, teachers have a unique opportunity to include enhanced applications for student learning and engagement through web-conferencing sessions.

The Web-Conferencing Classroom

It is essential that a web-conferencing session be driven by the same goals, objectives, and learning outcomes as a traditional learning environment. Vai and Sosulski (2011) provided a best-practices model for designing online courses that also applies to live sessions. They proposed a practical approach informed by theory that includes a design that supports students from the beginning of the course. A quick-start guide that summarizes the tools should be included in the course assignment. This will provide students with the information they need to successfully join a session and begin using the tools to interact. A short how-to video could also be included in the course assignment as a guide for this virtual environment. Within the initial web-conferencing session, the teacher should plan a time of discovery for the students. Simple tasks can be embedded throughout the session to help students begin to use the tools for a variety of applications.

Research findings continue to emphasize the use of an appropriate pedagogical approach for course design and lesson development (De Freitas & Neumann, 2009; Murphy, Rodriquez-Manzanares, & Barbour, 2010). Thormann and Zimmerman (2012) and Via and Sosulski (2011) maintained that course design must focus on pedagogy, organization, and consider the visual aspects of the learning environment. This is true for online course development and lesson development for a web-conferencing session. These researchers also recommended that activities be designed to support student interest, interaction, engagement, and include social opportunities for the learning community (Thormann & Zimmerman, 2012 and Via & Sosulski, 2011).

Thormann and Zimmerman (2012) emphasized the importance of scaffolded assignments to heighten student learning. Lehman and Conceicão (2010) proposed that online courses and lessons provide a blended approach that includes both asynchronous and synchronous activities throughout. Within the web-conferencing room, a skilled teacher can adopt both a scaffolded and blended approach to teaching. Many web-conferencing sessions include breakout rooms that deliver just the location where teachers can scaffolded small group learning activities. Breakout rooms usually allow the teacher freedom to move in and out to monitor each group's progress and support learning through careful questioning and redirection. By utilizing both a blended and scaffolded approach, lessons can be individualized and provide both written and verbal discussions constructed to extend the learning experience and encourage collaboration within the community of learners.

As teachers focus their efforts on the course content, a great deal of thought must be given to ensuring that students have a "high degree of interactivity and participation" within the course and online sessions (Conrad & Donaldson, 2011, p. 5). The actions and contributions generated by the learners should increase not only their individual understanding but also influence the growth of the online community (Conrad & Donaldson, 2011). In an online course, teachers can create assignments and activities that allow learners to become knowledge-generators who "assume responsibility for constructing and managing their own learning experience" (Conrad & Donaldson, 2011, p. 5). A web-conferencing environment offers a place for groups to meet, brain-storm ideas, and then find solutions for a case study or other scenario. Even though the members are located all over the state or even the world, they can meet in a web-conferencing room for face-to-face discussions and later come back to record and present their findings to the class. The opportunities for learning are only limited by the ingenuity and skill of the instructor. The careful planning that is spent during the development of assignments and activities for the course and web-conferencing sessions, along with the time spent by the teacher developing student relationships are essential components that boost student growth, engagement, and collaboration within the learning community.

After the development of a student-centered, interactive live session, the teacher must make a shift from a teacher-led approach to a role of facilitator. Within a web-conferencing session, the facilitator guides the learners through a variety of activities that are enhanced by the digital tools embedded in the room. The facilitator's confidence and skill in the web-conferencing room is necessary to effectively support interaction and engage students in the learning process.

Role of the Facilitator

A key role of the facilitator is to "moderate the discussions, thus focusing and deepening the work of the group and enhancing outcomes or products of the communal effort" (Collison, Elbaum, Haavind, & Tinker, 2000, p. 207). As a facilitator, the teacher must learn new strategies and skills that are appropriate for a web-conferencing environment. If web-conferencing is new to the instructor, some formal training may be needed to really see the full potential for learning in this environment. Reaching out to colleagues who are experienced users of web-conferencing tools can also provide additional insights. Consider inviting a group of teachers with various web-conferencing skills to meet in a web-conferencing room for a time of discovery and learning. This will allow everyone an opportunity to hone their skills and gain new knowledge and understandings. The new facilitator must take his or her own time to experiment and practice using each tool. It is also a good idea to be a guest in a colleague's session. This opportunity can provide a chance to experience the room from a different perspective which is helpful in fine tuning activities and using new strategies in upcoming sessions.

There are always unexpected situations and issues during a session.

In the context of constant technological change, a facilitator needs to develop

- confidence with the basic features and functions of the software
- resilience and adaptability to deal with the new versions and features
- a willingness to learn and relearn when new features become available
- creativity and flexibility to deal with or work around technical issues which arise
- an ability to establish appropriate support systems, mentors and other expert friends (Cornelius, Gordon, & Schyma, 2014, pp. 19-20).

Once the teacher feels comfortable with the technology and has developed several interactive activities for a session, it is time to expand his or her ability to question effectively. During a live session, the facilitator must listen carefully to discussions and pose questions that allow students to think deeply and reflect on their own understandings. The role of the facilitator in this situation is to provide an environment where the learner can clarify his or her thoughts. It is often easier to give advice or make a statement but the skilled facilitator understands the importance of allowing a student to refine his or her thoughts because it will have a longer-lasting impact on student development (Cornelius et al., 2014). Senge (1990) recommended the use of dialogue openers like: "Do you see gaps in my reasoning?" or "How did you arrive at your view?" Carefully worded questions can spur inquiry and reflection. It is important that the facilitator be the kind of teacher who "shares leadership with students and supports their work from the sidelines, more like a coach" (Collison et al., 2000, p. 208).

The Look and Feel of the Web-conferencing Room

First impressions cannot be under-estimated. Even though a teacher may not be able to address every visual aspect of a web-conferencing session, it is important that the session be both visually appealing and engaging to the learner. The desire of the instructor must be to provide a supportive and caring environment where the learner is challenged and engaged (Via & Sosulski, 2011). Given this understanding, both the look and feel of the live session must be interwoven. The physical appearance and the warmth brought to the session by the instructor are equally important.

The inclusion of videos or podcasts can be very beneficial in supporting the content of an online course (Via & Sosulski, 2012). However, within a web-conferencing session, video clips should be used sparingly and only a few minutes in length. Live sessions should not include lengthy video clips that are better embedded in the course for viewing later. A good rule of thumb might be: Avoid including anything in a live session that can be videoed and provided within a course learning unit. A live session should be designed to increase discussion, support social interaction, and give the members a sense of belonging in the group. How a session is designed will determine if it enhances student engagement, collaboration, and learning.

Unlike a course project that requires students to research and plan, a live session should include opportunities for students to share their findings, present ideas, and reveal implications in a variety of ways. The session should

include many chances for students to discuss their work and respond to each other. Within a live session, the provision of opportunities for sharing, interacting, and collaborating can keep members focused and on-task.

Via and Sosulski (2011) recommended a variation of content-related experiences that address a "variety of modes" (p. 70).   By carefully selecting and mixing quotes, graphics, tables, song clips, and short video clips that are related to the session topic, the instructor can ensure a media-rich environment that continues to draw the learners back into the session. By providing media that addresses many modalities, the teacher can add dimension to a session that will expand student learning. Mayer (2001) emphasized the importance of using words and images to support a topic. A web-conferencing room can provide areas for adding content through cartoons, PowerPoints, graphics, diagrams, tables, and charts. These can be opened in a white board and quickly shared and discussed with the students. Teachers are encouraged to seek-out and select content-related resources that can capture students' interest and imaginations. Careful selection of activities and resources can provide a powerful and engaging live learning session that motivates and liberates student inquiry.

Learner Support

Within the online environment, multiple levels of support are needed. Even though many students come to the online course with a working knowledge of some of the applications used in a learning management system (LMS), others still struggle and are fearful of the software and digital tools that are needed to support the virtual learning environment. The instructor can ease many of the students' concerns by providing different levels of support during the development of the course and through an initial web-conferencing orientation. A course syllabus, embedded course supports, and a web-conferencing orientation session can facilitate an easy transition for most students.

Students come to an online course with different expectations and experiences. It is essential that an orientation session provide the support needed to help each student become successful. The orientation is the beginning of the learning experience and it sets the tone of the course for the learner. Lehman and Conceição (2010) suggested "Online course orientation activities not only set the tone for the entire course but also create an opportunity for learners to get ready for a safe and comfortable environment" (p. 40). This initial introduction to the course can put the learner at ease and offer a platform where students can begin to build relationships. "A well-designed pre-course orientation can help learners feel they are part of the learning community" from the onset of the course. (Lehman & Conceicão, 2010, p. 41).

A carefully developed and creative orientation session can bring much to the students in an online course. The session has the potential to provide the learners with information concerning the location and application of video tutorials and quick-start guides for many of the digital tools that will be needed to complete assignments throughout the course. The teacher can also introduce students to the online learning environment with a walk-though of the course. This can easily be accomplished while the teacher is in the web-conferencing room. Before the session begins, the teacher should open the course a second time using a different browser and leave it open in the background. This will allow the instructor to utilize a screen share tool provided in most web-conferencing rooms. When the teacher clicks on the screen share tool inside of the web-conferencing room, he or she can then locate and access the course that was opened in the background. Within a few seconds, the instructor can take the students on a walk-through of the course to discuss assignments, supports, and expectations. The walk-through also gives students an opportunity to ask questions as an assignment is discussed which promotes clarity early in the term.

A web-conferencing orientation can also provide an opportunity for an initial ice-breaker activity where learners have an opportunity to discover a little about their new classmates and instructor. This can put students at ease and make them more comfortable in the online course (Lehman & Conceição, 2010). A web-conferencing orientation, content session, or an individual conference can be used to support students in a variety of ways. As the teacher plans, consideration should be given to the impact that web-conferencing can have on supporting student learning and engagement.

Learner Engagement

Lehman and Conceicão (2010) stressed the importance of technology being transparent and easy for students. "This means it should not be the course focus or a learning distraction; rather, it should be user-friendly" (p. 29). Thormann and Zimmerman (2012) pointed out the importance of defining an approach to learning and in so doing, integrate available technologies to support student engagement and learning. Within an online course, a web-conferencing session offers additional ways to meet this need. Thormann and Zimmerman (2012) emphasized that "Facilitating the exchange of ideas and concepts by building community is accomplished by creating a personal connection, fostering peer relationships, interacting with each student, and experimenting with new technologies" (p. 110). Within each web-conferencing session, the teacher must work to build and extend personal connections with the members. It is essential that the teacher provides a personal welcome to each student as he or she enters the session. An initial well-planned interactive group activity should also be developed so that students are actively involved with others in the group. Steed (2011) suggested that if learners were not engaged within 20 seconds after logging into a live session, they would begin to multi-task (reading emails, social networks, etc.). The digital tools embedded in the web-conferencing room help the teacher provide an orientation and other sessions throughout the course that are welcoming, engaging, and interactive as students share and grow together.

In a virtual environment, it is often difficult to gauge the level of student engagement during long periods of discourse. It is important for the teacher to limit the time that he or she shares content or information to the group. Short periods of three-five minutes can be planned throughout the session. The lesson plan must include several opportunities for students to refocus by using a quick question or task. By designing and infusing a variety of activities into the web-conferencing session, the instructor has a much greater provability of engaging students and keeping them on task.

The teacher's skill in designing an interactive environment that includes web-conferencing sessions can have a tremendous impact on student engagement (d=0.62) (Marzano, 2000). Research has also shown that a positive teacher-student relationship can greatly influence student outcomes related to achievement and attitude (d=0.72) (Cornelius-White, 2007). Even though members of an online course are not sitting in a physical classroom for meetings, the web-conferencing room offers a forum for live discussion, interaction, and relationship building within the community of learners. This level of support is not currently utilized by the majority of online instructors.

Brand et al. (2006) determined that high-quality written and verbal interaction with the teacher is key to student engagement. By providing multiple opportunities for students to direct their learning through increased interaction and collaboration, the instructor strengthens the quality and value of the course (Conrad & Donaldson, 2011; Kearsley, 2000). Subsequently, a web-conferencing room offers several embedded digital tools such as breakout rooms, chat, polling, and screen share which were designed to encourage communication. By capitalizing on the available digital communication tools, different software applications can be used to provide written and verbal validation of student engagement during a web-conferencing session. Teacher accessibility and approachability go hand-and-hand with a student's need to be validated. Through positive teacher-student interaction, student engagement and overall academic growth are increased (Brand, Galsson, & Green, 2006). By including web-conferencing sessions in a course, the teacher can extend access and opportunities for engaged learning that nurtures a student's need to feel welcome and valued.

Lehman and Conceicão (2010) verified the importance of "learner presence" (p. 4) within the online course. Through intentional course design and planning, the teacher can provide an online course that feels comfortable and safe for students. Web-conferencing sessions allow students to collaborate and engage peers in face-to-face discussions. With numerous opportunities to communicate with members in stimulating, expressive, and caring ways, the learner becomes comfortable enough to share thoughts and ideas. Kumar's (1991) meta-analysis revealed strong relationships between effective time (active learning) and student achievement (d=1.09). Research has also shown strong correlations between student engagement and high levels of concentration (Datta & Narayanan, 1989). Activities like discussions, debates, case studies, and presentations encourage engagement and require students to reflect and critically think to resolve problems and find solutions. These types of activities can easily be woven into the course and implemented in a web-conferencing forum where students share results and findings. As a session feels more welcoming and provides opportunities for interaction and engagement, students become comfortable in

the environment (Lehman & Conceicão, 2010). The goal must be to create activities that engage, challenge, and connect learners (Conrad & Donaldson, 2011).

Learner Collaboration

With the wide range of communication tools embedded in most learning management systems and available in other platforms like Google Classroom, teachers have the digital tools to design online learning environments that support interaction and encourage collaboration. In their research on social presence, Tu and McIsaac (2002) found that online communication, social context, and interactivity are all contributing factors for students as they work and share together. They emphasized the importance of online interaction being stimulating, expressive, and carry sincere emotions. West and West's (2009) research indicated that students wanted learning experiences with social connections and participation. The addition of a web-conferencing room within the online course can provide many more opportunities for classmates to meet, work, and learn together.

The importance of providing activities that include opportunities for collaboration cannot be underestimated. Collaborative activities have a stronger impact on student performance than individual or competitive activities (d=0.55) (Roseth, Johnson, & Johnson, 2008). Recognizing the importance of providing opportunities for students to work together to resolve problems and share findings should encourage instructors to include a variety of collaborative activities throughout their online courses.

Hamm and Fairclough (2007) stressed the important role of friendships in the learning process. Supporting interaction and connection-building within the course is a powerful strategy for student academic growth. Friendships support the student's sense of well-being, belonging, and worth. Because these qualities play an important role in student engagement and performance, the teacher's contributions become very important (Hamm & Fairclough, 2005). The instructor's ability to support relationship building and develop activities including web-conferencing sessions can greatly increase the probability for interaction and collaboration within the membership.

Communication strategies must be given consideration. It is important to look at how and when students will communicate with the instructor and peers within the online course. The teacher must utilize email, text, chat, discussion boards, and web-conferencing tools as supporting vehicles for engagement and collaboration within the online course. The time and consideration given by the teacher as he or she develops collaborative activities will make a difference in the successful interaction of all members of the course.

Because online communication takes more planning for the members, time considerations must be given to activities that include several online meetings. With the additional time comes increased opportunities where "depth of thought is likely to be greater" (Conrad & Donaldson, 2011, p. 21). Asynchronous and synchronous communication between members provides a unique opportunity for critical thought about a topic, statement, or question. Again, the design of the activity can support or take away opportunities for members to learn together.

Session Development
Course Orientation Session

The importance of preparation, practice, and support are essential to a course orientation session using the web-conferencing room. The instructor must be able to move around in the room using the embedded tools with ease. This will provide the instructor with a forum to share information that is essential to course success. The initial activities for this session should begin with an introduction (ice-breaker) and then focus on helping students become familiar with the software and tools that will be used in this session and throughout the course. Remember, you can also record the session and it can be revisited by students when needed.

As you plan this session, consider providing questions for your students every five minutes or so to help them refocus. This can be accomplished by developing a set of questions that relate to the course content and use different tools for responses. The polling, chat, raised hand, or white board tools can be utilized to let students respond in different ways. This also allows them to use the tools and begin understanding how they can support learning. Later, as students present using the web-conferencing room, they will have gained some skill and confidence with the tools that are available to them.

Something else to consider might be to take the students through a course walk-through using the Share tool. As the teacher moves through the course learning units, major assignments can be reviewed and student questions addressed. A simple walk-through can provide clarity but it also eliminates student questions about the assignment early in the term. This is also a good time to introduce a few of the tools provided in the course. A quick review of creating a wiki page, developing a journal, or working in a blog can also be accomplished. Do not forget to go in and out of the walk-through to ask a question and get feedback from the students using the selection of tools provided in the room. This will help confirm that everyone is on task and engaged in the session.

Ice Breakers for the Web-conferencing Sessions

Setting up an appropriate learning climate is crucial to establishing a successful learning experience (Knowles, 1980). This is true for a traditional classroom and for an online course. Knowles' work focused on the importance of feeling accepted, respected, and supported within a learning environment. The development of a web-conferencing session must also be mindful of student needs. As the teacher designs a session, activities must ensure open lines of communication and provide opportunities for students to share and get to know each other. Conrad and Donaldson (2011) recommended the use of ice breakers to set the tone and support the development of the learning community. They suggested that, "An icebreaker should humanize the technology-mediated learning experience so that trust can begin to be built among the learners" (Conrad & Donaldson, 2011, p. 52). An ice breaker for an orientation or other web-conferencing session must be brief while providing some information about everyone in the course. The facilitator may consider using two or more in an orientation session to provide multiple opportunities for the students to make connections and begin building relationships with the other members of the learning community.

- Using the white board, ask all members to type or write their full name, county, state, or country and current position.
- Share three things you would like your peers to know about you.
- Tell something about yourself that many people do not know.
- Name your top two priorities (personal or professional). Tell us why.
- Include a slide with a map for the session that includes the location of everyone in the class. Using the white board, have the students mark where they live on the map and then share something they love about their home town.

Web-conferencing Activities

- Develop a list of questions that can be used throughout the session to help students learn more about each other by using the white board, chat, raised hand, and sometimes the polling tool. Skylar (2009) recommended using questions every three or four minutes during a web-conferencing session to support student engagement and interaction. These can be built into a PowerPoint that is used during the session.
- Develop additional questions for session content to be used with the polling tool during sessions where content is shared.
- Develop a list of questions that can be used to help students think critically using the chat tool. Example: What do you think about…. Type your answer into the text box in chat.
- After researching a topic, use a live session to have students work together in small groups using breakout rooms to discuss findings and record new learnings. The facilitator should move in and out of the rooms to check on discussions and provide questions that allow students to clarify their understanding.
- Video clips should be very short and have a real connection to the session learning. Always end a video clip with two or three thoughtful questions about the content using a polling tool. Take a minute and ask what the poll data is indicating.
- Develop a graphic organizer to collate responses. Allow student to respond in different boxes.
- Develop several different kinds of graphic organizers, SmartArt, and templates that can be added to the white board and used for monitoring responses. Use SmartArt in PowerPoints to add color and design that is inviting.

CONCLUSION

In the development of an online course, web-conferencing adds more opportunities to engage, interact, and collaborate within the online course. A successful web-conferencing session begins with a learner-centered approach that is focused on meeting learner needs within the context of the learning experience. The teacher takes on the role of a facilitator who guides and encourages students throughout the learning process. Salmon's (2011) work emphasized the importance of the facilitator being relaxed and well-acquainted with the digital tools. A variety of digital tools are available in the web-conferencing room to support and engage students in many ways. "This engagement does depend on how you are using the technology. It has to be with really purposeful activities that are dynamic and engaging for learners and enable the learner to have a voice within the session as well" (Cornelius et al., 2014, p. 9). The teacher must embrace student engagement as a priority that is revealed in his or her lesson plan and activity development for the session.

Collaboration is an essential component of an effective course and web-conferencing session. The web-conferencing room must provide learners with opportunities for interaction and collaboration. Facilitators must be "vigilant and proactive regarding student interaction and communication" (McBrien & Jones, 2009, p. 13). Time spent developing and fine-tuning activities that support collaboration within the web-conferencing session will reap the rewards of engaged students.

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WHAT ARE THE COLLEGE STUDENTS´ PERSPECTIVES TOWARDS THE USE OF SYNONYMS FOR LEARNING ENGLISH AS A FOREIGN LANGUAGE?

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ABSTRACT
This work presents the perspectives of students regarding the use of synonyms for learning of English as a foreign language. This work was developed by using a case study as a methodological design. The participants of the study were 23 students enrolled in the Technical English I course from the Business Administration career and the International Business career of Universidad Técnica de Machala. The information was collected from direct observations conducted during the academic period of May-September 2017 and from two focus group discussions at the end of the semester. Thirteen participants were interviewed in the focus group, 13 students from the International Commerce career and 10 from the Business Administration career. For the focus groups, a questionnaire of three questions was applied which was previously validated by experts and aimed at exploring how the use of synonyms has helped the students learn English, its disadvantages, and which skills benefitted from the use of synonyms during the semester. The results of the study indicated that the students experienced an increase in vocabulary and improved their vocabulary comprehension. Synonym learning also helped them improve reading comprehension and writing skills. On the other hand, the students expressed that among the disadvantages of this technique, there are limitations related to the appropriate search of synonyms because of its multiple meanings. Similarly, another obstacle is the lack of vocabulary knowledge by learners which leads to employing too much time to find the synonym of a new term. Per the number of answers from students, the results reveal that the majority of participants consider that the use of synonyms brought more benefits than disadvantages to the learning of English language. In this way, it is concluded that the results of the present study confirm that the use of synonyms contributes positively to the learning of English as a foreign language. However, it is necessary to consider factors that can condition its effectiveness such as the variety of multiple-meaning words and the proficiency level of students.
Keywords: Synonyms, vocabulary, reading comprehension, writing, college students, benefits, disadvantages

INTRODUCTION

Vocabulary learning is one of the fundamental pillars of the development of linguistic competences. That is, the higher the number of words recorded in the student's memory, the more linguistic resources the student will have to communicate a message, and in turn, to understand the messages received, whether written or spoken. The use of synonyms is a technique employed to familiarize the student with new vocabulary (Takač, 2008) to improve their mastery of the target language. The teaching of vocabulary through synonyms can be conducted by the introduction of word lists, search for synonyms in physical or online thesauri, and, currently, by the use of computer software.

Recent research shows that the application of synonyms can improve learners' writing skills. Chen, Huang, Chang, & Liou (2015), in their study, used lexical paraphrase (synonyms) to determine their influence in improving the writing of students of English as a foreign language. The authors of the study implemented lexical paraphrase through an online system called PREFER, which provided students with a wide range of paraphrase options while writing. As a result of the study, a better quality of written production was observed among participants. Another article, written by Yeh, Liou, & Li (2007), discussed the application of an online tool called TANGO, which had the same purpose. That is, to improve the writing of university students of English as a foreign language. Through TANGO, the authors provided students with synonyms of overused adjectives in writing such as important, beautiful, difficult, deep and great. The results of the study not only showed a better quality writing by the students but also, in subsequent tests up to two months after the conclusion of the treatment, the students were able to remember the learned synonyms.

Teaching vocabulary through synonyms requires special considerations on the part of the English teacher due to the number of existing synonyms, their level of complexity and the different levels of English that the students possess. Webb (2007) conducted a study with 84 Japanese students of English as a second language. Through the administration of ten tests to determine the learning of English words and its synonyms, their study examined the effects of learning two groups of words. The first group consisted of ten words that contained infrequent synonyms and the second one, also of ten words, but whose synonyms were quite frequent. The results of the study showed that the participants obtained better results when learning words that had known synonyms. Emphasizing the above, Nation (2001) expressed the importance of the connection between the acquired knowledge of the target language and the vocabulary to be learned.

Although the use of synonyms has been recognized as a technique that helps to increase students' vocabulary, Balcı and Çakır (2011) consider this technique as traditional and less efficient compared to the use of other techniques such as the use of collocations. This assertion was generated by the results obtained in a comparative study developed by these authors on the level of effectiveness of the use of collocations and techniques such as the application of synonyms, antonyms, and definitions for vocabulary learning. The findings revealed that students who received the collocations technique scored better on vocabulary tests than those who received the other treatments.

Studies on the application of synonyms in vocabulary teaching present observations worthy of consideration by teachers of English as a foreign language. However, none of these have considered the views and perspectives of students. Therefore, taking into account this gap in the literature, from a case study, the present study analyzes the perspectives of university students in the use of synonyms for learning English as a foreign language. The results of this study provide English teachers with a deeper insight into the impact of the application of this technique from the perspective of apprentices who have been applying it in their learning process. Consequently, this study will allow teachers to reflect on with greater knowledge of the main benefits and limitations involved in the use of synonyms in teaching/learning English as a foreign language.

MATERIALS AND METHODS

This work was performed using the case study methodological design and direct observation. 23 out of a total of 52 randomly selected students participated in the study voluntarily; 11 women and 12 men whose age ranged between 20 and 25. 13 of the participants were enrolled in the 5th semester of the night section of the International Trade major and the remaining 10 in the 5th semester of the daytime section of the Business Administration major. Both groups were taking Technical English I at the Academic Unit of Business Sciences of the Technical University of Machala, Ecuador, during the first academic period 2017-2017.

Classes consisted of two-hour encounters, twice a week. Two of the researchers had the role of active researchers, encouraging in their daily classes the use of synonyms of English vocabulary covered in the content delivered during the semester between May and September. This facilitated the collection of data from direct observation by the two researchers throughout the semester. The data were also collected through two focus

groups discussions in which the twenty-three participants were interviewed with a questionnaire of three questions previously validated by experts (see Table 1). The focus group discussions were performed at the end of the academic period. The purpose of the focus group discussions was to explore how the use of synonyms had helped the participants learn English, their disadvantages and what skills were favored by the use of synonyms during the semester. For the organization of the data that were to be obtained from the focus group discussions and to maintain the anonymity of the individuals involved, each participant was represented with a code indicating their order of participation, gender and career they were attending, to say 1MIT is equivalent to One, Male, International Trade and 2FBM to Two, Female, Business Management.

Participants' responses were recorded and later on categorized and codified, determining ideas, concepts or similar themes (Rubin and Rubin, 1995). Categorization was performed using the qualitative data analysis software MAXQDA Analytics Pro. Finally, the results were discussed.

Table 1
Questions used in the focus group discussions

1	How has the use of synonyms helped you to learn English?
2	In your opinion, what are the disadvantages of using synonyms to learn English?
3	What skills (listening, speaking, reading, o writing) have the use of synonyms helped you to improve?

Note. Questions developed by the authors.

RESULTS AND DISCUSSION

The analysis of the data obtained from the students' answers resulted in two categories and six codes (see Table 2).

Table 2.
Table of categories and codes

Categories	Benefits	Disadvantages
CODES	a) *Expansion and comprehension of vocabulary*	f) *Lack of vocabulary*
	b) *Reading comprehension*	g) *Time-consuming*
	c) *Writing*	h) *Words with multiple meanings*

Note: Table with the two categories and respective codes.

The opinions of the participants reveal that the use of synonyms has a positive effect on English language learning. In this sense, Figure 1 shows the number of times students, in their responses, mentioned both the benefits and the disadvantages. It shows that, when referring to the use of synonyms for learning English, students mentioned more benefits than disadvantages. Observations carried out by the two active researchers support these findings, as they have witnessed the rapid progress of students while using this technique.

Figure   1.   Categories   support   based   on   participants´   answers

Figure 1. The frequency with which the answers of the participants were connected with advantages and disadvantages.
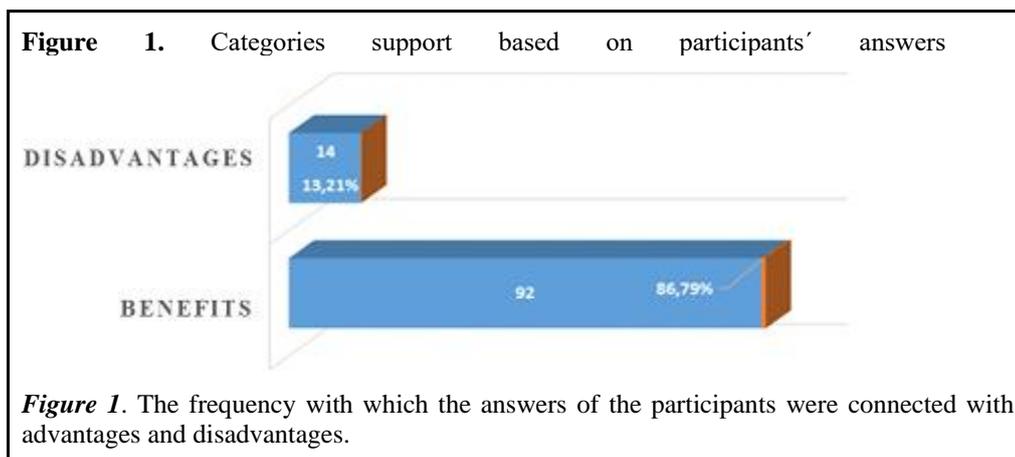
Benefits
Expansion and comprehension of vocabulary, *reading comprehension and writing*.

The data collected indicate that, according to the students' perspective, the use of synonyms helped them to understand and increase their vocabulary significantly. Likewise, students consistently expressed that this technique also helped them to comprehend reading passages and to improve the writing of texts or sentences in English (see the number of times the students mentioned opinions regarding these codes in Figure 2).

Typical responses from students which support these assertions are:

3FBA*) "In short, the use of synonyms is of great importance because it allows a better understanding of the text and more quickly, without having to resort to our cell phones. In any case, I think that the use of synonyms allows the student or me to increase the vocabulary in English much more."*

11MIT) *"This technique has helped me to understand the meaning of a word and therefore to increase my vocabulary."*

4MIT) *"Writing because I have learned more words which I can apply in exercises."*

The daily observations by the active researchers affirm the improvement in the understanding of texts, as well as a better understanding and increase of the lexicon of the students from the learning of synonyms. For example, when students did not know a word, they often resorted to their teachers to ask for their meaning, who instead of telling the meanings in Spanish, replied using a synonym; regularly a synonym whose spelling would be similar to their equivalent in Spanish.

As for the influence of synonyms on writing, students' responses connected with the findings reported in the studies conducted by Chen, Huang, Chang, & Liou (2015) and Yeh, Liou, & Li (2007) who mention how beneficial it was for their participants to use synonyms in the writing of texts in English.

Figura 2. Codes support based on the answers of the participants
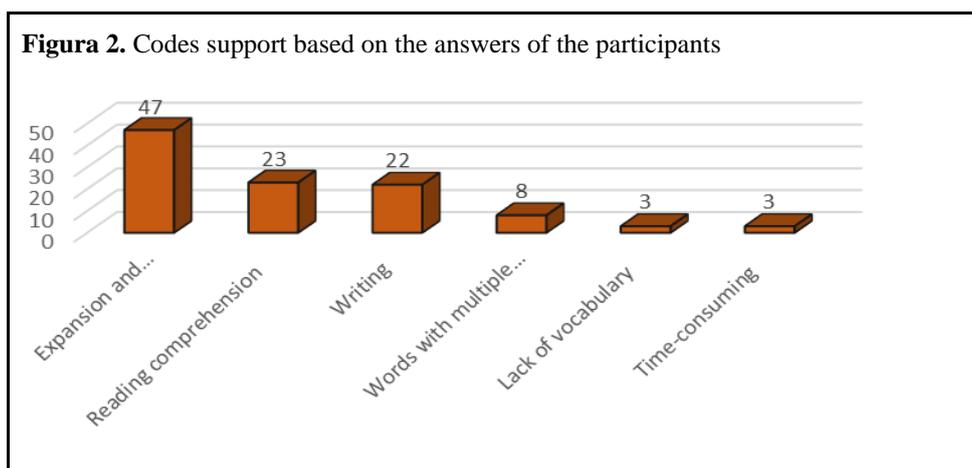
> ***Figura 2***. Number of times in which the answers of the participants were connected to the codes

Disadvantages
Lack of vocabulary, time-consuming, and words with multiple meanings.

Feedback from students also reflects three disadvantages, such as the opinion of three participants who expressed their concern about their lack vocabulary knowledge to identify the synonym for a new term. This point is evidenced in the response of 9FBA who expressed … *"the disadvantage may be that we do not understand what the word or synonym that we look for in English means."* Regarding this finding, we take into account the results of the study conducted by Webb (2007), which showed that the learning of lexical units with synonyms known by the participants led to better results. This means that students with beginner proficiency of English may find it difficult to search for synonyms due to their limited knowledge of the language and insufficient vocabulary. In that sense, teachers of English as a foreign language should consider using synonyms that are known to students and avoiding those that are complex.

Likewise, three students concurred with the view that the use of synonyms is time-consuming. In relation to this, 3FBA stated: *"as a disadvantage, it can be pointed out that searching for a synonym or adjusting a definition to a word takes some time."* This may be due to the students' lack of knowledge about how to effectively search for a word in thesauri. For example, inexperience in how to identify the meaning or grammatical functions of a vocabulary words such as verbs, nouns, adjectives, etc. can add unnecessary time to searching for the correct synonym. Hence the importance of reviewing the procedures for finding terms in thesauri and dictionaries frequently.

Finally, a greater number of students, that is, eight of the participants considered the existence of words with multiple meanings as a disadvantage. Thus we have, for example, the criterion of the participant 1MBA, who said that *"feedback is necessary because it will help us to know in what context and in which situations we will be able to use the synonyms of a word. In addition, at the moment we use these synonyms in writing, we must understand the consistency of the paragraph or sentence to be able to use them. It will also influence in a certain way our comprehension when we read."* This suggests avoiding the presentation of vocabulary in the form of lists in which the student is prevented from knowing important details about the context in which the vocabulary is applied. The absence of contextual information prevents the proper functioning of the synonyms technique due to the limited information about the words studied. Hence the importance of introducing vocabulary using sentences or paragraphs.

CONCLUSIONS
The results of this study led us to determine that the use of synonyms represents a great potential in language teaching. In addition to increasing student vocabulary (which, among other factors, is crucial to effective communication), the use of synonyms in the English learning process helps improve writing and reading skills. However, like any technique, the use of synonyms also has disadvantages; which, taking into account the responses of several students, are linked to the lack of understanding of the meaning of the synonyms found, the amount of time their search demands, and the variety of meanings and contexts in which a synonym can be used.

Previous studies on the use of synonyms for vocabulary teaching have indicated that their application represents benefits for the student. However, prior to this study, it was unknown to what extent this technique contributes to the learning of English and the possible disadvantages that learners can find during its application according to the perspective of the learners themselves. After knowing the findings of this study, not only can teachers apply the technique with greater awareness of its benefits, but they can also anticipate some of the aspects that could limit the correct application of the technique to obtain optimal results. Finally, we believe that it is important to emphasize the high value of studies where the voice of the students is captured. Through these works, teachers can observe a more comprehensive picture of the impact that a pedagogical aspect has on the student.

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WHAT ARE THE OPINIONS OF PROSPECTIVE SCIENCE TEACHERS REGARDING THE USE OF TECHNOLOGY IN EDUCATION?

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ABSTRACT

With the consideration of the significant role teachers play in the use of technology in education, it is believed that addressing prospective teachers' needs in this regard during their teacher education program can be effective in equipping them with the essential skills and knowledge in the use of technology in education. Accordingly, the present study aimed to reveal the opinions of prospective science teachers as regards the use of technology in science education. To this end, the present study investigated prospective science teachers' stance towards novelties in the use of technology. The research design employed in the study was the phenomenology method of the qualitative research paradigm. The participants of the study were 51 prospective teachers, who were junior students majoring in Science Teacher Education at Erciyes University. The data collection tool utilized in the study was a document analysis form comprised of eight open-ended questions, which aimed to determine the participants' opinions regarding the use of technology in science classes. The findings which the data analysis yielded indicated that the participants exemplified the technologies used in education as the interactive board (f=43), the projector (f=41), the computer (f=41) and laboratory equipment (f=35). The participants explained that they planned to use these educational technologies in their classes mostly for concretizing abstract science topics by means of visualization (f=51) and to enable the students to engage in effective and permanent learning (f=38). The participants emphasized that the use of technology in science classes had such benefits as follows: enabling students to learn effectively and permanently (f=45), being time-saving for both the teachers and students (f=40), increasing students' motivation toward the subject (f=32), and facilitating students' access to knowledge. On the other hand, the participants believe that the use of technology in the lessons has such limitations as the requirement of preparation before class (f=41), the difficulty of popularizing it to every school (f=37), and the disruption of classes when potential technical problems such as power cut was encountered (f=25). Accordingly, it can be maintained that the participants were of the opinion that overall the use of technology in education increased the quality of education and facilitated teaching despite the existence of limitations.
Keywords: Science, prospective teachers, the use of technology in education, phenomenology

INTRODUCTION

As a result of rapid developments in science and technology in the world today, technology is existent all spheres of life. A highly comprehensive phenomenon, educational technologies is one of the areas that resulting in significant changes (MoNE, 2005). It can be stated that we are currently living in an era in which the integration of technology in education is considered important. The integration of technology is essential in all disciplines of education, including the science course. In fact, it can be stated that the integration of technology is particularly important in science courses so much so that the name of the science course, the curriculum of which was

renewed in 2005 and based on a student-centered educational approach, was changed to "Science and Technology" (MoNE, 2005). Subsequently, its name was changed to "Science"; however, technology retained its importance in the science course curriculum. One of the goals of the course in this program was defined as raising awareness regarding the impact of science on society and technology and the impact of society and technology on science (MoNE, 2013). When we examine the related literature is examined, we encounter a new discipline named as "Educational Technology", formed from the combination of education and technology. However, this discipline can sometimes be perceived solely as equipment in education research and by stakeholders in education. However, according to Alkan (1998), educational technologies mean the planning of the educational process, and the implementation, evaluation and development of the educational plan.

Real objects, models, multimedia tools, written and printed materials and technological devices are among the primary products of educational technologies. What needs to be paid attention to at this point is that "education technologies" and "technology in education" are used interchangeably in literature. The use of educational technologies in teaching has such strengths as providing the opportunity to engage in individual learning, to function as a channel for individuals' effective and permanent learning, and facilitating communication between teachers and students and the parents (İşman, 2002). In addition, Roblyer and Edwards (2005) stressed that the use of technology in education contributes to students' motivation and abilities, increases teachers' efficiency, supports new teaching methods and techniques and that it is a requirement of the information age. From this respect, as in all other disciplines, it is possible to say that how important the use of technology is in the discipline of science education, which is the focus of the present study. The effective use of technology in education can only be realized by means of teachers equipped in this area (Özden, Çağıltay and Çağıltay, 2004). Studies conducted in the related area have indicated that the successful use of technology in education is associated with teachers' willingness to adopt and use technology (Christanse, 2002; Hew & Brush, 2007; Pierson, 2001). Hence, throughout their course of education, prospective teachers need to acquire the knowledge and ability to use technology in education and possess a positive pedagogical attitude towards technology. Thus, revealing the views of prospective teachers regarding the use of technology in education is considered to be important in shaping the education to be provided.

Prospective teachers' opinions regarding the use of technology in education have an influential effect on their topic-related practices when they start to pursue their teaching profession (Ertmer, 2005). Moreover, when prospective teachers of today become teachers, they will come face to face with student groups who are individuals of the digital age. These students' expectations and needs can only be met if they develop themselves. When Dewey says, "If we educate the children of today with the methods of the past, we will steal from the future," he states with a single sentence the necessity to realize an education appropriate to the present era.

With the consideration of the significant role teachers play in the use of technology in education, the present study, conducted with prospective teachers whose needs can be met during their teacher education program by equipping them with the essential skills and knowledge in the use of technology in education, aimed to reveal the opinions of prospective science teachers regarding the use of technology in science education. To this end, the present study investigated the stance of prospective science teachers in relation to the use of technology.

The research question of the present study was stated as "What are the opinions of prospective science teachers in relation to the use of technology in science education?" The sub-research questions to which answers were sought are as follows:

   i.   What technologies can be used in science classes according to the views of prospective teachers?
  ii.   What are prospective teachers' opinions regarding the use of technology in science classes?
 iii.   What are prospective science teachers' opinions about the strengths of using technology in science education?
 iv.   What are prospective science teachers' opinions about the weaknesses of using technology in science education?

THE STUDY

The Research Design

The research design which the present study employed was the method of phenomenology within the paradigm of qualitative research. In phenomenology research designs, participants describe their experiences regarding a certain phenomenon (Creswell, 2013). That is to say, in the present research design, the researcher focuses on the

participants' individual experiences to reveal the participants' perceptions and the meanings they attribute to phenomena (Yıldırım and Şimşek, 2008).

Participants

The participants of the study were selected via criterion sampling, which is one of the purposive sampling methods. Purposive sampling methods emerge in the qualitative research approach and is a sampling method which enables information-rich situations information to be examined profoundly (Patton, 2002). As the phenomenon under investigation in the present study was opinions regarding the use of educational technology in science classes, prospective science teachers, who were believed to have related experience in the mentioned area, were selected as the participants of the study. The criterion sampling method was used to select junior science teacher education students. The criterion that was utilized to determine the participants was the requirement of having completed the "Teaching Technologies and Materials Design" course. Accordingly, 51 prospective teachers in their junior year in the Science Teacher Education department at Erciyes University participated in the study.

Data Collection and Analysis

A document examination form comprised of eight open-ended questions was used as the data collection tool in the study. The document form, which assumed its final form after it was piloted, was administered to the participants, who were asked to respond to the questions sincerely. The essential measures were taken to prevent any distractions of the participants during the applications. The data obtained in the study were analyzed using the content analysis method. The aim of a content analysis is to reveal the concepts and relationships that can explain the data. To this end, the data should initially be conceptualized, and then be logically organized according to the emerging concepts and finally the themes explaining the data should be identified (Yıldırım and Şimşek, 2008).

FINDINGS

According to the findings obtained from the data analysis, it can be stated that the participants defined educational technologies as technologies used in education to support education and facilitate instruction (f=47). In addition, the participants exemplified the technologies used in education in the following order of frequency: the interactive board (f=43), the projector (f=41) and laboratory equipment (f=35). The prospective teachers stated that they frequently used the mentioned technological products in their university education.

The participants explained that they made use of educational technologies in their courses mostly to concretize abstract science topics by means of visualization (f=51) and would prefer to use them with the aim of enabling students to learn effectively and permanently (f=38). The prospective teachers stated that they could make use of technologies in every stage of their science classes, specifically during the warm up/introduction/presentation stage of the lesson to raise interest and curiosity among the students (f=29), and during the development stage of the lesson to concretize abstract topics (f=44).

The participants emphasized the beneficial aspects of the use of technology in science class as ensuring effective and permanent learning in students (f=45), being time saving for both teachers and students (f=40), increasing students' motivation towards the lesson (f=32) and facilitating students' access to information and knowledge (f=19). On the other hand, the participants believed that the use of technology in classes entailed some handicaps, such as the necessity for pre-lesson preparation (f=41), the difficulty to popularize it to all schools (f=37), and the interruption of classes with the emergence of potential technical problems (such as power cuts) (f=25).

CONCLUSIONS

Throughout their undergraduate education, prospective teachers should continuously be familiarized with novel technological products related to their own field of discipline and they should be provided with the opportunity to use them actively. According to the findings of a study by Lane and Lyle (2010), as technological expertise in the use of educational technologies is an important variable, it was stated that particularly teachers should develop themselves in this respect and follow up on technological developments. Ensuring that prospective teachers understand the importance of this situation before they start to pursue their teaching profession will facilitate their teaching endeavors.

Similar findings were reported in another study by İnel, Evrekli and Balım (2011) in which prospective teachers' opinions regarding the use of technology in the science and technology were examined. All of the prospective

teacher in their study expressed the benefits of using educational technologies in learning environments. In another study, conducted by Akpınar, Aktamış and Ergin (2005), students' opinions related to the use of educational technology in science classes were examined. The researchers of the same study recommended that educational technology tools should frequently be utilized in science classes, that opportunities for educational technology tools should be enhanced and that they should be equipped with technological tools.

In conclusion, as a result of the findings that the present study yielded, it can be stated that prospective teachers are of the opinion that despite its limitations, the use of technology increases the overall quality of education and facilitates teaching. Based on their opinions, it is evident that when the target population start to pursue their teaching profession, they will be willing to actively use the technologies that they learned and used during their undergraduate education. Consequently, technological facilities at universities should be expanded to provide grounds for prospective teachers to make active use of these technologies. In this way, prospective teachers can display a positive attitude towards the use of technology which they already know how to use in their professional life.

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WHICH ONE IS MORE EFFICIENT TO SUPPORT THE EARLY LITERACY AT PRESCHOOL EDUCATION: THE BOOK OR THE E-BOOK?

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Educational techonolgy is commonly used. The use of techonolgy at preschool education has an important plays among the effective methots so that children can learn. Preschool teachers use the techonolgy to support the programme and childresn's development. Early litearcy skills have gained more impotance, recently, as a result, the use of techonolgy has been necessary to development early literacy skills. Based on dialogue- intearctive reading book is an important activity to give children the opportunity to develop their early literacy skills. It was found in the previous studies, that the literacy skills of the children; for whom reading books based on dialogue by teachers or families, were at a better level. In this study, the previous studies related to E- book interactive books reading were gathered and it was aimed at introducing based on dialogue E- book to families and teachers and bringing proposals to support the early litearcy skills through based on dialogue E- book. Besides, by studying the related literature, the developing early skills to E-book or reading book were compared and the results were argued.

Meslek Yüksekokulu Öğrencilerinin Matematik Korkularını Üzerine

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Matematik, günlük hayatımızın bir parçası haline gelmiş bir bilim dalıdır. Birçok öğrenci için temel bir öğrenme alanı sayılan matematiği, başaramama ihtimali, problemlerini çözememenin yarattığı endişe ve anlamada yaşanılan zorluklar zamanla davranış biçimi haline dönüşerek korku haline dönüşebilmektedir. Bu durum belli bir ülke ya da topluma için değil dünya genelinde görülen bir karakter özelliği olduğu söylenebilir. Bu çalışmada, meslek yüksekokulu öğrencilerin matematik korkularının düzeyi araştırılmaktadır. Çalışmada nitel araştırma yöntemlerinden "olgu bilim" deseni kullanılmıştır. Araştırma örneklemi bir devlet üniversitesi meslek yüksek okulunda öğrenim gören 136 öğrenciden oluşmaktadır. Verilerin analizi, öğrencilerin daha önceki öğrenim yıllarından beri matematiği anlayamadıklarını ve buna bağlı olarak bu dersi başaramama korkusunun kendilerinde bir davranış şekline döndüğünü göstermektedir. Diğer bir sonuç, matematik öğretmenlerinin öğrencilerdeki bu korkuyu yenmek için özel bir çaba harcamadıklarının tespit edilmesidir.

Yabancı Dil Sınıflarında Kültürler Arası Duyarlılığı Sağlamada Sosyal Ağların Kullanımı Üzerine Bir Değerlendirme

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Dil öğretiminin önemli değişkenlerinden biri "kültürel geçmiş"tir. Öğrenicilerin hedef dili bir başka ifadeyle Türkçeyi öğrenmelerinde ait oldukları kültürün ve sahip oldukları kültürel birikimin sürece olumlu/olumsuz etkileri olabilmektedir. Özelikle farklı kültürlere mensup öğrenicilerin birlikte olduğu sınıflarda bu etki daha baskındır, denilebilir. Çok kültürlülük ve çok dillilik kapsamında hazırlanan Avrupa Ortak Öneriler Çerçevesi'nde de bu husus vurgulanmakta ve öğrenicilerde hem hedef dile hem de diğer kültürlere yönelik bir farkındalık oluşturulmak istenmektedir. Kültür karşılaştırmaları, farkındalık için öncelikle kullanılan yöntemlerden biridir. Ancak kültürel farkındalık sağlama boyutunda kimi zaman öğreticinin sınıf içi çalışmaları yeterli olmayabilir sınıf dışında da öğrenicinin bu becerisinin gelişimi desteklenmelidir. Bu anlamda öğrenicinin vakit geçirdiği, iletişime geçtiği sosyal ağlardan faydalanılabilir. Çalışmada sosyal ağların kültür karşılaştırmalarında nasıl kullanıldığı ve bunun öğrenicide anlamlı bir farkındalık sağlama düzeyi nitel araştırmanın sunduğu imkânlar doğrultusunda incelenecektir.
Anahtar Kelimeler: Yabancı dil olarak Türkçe öğretimi, kültürler arası etkileşim, kültür karşılaştırmaları.

Survey on the Use of Social Networks to Enhance Intercultural Sensitivity in Foreign Language Classes

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"Cultural background" is one of the important variables in language teaching. Cultural background of learners may have positive or negative impact upon the learning process of Turkish as the target language. Such impact is arguably more manifest particularly in multicultural classes. Formulated in line with multiculturalism and multilingualism, the CEFR also underscores this aspect, attempting to raise awareness among learners towards the target language as well as other cultures. Cross-cultural comparisons constitute one of the principal methods employed for awareness. Yet, as far as cultural awareness is concerned, in-class activities by instructors might at times fall short, thus requiring extra effort out of class to develop learners' skills. To this end, it might be useful to take advantage of social networks where learners spend a great deal of time and engage in contacts. The present study examines how social networks are used in cross-cultural comparisons and, on the basis of quantitative data, whether such method significantly contributes to raising awareness among learners.
Keywords: Teaching Turkish as a foreign language, intercultural interaction, cross-cultural comparisons