IETC★2018

ITEC 2018

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Dear Guests…

Welcome to IETC & ITEC -2018 at School of Education, Indiana University, in Bloomington, USA.

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.

IETC & ITEC Conferences are now well-known international academic events and the number of paper submissions and attendees are increasing every year. This year we have been organizing 18th IETC Conference. Together with IETC 2018, we are organizing two other conference; ITEC at the same time and place. These three Conferences have received more than 250 applications. The Conference Academic Advisory Board has accepted approximately 200 papers to be presented.

We would like to thank School of Education, Indiana 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 Bloomington.

Thank you...

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ESKICUMALI

KEYNOTES

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A New Paradigm for Integrating Teaching, Leading, Educational Technology and Learning in Participatory Learning Environments

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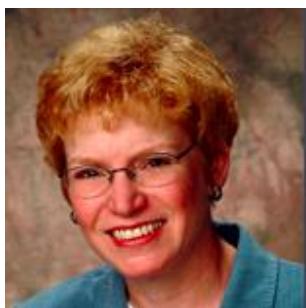
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Sing Mixed Methods to Address the Tension Between the Evidence-Based Intervention Movement and Need for Contextually Relevant Programming

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Contents

A Study Of The Role Of Ict In The Doctoral Research Processes: An Ethnographic Approach

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1. Background of the study

The aims of the doctoral programs are building and transforming the professional knowledge and skills to teaching practices and teacher education and practice. The Doctor of Education (EdD) program of the Education University of Hong Kong, mainly orients to the practices in the field of education. It aims to equip EdD graduates with a deep understanding of pedagogies, and curriculum design, as well as research capabilities to investigate relevant issues. Based on some scholars' views (Labaree 2004; Weiland 2008; Wilson 2006; Zimpher and Sherrill 1996), many EdD candidates are former K-12 teachers or educators from elementary or secondary schools. They had so limited chances to improve their knowledge of theories and methods for teaching in different subjects. I also have similar dilemma before I registered the EdD program. I was a one-year Mandarin Language teacher with very limited teaching experience. Sometimes I could not show the easy-understanding answers to my younger students. Thus, I am eager to find the professional training for development of my language teaching skills and pedagogies to help my students. This is also the main reason why I wanted to apply for the EdD program. After completing the first-year programme, I found that I could understand the relevant theories of educational research and constructive knowledge about technology-assisted language learning through the EdD program. Since my major is English in my undergraduate study and I also selected Language Studies as my master's major, based on these learning experiences, I found that many Chinese learners prefer learning English with native speakers in English communication environment. I also found that it is convenient and effective to utilize the technologies-enhanced learning methods or models to help language learners to learn language. Besides technology also allows learners to chat with native English speakers all round the world. Thus, my future research scope will be a comparative study of learners' s in Hong Kong and Mainland China about e-learning strategies in English language learning. Lin (2001) mentions that there are few studies about doctoral student learning progress and few studies about how these programs facilitate students learning and doing research in teacher education. Thus, we hope to show some authentic technology enhanced experiences and suggestions for doctoral program participants through this study. We also hope doctoral students would learn the self-learning methods and the approaches for doing the educational research individually. In the next section, a review on relevant literature will be discussed.

2. Literature Review

2.1 Why the Doctoral Program is Important

Lin (2001) uses the term educational research literacy to describe the goal of the doctoral student education. Educational research literacy means doctoral students absorb the professional and fundamental content of different disciplines, then they conceptualize those contents into their educational researches and in the practice. It requires

doctoral program designers to think about how to sufficiently prepare their students. Lin also summarizes three main challenges of preparing the curriculum designers of doctoral program. The first challenge is how to immerse the PCK (Shulman, 1986,1987) into the real training for doctoral students. The second challenge is how to revise the curricula for doctoral students to develop their PCK during their studies. The third challenge is how to seek the typical practices to enhance doctoral students learning capabilities. Lin also lists the aims of the doctoral learning program, which would advance teacher education goals through transforming the knowledge and skills from the research and practices. Doctoral program educators could follow five stages to implement their training schedules and curricula: observation, apprenticeship, partnership, independent instructors and mentoring.

Gray, Agllias, Schubert and Boddy (2015) discuss the three feminist principals for doctoral studies by three cases studies. First principal is illustrating the women' learning experience by detailed example. Second principal is improving the qualities of women's lives. The last principal is equalizing power in the society. Based on this one principal, university supervisors could help female doctoral students to solve the dilemmas they faced with in their life and help students to identify their roles in academic field. Meanwhile, designed doctoral learning schedules would help female doctoral students to find the balance of their life and study.

2.2 How to Complete the Doctoral Training Program

Lutovac and Kaasila (2011) display four narrative teaching strategies for doctoral student program. These four narrative teaching strategies are reflective writing through research diaries, recalling shared experiences, narrative rehabilitation and bibliotherapy. All those teaching strategies would be researched in international context and those strategies will influence the relation between doctoral students and supervisors and the content of learning courses. Doctoral students identify themselves from utilizing those strategies into their researches. They also agree that doctoral program, as the professional learning process, is important to construct the collaborative learning environment to help doctoral students learn with and from each other.

2.3 The Ethnographic Approach in the Educational Researches

Wilson (1977) points out that ethnographic research method differs from other research methods since the ethnographic research method clearly clarifies the rationale and data collection processes. The important part of this method is the context for the researches. It generally focuses on the human behavior by quantitative observations. It also can assist the observers to complete on-going views about the research. However, this research method also has some drawbacks, for instance, the ignoring the researchers' interests or misunderstanding researchers' hypothesis. Thus, the steps for conducting the researches by using ethnographic approach should include the entry and establishment of researcher's role, data collection procedures, objectivity and analysis of data.

Wolcott (1980) also points out that ethnographic research method is a way to record the life of some group of people who have similar cultural background and values. He lists some different ethnographic research techniques, such as participant-observation, interviewing, using of writing resources, analysis or collection of nonwritten sources and preparing the written account. He also analyzes the role of ethnographic research in education. Firstly, the ethnographic research in education could expand the scope of learners' learning and descriptive studies. Secondly, it would help learners to be familiar with the variety of research techniques and learn how to get the information from different database. Thirdly, it keeps the record about specific context for various research topics for the further researches.

Sharp, Desouza and Dittrich (2010) point out that there are two main steps in ethnographic studies, which are introduction and summary of contents. The introduction should show the goals and objectives, and scope of the researches. On the other hand, for the part of summary of contents, they argue that Researchers conduct their

research by ethnographic approaches by following steps. First step is the overview the role of ethnographic methods in software engineering researches. Second step is the brief discussion of ethnographic approach in software engineering researches. Third step is how the ethnographic approaches are adopted in their research. The final step is the discussions of the implementation of the selected research method into other software engineering researches.

Lutovac and Kaasila (2011) conduct a study on how to develop doctoral students mentoring by autoethnography method. Autoethnography method is one type of ethnography methods. They illustrate that autoethnography method consists ethnographic method with life history methods together. They collected data from 21 hours of collaborative interviews, 115 audio tapes, 130 hours of discussions and 310 pages of research diaries and emails. They point out that journal writing is an effective way for doctoral students to propose their insights and find the solutions for their dilemma. Reading the research diaries are benefit to the doctoral students and their supervisors, since research diaries identify the development of their academic career, make the catharsis for their clear minds, show their insight into their specific researches. Meanwhile, this research method proves that a stable shared view of mentorship between doctoral students and their supervisors could help doctoral program to keep good attitudinal and behavioral improvement.

2.4 Information and Communication Technology (ICT) Tools in Education

ICT in education could be understood as teaching and learning by ICT. Based on the report about ICT tools in education from the National Institute of Multimedia Education in Japan, students' capabilities of integrative comprehension, practical and presentation skills are sharply improved by combining ICT tools and tradition teaching with learning methods.

Kampschulte and Eilert (2016) show the basic guide for the ICT tools in school. They overview ICT tools in Education by eleven categories. Those eleven categories are projection tools, image and video work, measuring, simulation, mobile office, collaborative work, e-learning system, knowledge, exhibitions and add-on. Meanwhile, authors list some examples after each category. Almost of those ICT tools in education are used on IOS system, Android system and through browsers on different. In summary, authors also mention that good practice for ICT in the education in schools depend on four main factors, which are proper tools, proper integration, the necessary infrastructure and proper ICT skills of teachers.

Ghavifekr, Kunjappan, Ramasamy and Anthony (2016) discuss the challenges of teaching and learning with ICT tools from teachers' perspectives. They are limited accessibility and network connection, limited technical support and time, and teachers lack effective training and competency. They found that the uses of teaching and learning with ICT tools in the schools are only at the moderate level. Furthermore, the three common approaches that ICT tools are utilized for teaching and learning in schools are producing a text using a word-processing program, using email in communicate with others and editing text online containing links and images.

3. Methodology

Denzin (1997) argues that ethnography could show a new statement to the research data and alter the ideas from the social life by writing. Dharamsi and Charles (2011) point out that ethnography could be used as the research method to deeply analyze the human behavior and social interactions with specific cultural background which could also support to complete this research by ethnographic approach. Since the most common ethnographic approach is participant observation, the first author has made field notes throughout the doctoral study. Relevant records or experiences during different learning periods have been analyzed. Meanwhile, the situations which the supervisors used ICT tools to enhance the student's ability in conducting academic research have been documented and examined. The data has been collected by ethnographic toolbox through life histories, documentary data,

observation and in-depth interviews.

Yu and Lee (2013) explored the influence of supervisor's comments on doctoral research proposals by three PhD students and two supervisors for doctoral education in Hong Kong. Based on the feedback from participants, they found that supervisors' comments are motivative for students' writing. Supervisor's comment is not only a way to show the suggestions for revising the research proposal, but also it enhances the interactions and communications between doctoral students and supervisors. In their study, all PhD participants admitted that they feel confident and motivative for their doctoral learning and trainings. Meanwhile, supervisors' comments can encourage the students' contributions on their academic writing and higher growth of their zone of proximal development. They also suggest that other factors may be discussed in the future for the development of doctoral students learning capabilities through the supervisor's comments. The factors include teachers' values, the cultural and institutional contexts and so on.

4. Results and Findings

Based on the Wilson (1977)' s framework of ethnographic research method in the education researches, the results would be discussed by four steps. The first action is called establishing the role. Before receiving the offer of doctoral program from the Education University of Hong Kong, I was interviewed by my supervisors twice and we utilize the emails to communicate (see Figure 1).

young Bella ◄━━━━━━━━━━   2016/6/1

发送至 yiuchi ▾

Dear Dr. Lai,

Sorry for interrupting you. I am YANGRUIQIAN and my application number is A11511341, I will enroll the EdD Programme in August 2016. Since I am freshman to this programme, I would like to learn and know some basic theories or concepts before starting to study in August, thus would you like to some books or websites to me?
By the way, I also would like to know more information about selecting lessons. I had browed the official website about the Programme, I could not fin details about how and when we could select lessons and I had only found the general areas and topics of lessons. So would you tell me more details selecting lessons? Thank you very much. Have a nice day.

Yours sincerely,
YANG RUIQIAN

LAI, Yiu Chi ━━━━━━━━━━   2016/6/1

发送至 我 ▾

英语 ▾   ⟩   中文 ▾   翻译邮件

Dear Ruiqian,

I will be back office at round 4pm. I will send you more information asap. Don't worry.

Best wishes,
Dr. Lai

	young **Bella**	Dear Dr Lai , Thank you very much. Sorry for late reply. Since I need to work...	2016/6/1 ☆
	LAI, Yiu Chi	Dear Bella, It seems that it would be much better to schedule the meeting aft...	2016/6/1 ☆
	LAI, Yiu Chi	Dear Bella, You may have a look at the policy documents first: Policy Documen...	2016/6/2 ☆
	young **Bella**	Dear Dr.Lai, Thank you very much. Sorry for late reply. I need to hand over s...	2016/6/2 ☆
	LAI, Yiu Chi	Fine with me. See you. From: young Bella ▮▮▮▮▮▮▮▮▮ Se...	2016/6/2 ☆
	LAI, Yiu Chi	Dear Bella, My room no. is ▮▮▮▮ If you cannot locate my room, please ca...	2016/6/8 ☆
	young **Bella**	Hi Dr Lai, Thank you very much. I am on the way to your office. If I can not ...	2016/6/8 ☆
	young **Bella**	Hi Dr Lai, Sorry for interrupting you. Since I need to your office from Wan C...	2016/6/8 ☆
	LAI, Yiu Chi	No problem. See u. From: young Bella ▮▮▮▮▮▮▮▮ Sent: ...	2016/6/8 ☆
	young **Bella**	Dear Dr. Lai, Sorry for interrupting you. I am Bella, I borrowed your book na...	2016/6/11 ☆
	LAI, Yiu Chi	Noted with thanks. 日期: 週六, 2016 年 6 月 11 日 20:50	2016/6/12 ☆

Figure 1. Consulting with Supervisor by Emailing

LAI, Yiu Chi ▮▮▮▮▮▮▮▮▮▮▮ 2016/8/22

发送至 我 ▾

英语▾ 〉 中文▾ 翻译邮件

Dear Bella,

You may be interested in this presentation as you can conduct a similar topic to explore ICT Education in East China.
Have you got your EdU email already? What is your student no.?

Best regards,
Dr. Lai

We also shared some opinions about the proposed research topic through emails. Thus, we could understand our views on the topic. During the interview, my supervisors also gave some suggestions for my future study based on our previous dialogues. After receiving the offer and before the start of the new semester, we continued to communicate through emails. My supervisor also showed some guidelines for and helped me set up the learning portfolio by using Google sites as follows (see Figure 2).
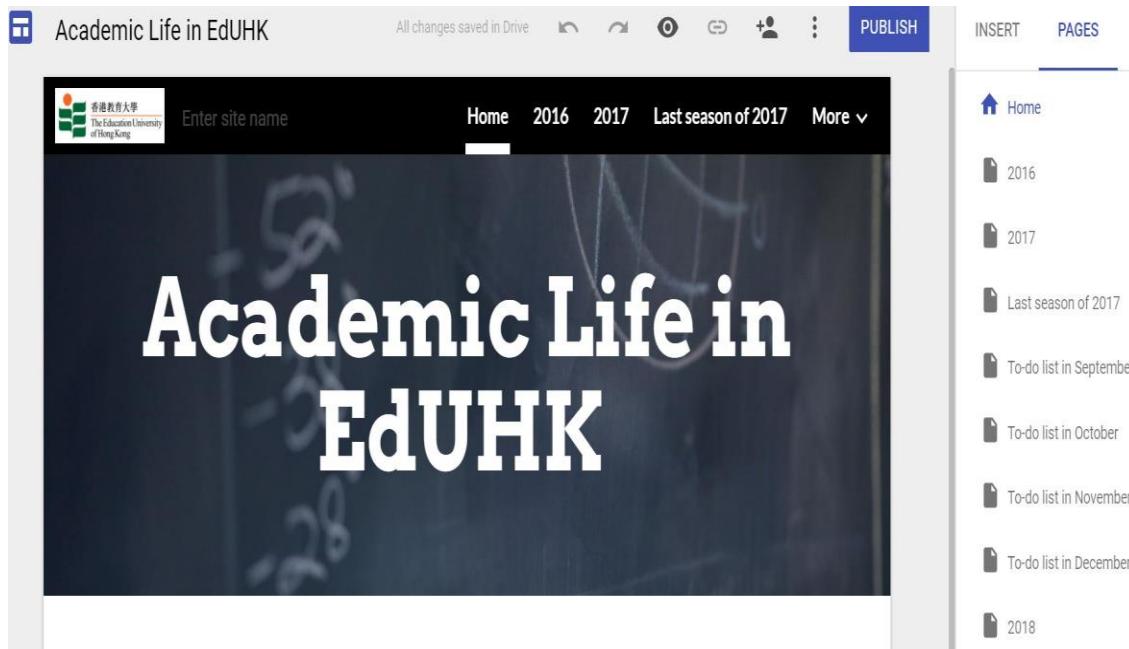
Figure 2. Learning Diaries on Google Sites

Second step is data collection. In this part, several periods will be discussed. First period is from August of 2016 to January of 2017. Based on the initial learning schedule, I was supposed to complete the doctoral students training courses in the first whole semester and utilize two more years to complete the dissertation and some professional development activities such as attending academic seminars and conferences. Thus, in the first semester, I was required to take seven courses in total and I think this was the most challenging task during the training and learning periods since everything was totally new. I felt psychologically unsatisfied and I was afraid of misloading the assignments. I had a regular meeting with my supervisor each week and we will share what I learnt in the past week and plans for next week. Sometimes we also used WhatsApp to communicate. WhatsApp is a freeware and cross-platform instant messaging and Voice over IP (VoIP) service. I also received some links for useful published journals or academic conference invitations from my supervisor through WhatsApp. I think it was also an e-learning strategy. Second period is from February of 2017 to July of 2017. This is second semester which I gradually adapted to the learning environment. My supervisor introduced the flipped classroom pedagogical approach to me. We set up a sharing folder on Google Drive as shown in Figure 3, which is effective for getting and sharing the information immediately. It is very convenient and user-friendly for resources learning. Meanwhile, I could also access the information either with my laptop or my mobile devices. It was used as a mobile library that was dedicated for my research.

My Drive > EdD (Bella) ▾

Name ↑	Owner	Last modified	File size
7011 book list	me	Sep 16, 2016 me	—
7011 journal for e-learning	me	Sep 16, 2016 me	—
7011 material for e-learning & assessment	me	Sep 16, 2016 me	—
7011 reference for Mainland China	me	Sep 16, 2016 me	—
7011 reference journal based on course outline	me	Sep 16, 2016 me	—
EdU Journal Rankings (Confidential)	Yiu Chi Lai	Dec 28, 2017 Yiu Chi Lai	—
Flipped Classroom	Yiu Chi Lai	Nov 13, 2017 Yiu Chi Lai	—
How to Measure Survey Reliability and Validity	Yiu Chi Lai	Feb 24, 2016 Yiu Chi Lai	—
ICT Curriculum in Hong Kong and Mainland China	me	Sep 4, 2017 me	—

Figure 3. Research resources on the shared folder created with Google Drive

The third period is from August of 2017 to September of 2018. In this period, we focused on writing my research proposal and digging deeply into the researches about ICT in Education. I attended the professional development workshops at the University and at several local schools, which were conducted by my supervisor. I became more familiar with the flipped classroom pedagogy, e-learning strategies, robotic education and computing thinking. Meanwhile, we delivered virtual paper presentations in an international academic conference. During the preparation, I learnt how to make the narrated video presentation with PowerPoint and Office Mix by studying training material in a Google Classroom course. Finally, I chose E-learning Practices in Pre-service English Language Teacher Education in Hong Kong and Mainland China as the topic in my dissertation for Doctor's Degree.

Third step is Objectivity. In this part, the objectivity of designing the learning schedules from the perspectives of doctoral student and the objective evaluations from the supervisor's perspective will be discussed. On the one hand, designing the learning schedules would be changed by times and different situations. I had very limited background knowledge about the ICT in education. I consulted my supervisor where and how to start my new academic journey. My supervisor suggested that I could use the resources hosted in the Learning Management System (LMS) and University's library system to get the basic awareness and understanding of researches of ICT in education. After reading a lot of relevant journal articles and policy documents, I refined my research topic step by step. Meanwhile, I also worked as a team number of some relevant projects. When looking back the learning process, I was often inspired by the ideas from the discussions with my supervisor. My supervisor also helped me clarify my research aims and make the objectives more precise. Meanwhile, my supervisor also recommended many online resources and free courses to me, which were relevant to e-learning and ICT in education. All these courses covered various aspects and helped me understand the implementation and application of ICT in education in different countries all around the world. I also updated my learning diaries on the Google Documents then shared it with Google Drive. My supervisor could give some feedback and comments in an efficient way. On the other hand, from the perspective of supervisor, some objective evaluations would be mentioned (See Figure 4).

Image and video work	PowerPoint	Presentation
e-learning system	MOODLE Mahara ePortfolio	Information searching, presentation
Knowledge	Wikipedia Mobile Google Map	Information searching
Mobile Office	Prezi Google Docs, Sheets & Slides	Information searching, data collection and analyzing and presentation
Collaborative work	WhatsApp WeChat	Information searching, data collection and analyzing
Measuring	Statistical Package for the Social Sciences (SPSS)	Data collection and analyzing and presentation
Simulation	Scratch	Information & Organize
Exhibitions	QR Code Generator	Information searching, data collection and analyzing

LAI, Yiu Chi [MIT]

to me

22 Feb (7 days ago)

It seems that this is the whole of your doctoral study. Do you remember that we have planned to release our data and findings part by part in different conferences?

For example, using the China cases in Local conferences and the Hong Kong cases in other international conferences.

Anyway, your English seems to have an improvement.

從我的 iPad 傳送

···

<Abstract for International Conference.docx>

[EdUHK_logo]
2nd in Asia and 13th in the world in Education
(QS World University Rankings by Subject 2017)

Figure 4. Objective evaluations from supervisor

Table 1 shows a summary of the educational ICT tools that are useful in my doctoral study. It is based on the eleven categories proposed by Kampschulte and Eilert (2016), but I can only identify nine categories in my study.

Table 1. Educational ICT Tools in My Doctoral Life

Detailed examples about how these educational ICT tools help me to learn in the past two years will be shown for different situations. During my undergraduate study, although I had my own laptop, I used it very rarely and was not able to use them to find and locate learning resources on the Internet. I did not use the note-taking software such as Evernote before. I usually took notes on the paper notebooks and sometimes information was not well organized and not searchable. In fact, it wasted me a lot of time and it was too heavy to hold all notebooks to

anywhere. After starting my postgraduate study, I started to learn to use the note-taking software. I tried to learn the functions of Evernote bit by bit. and I discovered some fantastic features. Firstly, it is very convenient to take note and all the information will be organized in order automatically. Secondly, it is very user-friendly. Pictures and videos are uploaded into the note-taking pages at any time. Some unnecessary information is easily deleted. I can also share my notes to others easily. Evernote is still workable without Internet access. Thirdly, Evernote allows me to keep all types of information such as images and videos and set a PIN for accessing the notes.

During my undergraduate learning period, PowerPoint is rarely used for image and video works and I use it when I attended the social activities or preparing the presentations. I do not know the functions of PowerPoint clearly. I have very limited chances to use PowerPoint for academic studies. After I have started my study in Hong Kong, I need to handle totally different challenges. I have more chances to use laptop to study and I attend various workshops or seminars about e-learning and how to utilize the digital resources to assist the study in the digital era. I agree that the functions of PowerPoint are very holistic, and I learn how to use it to make audio presentation which is I did not know how to make it during the undergraduate learning period. I also learn the other software which have similar functions with PowerPoint. Meanwhile, I find people would easily accept the ideas if the presentation has clear structures and the contents are logical organized. My thinking way would be improved by preparing the PowerPoint slides since I must think about how to describe my own ideas by very simple but meaningful wordings. During the doctoral learning periods, my supervisor assigns me more learning tasks to develop my ICT tools using skills. For example, making the academic poster for group presentation by PowerPoint. Making a good PowerPoint slide is also a vital part of professional development, since this skill is not only helpful to students, but also feasible for students' future job hunting.

E-learning system is a new tool for me before I came to Hong Kong for study. I have less chances to use the e-learning system during my undergraduate learning period. Professors did not share the teaching and learning materials online and there was very limited time to use and explore the online resources. I did not know how to find the relevant academic references or information during my previous learning periods. I was really confused about the format of academic writing. I had less chance to attend the workshops or seminars about how to use e-learning system to learn effectively. However, after I have come to Hong Kong, the learning style in the university is very different. I still remember the first time that I had enrolled the workshop about how to use the library system for our academic development in the university. The librarian told us the detailed instructions about the library system, and I was exciting to explore its functions. Meanwhile, there are some workshops for students to learn how to use the MOODLE, which is also the new learning experience for me at that time. MOODLE can help me to tell my schedule directly in Figure 5. Two main functions of MOODLE are my preference. Firstly, we can login MOODLE from various platforms by using mobile apps. They are user-friendly designed apps. I can use them anywhere and they are safe. Secondly, another important feature is the function of restoring. I can find the accidently deleted content in the MOODLE. Those content can also be edited and downloaded again. I can review all the contents at any time and I think my learning motivation is improved. Meanwhile, there are e-Portfolio design competitions in the university and I enjoy this collaborative learning strategy.

Figure 5. My Courses in the MOODLE

Because of the Internet Connection policy in Mainland China, I could only use Chinese Internet Search Engine to search the information in Mainland China, so I was only able to find limited journals or research papers in English version during my undergraduate study. Although I was student teacher majored in English, the requirements of assignments included only a few writing tasks in English. I have never used the Wikipedia before. Wikipedia is free-edited web encyclopedia, but it could offer the general information and I could get a basic understanding for unfamiliar issues. It is a quick way to get the information. In Hong Kong, the ways of access of information and knowledge is various and safe. There are a lot of basic facilities for citizens. It benefits me to find the references for my researches. Google Map is useful too. When I analyze the differences and similarities of two adjacent areas by geographical and cultural factors in my researches, I use to display and find information by Google Map. Besides the basic functions, two of the special features of Google Map are exploration of space and sharing the latitude. I could learn the knowledge of interstellar during the spare time which also the one of the e-learning methods to improve my digital literacy. Furthermore, Google Map and Wikipedia would stimulate me to explore more information because of my curiosity and desire for new knowledge. Web-based learning by Google Map is also a valuable research topic and many scholars have published many articles and conducted numerous researches about it.

WeChat and WhatsApp are two main instant information platforms for collaborative work. I use both in my daily life. They help me to share the information and documents very quickly and free. I only search the key words then I easily find the well-structured results by WeChat or WhatsApp. Both could set up the groups for suitable purposes and I could complete the group discussion or the other group activities by them. Professors always take part in the groups and monitor the group discussion. If we meet the difficulties, professor would give the suggestion directly and quickly. I agree that my anxiety of learning would be decreased gradually when I study by this method. Meanwhile, it is convenient to assign the online questionnaires for apposite participants through WeChat and WhatsApp. There are many public accounts in WeChat. They have daily announcements and I opt the information I am looking for and I also could comment or ask questions in those announcements. I also receive the reply in time. Both WeChat and WhatsApp have functions of audio call and it is free for charge but need the data or WIFI to operate. Thus, it is also economical for students like me and I could make long-time discussion with my supervisors when I am in the mainland China or teammates by audio calls. However, there are also some defects. Firstly, I can share the media sources and documents by WeChat, but I need the external apps could read the documents. I do not agree that it is sometimes user-friendly since I need download more external apps to finish the whole sharing section. Secondly, I could use WeChat and WhatsApp both in Hong Kong. But I can only use

WeChat in the mainland China, thus it will be influenced the communication between my supervisor and I in Figure 6. Thirdly, WeChat does not have the function of quoting the information, sometimes it influences the frequency and accuracy of the reply. But WhatsApp massages could be quoted and replied directly and soon in Figure 7. In a word, I agree that these collaborative learning tools are useful.

Figure 6. Using WeChat in Mainland China for Communication with Supervisor	Figure 7. Using the Function of Quoting the Message in WhatsApp

For measuring tools in my research, I only use Statistical Package for the Social Sciences (SPSS), it is utilized for data analysis for the research. During my bachelor's learning periods, I have learnt little about mathematic and I have few chances to learn the statistics and its applications. For our assignments, there is also no requirements for collect and analyze data through SPSS. Thus, I need more time to figure it out. During the undergraduate learning period, the electronic books about statistics in social science or science are recommended to students. These types of books are useful, and I also use them as the basic statistics handbook for research data analysis, including basis introduction of SPSS and inferential statistics. I get the basic understandings about the data analysis by SPSS. I brought the book in the electronic version which I could read anytime by any mobile equipment. I also could highlight the important points on any pages. The electronic books are saving money and practical for students. During the first-year of my doctoral life, I have the lecture named quantitative research method and the professor who taught us also gives us the instruction about the statistics and how to complete the data analysis for the researches by SPSS. The professor is very nice, and the lecture is interesting, and I could construct the basic knowledge of the descriptive statistics. I am not fear of using SPSS to do the data analysis. In the summer break, I also attend the short-term training course named basic statistics in higher education in Blended Learning Mode in Figure 8. This course is displayed on the EdUHK Analytics Moodle Server. Meanwhile, Graduate School in the

university also provides the individual statistical consulting service in Figure 9. Each consulting section are 1 hour, and it needs to take a reserve. I agree that during the consultation, the stated questions could be explained clearly by the tutor and I also have unlimited time for reserving the consultation.

⁂ Basic Statistics for Higher Education September 2017 EdUHK English

Teacher: Lily Qu

This is the blended learning course for basic statistics for EdUHK English class students.

Date and Venue

September 18th, 2017 E-P-12

September 25th, 2017 E-P-12

October 3rd, 2017 D3-LP-11

October 9th, 2017 E-1/F-07

Time

13:00-14:00

EdUHK Analytics Moodle Server

Home ► My courses ► Blended Learning Course for Statistics ► Jun. 2017 (Thur) ►
Sampling Distribution ► [Quiz] Definition of Sampling Distribution of Sample Mean

Started on	Monday, 12 June 2017, 10:18 AM
State	Finished
Completed on	Monday, 12 June 2017, 11:30 AM
Time taken	1 hour 11 mins
Marks	7.00/7.00
Grade	**10.00** out of 10.00 (**100%**)

Question 1

Correct

Mark 1.00 out of 1.00

⚑ Flag question

A sampling distribution is:

Select one:

- a. The probability distribution of a given statistic based on a random sample. ✔
  Explanation: There are many types of sampling distributions for different types of population distributions, and the given statistic can be sample mean or sample proportion or any other but it is the distribution based on random sampling.
- b. The distribution of different standard deviation of the sample from the population.
- c. The distribution of different possible values of the mean in a population.
- d. The probability distribution of the sample size of a large number of random samples.

Check

Figure 8. Blended Learning Mode for Basic Statistics in Higher Education

Figure 9. Individual Statistical Consulting Service in The EdUHK

As for the simulation and exhibitions tools, I know the Scratch and QR Code Generator for education, however, during my first two-year studies, I have very less chance to do the research related with these two educational ICT tools.

5. Conclusions and Potential

After three-year learning periods in Hong Kong, comparing the learning experiences when I was an undergraduate student in Mainland China, a lot of changes happened about my learning styles, habits and effectiveness. During my bachelor learning periods, I knew very less about ICT tools in education. Only some of my professors utilized the educational ICT tools for teaching and learning. For example, the professor who teached the brief introduction of English literature creates an online forum for students and upload his ideas for students' questions in time. However, this forum had lower utilization rate and I only passively used it when the professor asked us to upload the assignments. The other example is the professor who taught the pedagogies for teaching English. This professor always showed the videos about previous Teaching English Competition and asks students to complete the self-learning during the lecture. However, there was no interaction between professor and students. I am confused that I only am a sophomore and I am not sure what I will do in the future, I also confused about how those videos to help me to learn more knowledges and skills for English teaching and learning, although the professor utilized the educational ICT tools as the approach to output the information for students. The third example is the English Writing Lesson. Students got a certain title every new lesson and then finish it within 45 minutes. There were no more chances for students to use educational ICT tools to search the resources. Thus, I agree that they have very less chance to construct the fundamental knowledges of English writing. I had also less chances to deeply dig the how educational ICT tools assist my learning and researches.

However, the bigger changes happened after I came to Hong Kong and start my academic journals. During my master's learning period, I study in Language Studies. Professors prepare detailed outlines for each student and I

start to know and learn MOODLE as one of learning management systems at my first-time. Meanwhile, professors always recommend some digital learning materials for students. After I am studying as a doctoral student in Hong Kong, I start to know and use a lot of different ICT tools. A lot of materials and resources both traditional paper-printed versions and digital versions could be utilized for students. The university also offers some online courses for students. I could learn and immerse in their learning and researches through the library systems. I often need to search information on the Internet or in library databases. I have more interactions with professors and I could consult the difficulties I faced with to the professors. Professors also share their opinions about their research topic and they post some higher quality research journals online and create the online discussion group for students. I agree that the education pattern in Hong Kong is totally different from it is in Mainland China. I also admit that I become more initiative on my research and learning. In summary, all trainings during the master's learning period cultivate me to get the habits to critical thinking, reading and writing. I also learn some skills about how to be an independent learner and utilize the different educational ICT tools for learning and conducting researches. Doctoral learning experiences are similar as the learning periods as a master's student. What more, I major in education at present, courses and trainings are delivered by supervisors, which focus on the education and pedagogies implementations. Meanwhile, my supervisors often encourage me, analyze my dilemmas and find the advices for future career development, and I gradually feel phycological comfortable and form a habit to think and learn independently and maturely.

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Administrative Factors As Correlates Of Antenatal Care Service Utilisation Among Pregnant Women in Ekiti State, Nigeria

BY

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Abstract

This study examined the extent to which administrative factors correlated with antenatal care service utilisation among pregnant women in Ekiti State, Nigeria. The descriptive survey research design was adopted. The multi-stage sampling technique was used to select 2035 pregnant women from selected 64 health centres (32 rural and 32 urban) as well as 2 health care providers from each of the 3 senatorial districts. Two instruments were used: Administrative Factors Questionnaire (r= 0.70), and ANCSU Questionnaire (r= 0.59). Two hypotheses were tested at 0.05 level of significance. Data were subjected to inferential statistics of multiple regression analysis. *Findings showed that a*dministrative factors significantly predicted ANCSU (F $_{(6,2028)}$ =11.19)and jointly contributed 17.9% to the variation of ANCSU. Their relative positive contributions were: accessibility of health facilities (β=0.10); cost (β=0.04); availability of health resources (β=0.03); urban and rural differential (β=0.01). Employer influence and referral cases did not show significant contribution. It was recommended that there is the need for re-training of personnel to improve their quality and capacity in attending to pregnant women during ANC, labour and delivery. The government of Ekiti State, Nigeria through EKSPHCA, EKSHMB, EKSUTH and other health service providers (NGOs, religious institutions and private providers) must endeavor to improve on the distribution and maintainance of health facilities, human resources, good roads, necessary infrastructure and good ambulance at each ANC centre among other things in order to facilitate easy access to health care providers especially for the rural dwellers.

Keywords: *Antenatal care, Maternal Morbidity, Neonatal Mortality, Postnatal Care, Post - neonatal mortality*

Introduction

ANC serves as the initial point of contact of expectant mothers to maternal health care providers before delivery (Eric, 2012). High quality ANC service utilisation has made maternal deaths a rare event in developed countries. While the risk of maternal for a pregnant woman in developing countries is 1 in every 48 deliveries, the risk for a pregnant in North American women is only 1 in 3,200 (WHO, 1996; Iyaniwura and Yussuf, 2009).

According to WHO (2004b), more than half a million die from pregnancy related causes and majority of these death occur in Sub-Saharan Africa. Every minute at least one woman dies from pregnancy and childbirth.

Nigeria's population was estimated to be over 158 million in 2010 with a fertility rate of 5.7 making it the eighth most populous nation in the world. Nigeria is one of the major contributors to the poor maternal health status in Africa (Population Reference Bureau (PRB), 2011 and National Population Commission (NPC) Nigeria ICF and Macro, 2009). Nigeria is one of the six countries that contribute about 50% of the maternal death; the others being Ethiopia, India, Pakistan, Afghanistan and the Democratic Republic of Congo (Hogan, Foreman, Naghavi, Ahn, Wang, Makela, Lopez, Kozano and Murrey, 2010). Due to poor utilisation of ANC at Maternal and Child Health Care Centres (MCHCC) in Nigeria among pregnant women, many women lose their life in the process of procreation. In Nigeria, an average of 704 women died out of every 100,000 women who bring forth a live birth. Maternal Mortality Ratio (MMR) range from 166 per 100,000 in the South West to 1,549 per 100,000 lives birth in the North East [Federal Ministry of Health (FMH) Nigeria, 2003; Hauwa, 2011]. Under –five mortality rate of 157/1000 live births (NPC and ICF Macro, 2009) and an estimated yearly prevalence of induced abortion of 760,000 (Bankole, Oye-Adeniran, Singh, Adewole, Wulf, Sedgh and Hussain, 2006).

Fortunately, most of these deaths are preventable. It is the poor ANCSU before, during and after delivery that contribute to high maternal mortality and morbidity among pregnant women in Ekiti State, Nigeria. The record of antenatal care attendance in secondary health facilities in Ekiti State did not show consistent improvement between

2002 and 2010. The attendance rate which was 20,272 in 2003 dropped sharply to 12,611 in 2004, it increase to between 24,532 and 28,744 in 2005-2008 and dropped dramatically to slightly over 15,006 in 2009 and 15,254 in 2010. There was no time that up to one quarter of women that had their antenatal care in the hospitals in the state actually delivered in such hospitals. In most cases, the percentage of those that delievered in the hospitals fell below 15 percent (Ekiti State Ministry of Health (EKSMH, 2013). The state was created on 1st October, 1996. As one of the newly created state in Nigeria, the researcher observed that the preferences of the pregnant women on the administrative and human-health-related factors that influence ANCSU which will help to reduce unnecessary loss of lives have not been effectively studied like other states in Nigeria. Unfortunately, the effort has not manifested in the trends of ANCSU as seen in the Nigerian populace especially pregnant women residing in the rural areas (Umar, 2000).

Moreover, administrative factors may be responsible for set-back in ANCSU among pregnant women in Ekiti State, Nigeria. The administrative factors enabling the appropriate use of ANC service by the adult pregnant women population has not received the much-needed attention. This is a great set-back especially if viewed from the background that utilisation is one of the most frequently employed indices in assessing the health status of a population.Such administrative factors includes availability of health resources, accessibility of health facilites, cost of ANC service, referral cases, employer influence, urban and rural differential to mention but a few. Study conducted by Chestrad (1999) in Ekiti, Ogun, Osun and Oyo states confirmed that no health service was reported to be available in more than 50 percent of the subjects surveyed at PHC and other health centres. Immunisation was the service most widely available, but even in this case, only 45 per cent of facilities had been providing immunisation in the preceding years. The poor availability of ANC service at PHC and other health centres was viewed by Adeyemi (2001), who remarked that in view of the high rate of maternal mortality and low level of antenatal care and delivery in PHC facilities, it is pertinent to note that Essential Obstetric Care (EOC) was available in only 194 facilities nation wide. It must be noted that the poor health service found in Ekiti, Ogun, Osun, Oyo, Katsina, Kebbi and Akwa-Ibom states is perfect reflection of the poor health service throughout the country.

Overall data indicated that in 1999, there were 18,258 registered PHC facilities across Nigeria, 3,275 secondary facilities and 29 tertiary facilities. Generally, it is fair to state that, in terms of health infrastructure, the country is quite well covered. However, the fact that health facilities physically exist, in the sense of bricks and mortar, does not necessarily mean that they are functional. Many are poorly equipped and lack essential supplies and qualified staff. There are variations in utilisation of ANC service by availability factor estimation (Hodges, 2001). Bendewar and Saha (2008) reported that there were enough facilities and resources for PHC and other health centres and that only 10.8 percent of their subjects did not receive tetanus toxoid vaccines, 27.2 percent did not received iron/folic acid tablets. Sule et al (2008) concluded that community perceptions of poor quality and inadequacy of available resources was responsible for low use of ANC service.

The increased distance between residents and health care providers' decreases ANC service utilisation at PHC and other health centres (Money, Zwanziger, Phibbs and Schmitt, 2000). Van-Eijk et - al (2006) were of the opinion that most pregnant women reported walking to the ANC.Walking times, ranged from 1 minute to 3 hours (median – 40 minutes). Although distance was cited as a barrier to ANC service at PHC and other health centres. Major reasons given for attending a more distance PHC and other health centres included better perceived care or lower cost and better service.

The most frequently mentioned reason for utilising ANC at PHC and other health centres is the cost of service. According to Bandewar and Saha (2008), the most obvious reasons for seeking ANC and treatment at the tertiary level irrespective of the nature the case, locality, age to mention but a few were economic, referrals, the fame of health facility and expert doctors. The other common reasons were availability of expertise, insurance benefits, and appropriate health care. Poor people and illiterates' preference to go to tertiary health care institutions because of economic reasons while the better-off pregnant women went because they were referred. This shows that some pregnant women come to ANC at health facilities not by choice but for reasons beyond their direct control.

Rural - Urban differential in the ANCSU at PHC and other health centres has been established. According to Majumder (2006), the probability of ANC service utilisation is very high in rural areas. Navaneetham and Dharmahingam (2000) claimed that the differential in access to PHC and other health centres facilities between

rural-urban areas is an important factor for lower ANC service utilisation at PHC centres, particularly for institutional delivery and delivery assistance by health personnel in the rural areas. Urban residence increased the likelihood of institutional ANC delivery and assistance during delivery. The rural-urban differential in the use of ANC service is likely to be due to differences in the availability of MCHC facilities including distance of PHC and other health centres. Shelm (2001) established that the idea of PHC scheme is to ensure that both rural and urban dwellers not only have access to meaningful health care but they participate actively in the implementation of every facet of the programme. It is therefore not surprising that the households survey of Hodges (2001) revealed that 90 percent of the households did not have assess to any ANC at PHC and other clinics and hospitals, 34 percent had no access to a skill private doctor and 24 percent had no access to a pharmacy. This situation suggests that the present MCHC services are not meeting the ANC service and other health problems of pregnant women in Nigeria and Ekiti State, Nigeria citizens in particular.

The unique characteristics of pregnant women in Ekiti State, Nigeria to education, religion, socio- cultural, and politics has not manifested in their ANC service utilisation. ANC service is expected to provide basic preventive, health promotion and health education, as well as curative service to the pregnant women. It is doubtful as to whether many pregnant women in Ekiti State, Nigeria utilised modern ANC service that can help them to reduce infants, maternal mortality and morbidity rates in the 21st century and beyond. Hence, the study of administrative and human-health-related factors as correlates of Antenatal care service utilisation among pregnant women in Ekiti State, Nigeria remains a matter of concern.

Objectives of the study

The following specific objectives are set for this study:

1. To examine if administrative factors (availability of health resources, accessibility health facilities, cost of ANC service, employer influence, referral cases, urban and rural differential) will predict antenatal care service utilisation among pregnant women in rural and urban area of Ekiti State, Nigeria.

2. To assess the relative contribution of administrative factors (availability of health resources, accessibility health facilities, cost of ANC service, employer influence, referral cases, urban and rural differential) to antenatal care service utilisation among pregnant women in rural and urban area of Ekiti State, Nigeria.

Hypotheses

The following hypotheses were statistically tested:

1. Administrative factors (availability of health resources, accessibility of health facilities, and cost of ANC service, employer influence, referral cases, urban and rural differential) will not significantly predict antenatal care service utilisation among pregnant women in Ekiti State, Nigeria.

2. There is no significant relative contribution of administrative factors (availability of health resources, accessibility of health facilities, cost of ANC service, employer influence, referral cases, urban and rural differential) to antenatal care service utilisation among pregnant women in Ekiti State, Nigeria.

Methodology

This study examined the administrative factors as correlates of antenatal care service utilisation among pregnant women in Ekiti State, Nigeria. The methodology for the conduct of the study which was discussed under the following sub-headings:

Research Design

Descriptive survey research design was used for this study. The rationale for using this method was based on the fact that it concentrates on description of events, recording, analyzing and interpreting data relating to conditions existing in a study.

Thomas and Nelson (2001) stated that descriptive survey research design is a tool used to collect information in order to describe the existing phenomenon, to identify problems, to make comparisons and systematic evaluation.

Population

The population for this study comprised all pregnant women 15-49 years attending Maternal and Child Health antenatal clinics in the rural and urban health care centres in the sixteen local government areas of Ekiti State, Nigeria.

Sample and Sampling Techniques

The sample for this study comprised two thousand and thirty seven (2037) respondents out of which seven hundred and eight (708) respondents were selected from rural basic PHC centres and one thousand three hundred and twenty nine (1329) respondents were drawn from urban health centres. The multi-stage sampling techniques were used to select the respondents for this study. While purposive sampling technique is a deliberate plan of action to include certain groups or segments of the population in a sample (Adeyemi, 2007). Araoye (2003) and Adeyemi (2007) described purposive sampling technique as a sampling based on the judgement of the researcher or a sampling selection based on purpose as perceived by the researcher. Heestablished further that, in this type of sampling, specific elements of a population that satisfy some perceived or predetermined criteria are selected for research purpose.

Research Instruments

The instruments that were used in the collection of data for this study were based on primary source of data collection through distribution of Administrative Factors Questionniare (AFQ) and Antenatal Care Service Utilisation Questionniare (ANCSUQ). The major data for this study was collected through a structured questionniares designed by the investigator. In constructing the instrument, the litrature relating to ANC service utilisation was reviewed extensively. Concepts from the litrature reviewed were used to design items for the questionnaires. The final draft of the questionniares contains two sections:

Section A: The items in the second section of the instrument deals with Administrative Factors Questionniare (AFQ) of the respondents towards ANC service utilisation. The items in this section of the instrument utilised responses of **(to a great extent =3, to some extent =2 and not at all =1)** for the options with reliability (r) = 0.70.

Section B: The items in the fourth section of the instruments deals with ANC Service Utilisation. Questionniare (ANCSUQ). The items in this section of the instruments utilised responses of **(to a great extent =3, to some extent =2 and not at all =1)** for the options with reliability (r) = 0.59.

Pre-Test of the Research instruments

The draft of the validated questionniares was subjected to a pilot study. Thirty (30) pregnant women who attended CHC Oke Osun in Ikere Local Government Area of Ekiti State, Nigeria and GH Iyin in Irepodun/Ifelodun Local Government Area of Ekiti State, Nigeria who are not part of the final subjects of the study were used. The reliability of the Adminstrative Factors Questionniare (AFQ) = 0.70 and ANC Service Utilisation Questionniare (ANCSUQ) = 0.59 was obtained. Kerlinger and Lee (2000) asserted that, pre-test instrument used for a research is reliable, sensitive and meaningful. Such an exercise helps to improve validated questionnaires instrument and provides additional knowledge that will add to the quality of research study.

Validity of the instruments.

To validate the questionniares, the English version was given to two experts in the Faculty of Education, Department of Human Kinetics and Health Education, Ekiti State University, Ado Ekiti, Nigeria and three professional lecturers in the Department of Human Kinetics and Health Education, Faculty of Education, University of Ibadan, Ibadan, Oyo State for face, content and construct validity. Their criticisms and comments made was utilised to ensure that the instrument measure what they were intended to measure. Validity is one of the most important characteristics of a good measuring instrument. The greater the degree of validity, the higher the confidence of the researcher about his or her results. Also, Olayinka, Taiwo, Raji, Oyelade and Farai (2006) reported that, validity refers to the accuracy and truth of the data and finding that are produced.

Reliability of the Instruments

The reliability of the instrument was tested by given the validated version of questionnaire to fifteen (15) pregnant women who attended comprehensive health centre Okesa Ado Ekiti and comprehensive health centre Afao, Ikere Ekiti who did not form part of the final respondents that were used for final study. The data collected were subjected to Cronbach's Alpha method to determine the reliability coefficient (r) to measure the accuracy, trustworthiness or consistency of measurement. The obtained reliability of the Adminstrative Factors Questionniare (AFQ) = 0.70 and ANC Service Utilisation Questionniare (ANCSUQ) = 0.59. Reliability is the consistency or repeatability of an instrument to measure what it purports to measure (Thomas and Nelson, 2001; Adeyemi, 2007).

Ethical Considerations

Ethics in research is about responsiblility to respect the right of others. The researcher sought and received the permission of EKSHMB, EKSUTH, Ado Ekiti and FMC, Ido Ekiti, Ekiti State, Nigeria before having assessed to the respondents. The permission process involved submission of request proposal letters for the study to be review by the health institutions team of research experts before given the permission to assess the respondents on the ANC clinics days.

Procedure for Data Collection

The researcher obtained a letter of introduction from the Head of Department Human Kinetics and Health Education, University of Ibadan, Ibadan, Oyo State to each health centre in the sixteen local government Areas of Ekiti State, Nigeria for identification purpose and for their cooperation in the administration of the questionniares. Other approval letters was obtained from EKSHMB Ado Ekiti, Ekiti State, Nigeria to all the GHs in the state. Likewise, Ethics and Research Committee Clearance Certificate protocol number: ERC/20012/08/05 from FMC Ido Ekiti, Ekiti State, Nigeria and Ethics and Research Committee Clearance Certificate protocol Number: EKSUTH/A67/2012/10/013 from EKSUTH Ado Ekiti, Ekiti State, Nigeria was obtained for this study.

The researcher personally organized for the administration of the questionniares. The ten (10) trained research assistants were drawn from Part 1 and 2 students of Physical and Health Education Department, College of Education, Ikere-Ekiti and 100 ,200 and 300 level students of University of Nigeria, Nsukka, Ikere Campus, Ekiti State, Nigeria. A total of two thousand and thirty seven (2037) questionniares were administered and the researcher was able to retrieved two thousand and thirty five (2035) indicated 99.9% success rates from the respondents with the help of the self trained research assistants.

Procedure for Data Analysis

All the data collected were entered into computer for analysis using Statistical Package for Social Science (SPSS) version 19.0. The responses for each item on the questionniares were tallied to get their frequencies. While inferential statistics Multiple Regression (R) of Linear type (LMR) was used to test hypotheses The decision criterion or rule for the hypotheses was tested at 0.05 level of significance. Histogram and scatter plot was used for data illustrations.

The LMR technique is an appropriate technique for the analysis of the level of contribution of variables in the explanation of utilisation of ANC pattern and for the analysis of the interrelationship among the variables. The analysis yielded standardized partial regression coefficients that estimate the direct effect of a predictor variable on

the dependent variable controlling for the effects of all other independent variables in the equation (Baris, Sanchez, De vasconcellos and Balassiano, 2000). It is expressed as: $Y = a + b1\ x1 + b2\ x2 + b3\ x3 + \cdots + bnxn + e$ Where Y = the dependent variable (utilisation of antenatal care service in rural and urban areas of Ekiti State, Nigeria), a = the regression coefficient, b1 b2 bn = partial regression coefficient, x1 x2 x3 = independent variables which are the Socio-demographic, administrative and human-health-related factors of pregnant women and other health related variables. The selected variables are: Administrative factors (These include availability of health resources, accessibility of health facilities, cost of ANC service, employer influence, referral cases, urban and rural differential) of the respondents.

Results of the findings

Ho1: Administrative factors (availability of health resources, accessibility health facilities, cost of ANC service, employer influence, referral cases, urban and rural differential) will not significantly predict antenatal care service utilisation among pregnant women in Ekiti State, Nigeria.

Table 1: Linear Multiple Regression Coefficient (R) Summary of Administrative Factors.

Model R=0.179[a] R Square=0.03 Adjusted R Square=0.03 Std. Error of the Estimate=1.36107 Durbin-Watson=0.20	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	124.37	6	20.73	11.19	0.00[a]
Residual	3756.88	2028	1.85		
Total	3881.26	2034			

a. Predictors: (Constant), Urban and Rural Differential, Accessibility of Health Facilities, Employer Influence, Cost of ANC Service, Availiablity of Resources, Referral Cases
b. Dependent Variable: Antenatal Care Utilisation
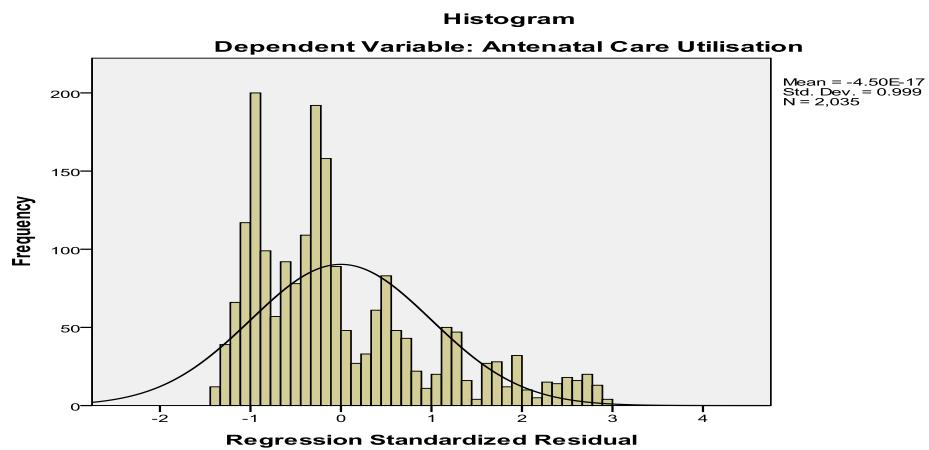
Figure 1: Linear Multiple Regression Coefficient (R) Summary of Administrative Factors

Table 1 above shows that the Linear Multiple Regression coefficient R between administrative factors (availability of health resources, accessibility of health facilities, cost of ANC service, employer influence, referral cases, urban and rural differential) to antenatal care service utilisation among pregnant women are 0.179. Estimated R square is 0.03; Adjusted R square is 0.03; Standard Error is 1.36107 and the Durbin waston model is 0.20. This meant that administrative factors when taken together accounted for 17.9 percent variation on ANC service utilisation among pregnant women in rural and urban areas of Ekiti State, Nigeria.

Further investigation on correlative coefficient relationship between administrative factors of ANC service utilisation among pregnant women in rural and urban areas of Ekiti State, Nigeria using Linear Multiple Regression ANOVA produced sum square equals 124.37; mean square is 20.73 and $F_{(6, 2028)}$ =11.19; p < 0.05. Since F value calculated is greater than F table value, this means that, the null hypothesis 1 which stated that administrative factors (availability of health resources, accessibility of health facilities, cost of ANC service, employer influence, referral cases, urban and rural differential) will not significantly predict antenatal care service utilisation among pregnant women in Ekiti State, Nigeria is therefore rejected. ($F_{(6, 2028)}$ =11.19; p < 0.05.). This indicated that administrative factors (availability of health resources, accessibility of health facilities, and cost of ANC service, employer influence, referral cases, urban and rural differential) significantly predicted antenatal care service utilisation among pregnant women in Ekiti State, Nigeria. Figure 1 show further illustrations.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	2.14	0.18		12.18	0.00	1.90	2.49			
	Availiablity of resources	0.05	0.03	0.03	1.46	0.15	-0.02	0.11	0.05	0.03	0.03
	Accessibility of health facilities	0.14	0.03	0.10	4.48	0.00	0.08	0.20	0.20	0.20	0.20
	Cost of ANC service	0.04	0.03	0.04	1.63	0.10	-0.01	0.09	0.03	0.04	0.04
	Employer influence	-0.18	0.03	0-.15	-6.58	0.00	-0.23	-0.13	-0.14	-0.15	-0.14
	Referral cases	-0.01	0.03	0-.01	-0.26	0.90	-0.06	0.05	-0.01	-0.01	-0.01
	Urban and Rural differential	0.01	0.03	0.01	0.38	0.70	-0.04	0.06	0.00	0.01	0.01

a.   Dependent Variable: Antenatal Care Utilisation

Table 1: Degree of Contribution of Administrative Factors to ANC Utilisation

Scatterplot
Dependent Variable: Antenatal Care Utilisation
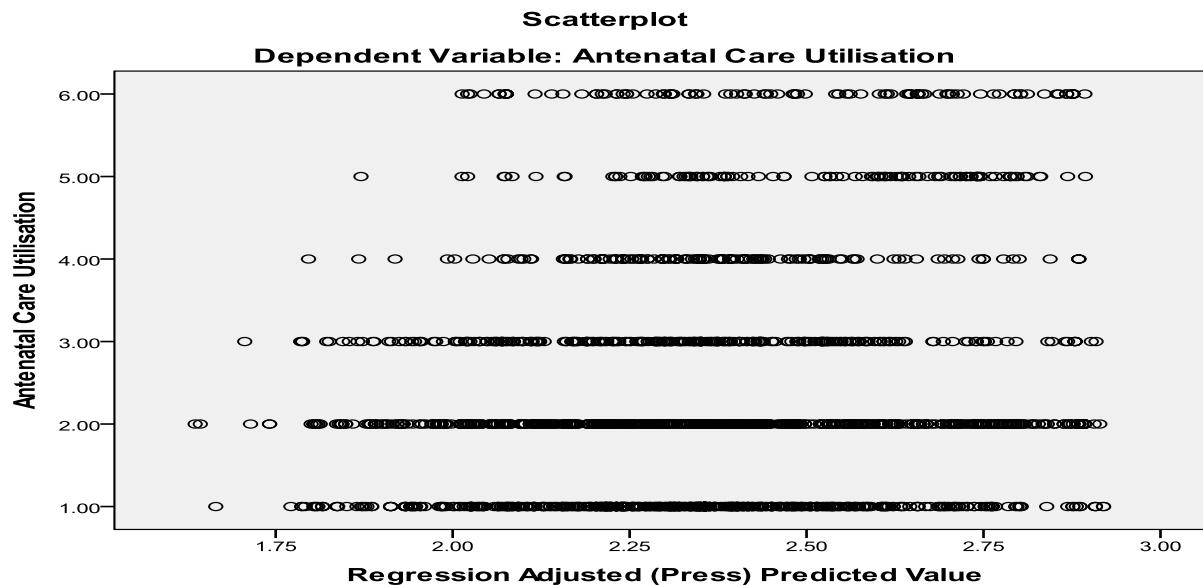
Similarly, this result of the focus group discussion reported of this study as revealed in table 1 which shows that majority (80%) and table 1 with mean of 2.84 of the respondents explained that administrative factors (availability of health resources, accessibility of health facilities, cost of ANC service, employer influence, referral cases, urban and rural differential) influenced ANC service utilisation among pregnant women in rural and urban areas of Ekiti State, Nigeria.

Ho2: There is no significant relative contribution of administrative factors (availability of health resources, accessibility of health facilities, and cost of ANC service, employer influence, referral cases, urban and rural differential) to antenatal care service utilisation among pregnant women in Ekiti State, Nigeria.

Figure 1: Degree of Contributions of Administrative Factors to ANC utilisation.

The result in table 1 above shows that accessibility of health facilities contributed positively with ß = 0.10; t= 4.48; p < 0.05. Next to accessibility of health facilities is cost of ANC service with ß = 0.04; t = 1.63; p < 0.05. This was followed by availability of health resources with ß = 0.03; t = 1.46; p < 0.05. Also, urban and rural differential contributed ß = 0.01; t = 0.38; p < 0.05. While, employer influence contributed negatively with ß = - 0.15; t = - 6.58. p < 0.05. Likewise, referral cases contributed the least negative value with ß = -0.01; t = - 0.26; p < 0.05 among other administrative factors to ANC utilisation among pregnant women in rural and urban areas of Ekiti State, Nigeria. These independent variables of employer influence and referral cases are found not to be significant at 0, 05 level of significance. Figure 1 show further illustration.

Hence, a close analysis of the relative contribution of adminisrative factors shows that accessibility of health facilities, cost of ANC service, availability of health resources, urban and rural differential showed positive significant contribution at (p < 0.05) on ANC service utilisation. While, employer influence and referral cases had no significant relative contribution at (p < 0.05) on antenatal care service utilisation. Therefore, the hypothesis 2 which stated that there is no significant relative contribution of administrative factors (availability of health resources, accessibility of health facilities, cost of ANC service, employer influence, referral cases, urban and rural differential) to antenatal care service utilisation among pregnant women in Ekiti State, Nigeria is rejected. The researcher concluded that, there was significant relative contribution of administrative factors (availability of health resources, accessibility of health facilities, and cost of ANC service, employer influence, referral cases, urban and rural differential) to antenatal care service utilisation among pregnant women in Ekiti State, Nigeria.

Discussion of findings

In addition, the null hypothesis 1 which stated that administrative factors (availability of health resources, accessibility of health facilities, cost of ANC service, employer influence, referral cases, urban and rural differential) will not significantly predict antenatal care service utilisation among pregnant women in Ekiti State, Nigeria is therefore rejected. ($F_{(6, 2028)} = 11.19$; $p < 0.05$.). This indicated that administrative factors (availability of health resources, accessibility of health facilities, and cost of ANC service, employer influence, referral cases, urban and rural differential) significantly predicted antenatal care service utilisation among pregnant women in Ekiti State, Nigeria.

The findings of this study is in consonance with the assertion of Kabir, Iliyasu, Abubakar and Sani (2005) that availability of health facilities and equipment is an important factor that determines the use of ANC service and good health facilities aid the improvement of health status of the people. They reported that studies in developing countries have shown that the use ANC service is related to the availability of health facilities Also, in support of the above view, Plum (2003) study further established that the advancement in health and technologies play a good role in ensuring longetivity. Also, it was found that elasticity coefficients of medical inputs, beds, drugs and dressing are positive. In the study of Thaddeus and Maine (1994) they claimed that low utilisation of health facilities inspite of its proximity was due to under-staffing and under-equipment which give room for poor quality care. Thaddeus and Maine (1994) further reported that in rural areas, a woman with an obstetric emergency might find the closest facility equipped only for basic treatments. Similarly, an evaluation study on the PHC system initiative project in the Local Government Areas (LGAs) in Katsina, Kebbi and Oyo states as reported by International Developmental Studies (IDS, 1998) showed that many PHC facilities were dilapidated with little or no evidence of preventive maintenance or repair and no provision for consultation in privacy. Most of the facilities visited by the evaluation team were not using prescribed diagnostic tools, sterilizing their instruments, or maintaining good standard of hygiene and cleanliness, and often they lacked sources of clean water.

Some previous studies were in agreement with the finding of this study that availability has to do with the presence of health facilities any time they are needed. United Nations Development Programme (UNDP, 2000) asserted that as a result of the failure of public sector salaries to keep pace with high inflation, the salaries of all categories of health workers declined steeply from the early 80s, causing the may better qualified personnel to enter private practices or go overseas. This exodus of skilled medical personnel has put Nigeria in a worse position, relative to the size of its population within sub-Saharan Africa. According to Federal Office of Statistics (FOS, 2000) it was

reported that Sub – Saharan Africa has an average of 32 doctors per 100,000 populations, a ratio far lower than any other region of the world. The figure for Nigerian as only 21.

The FOS (2000) further asserted that (26%) of those surveyed in Lagos state were not satisfied with the health care service. The main reason advanced by (33%) for non-satisfaction was non-availability of drugs. The Essential Drug Programme (EDP) was introduced in the late 80s and drug revolving funds were set up in line with the principles enunciated by African health ministers in the 1987 Bamako initiatives. Even with these initiatives there has not been any real sustained improvement in the provision of drugs through the late 80s. Also, Alakija (2000) was in agreement that critical shortages exist in the essential categories of health manpower, including personnel in the development and maintenance of medical, paramedical and preventive service.

More study reports that were in conformity with the finding of this study by Hodges, (2001) affirmed that sequel to the exodus of qualified doctors to oversea leaving out few, waiting for consultation is unbearably long and in many cases consultations are only left to untrained assistants and maids On the other hand, low salaries of medical personnel have also sparked off frequent, protracted industrial action by health workers at all levels of the health system. This harmers the execution of the available health service. Hodges (2001) further lends credence to the above and reported that due to poor incentive and remuneration of medical personnel, large numbers of Nigerian doctors, radiologists, dentists, nurses and other medical personnel left the country. In the case of medical students studying abroad, those who graduate refuse to return home. This brain drain has deprived the health sector of skilled personnel for policy analysis, planning, efficient medical service and management. The consequence of this is low supply of drugs at the PHC centre which in turn reduces the clinic to more consulting centres which in effect may force the pregnant women to rely heavily on self medication based primarily on locally produced chemical mixtures got from herbs and roots.

Also, Hodges (2001) study reports stressed that the storages of drugs in the public health system along with weak controls on the private importation and distribution of drugs have created conditions propitious for the sale of fake, adulterated or expired drugs, which have very serious implications for public health. Some of these fake, adulterated or expired drugs for instance reduced the effectiveness of genuine drugs by raising the resistance of organisms responsible for diseases such as malaria. It was further observed that the PHC system has been plagued by problems of decaying infrastructure and chronic shortages of essential drugs, the well known out of – stock – syndrome (O.S.S.). These problems have been documented in various localized studies

This findings was in accordance with the report of Deki (2005) that accessibility was found to affect ANC service use where being from urban setting increased ANC use by about 1.5 times. It was reported further that similar findings were obtained from studies in other parts of Ethiopia and other developing countries which could be explain by the fact that accessibility to health facility and information is better for urban dwellers. Akinsola (2006) reported that health service should be accessible to everybody i.e. the primary health care centres must be located in a walking distance to the target population. Despite the introduction of primary health care (PHC), in order to achieve the health goal which is "Health for All", health services are yet to be fully utilised. There should be proper arrangement for health service to be easily accessible within the community.

Similar studies reported increased distance between residents and health care providers' decreases the utilisation of ANC service at PHC and other health centres (Money, Zwanziger, Phibbs and Schmitt, 2000). Van-Eijk et - al (2006) in their study found that most pregnant women reported walking to the ANC. Walking times, ranged from 1 minute to 3 hours (median – 40 minutes). Busato and Kunzi (2008) observed that one of the problems associated with an estimation of the regional availability of health care is that pregnant women or patients frequently travel outside their residential areas to seek for quality health care. Many previous studies have reported significant associations of accessibility in the rural areas, where roads and transport are not available, distance to the health facility appeared as an important barrier (Overbosch, Nsowah-Nuamah, van den Boom and Damnyag, 2004; Magadi, Madise and Rodrigues, 2009).

Likewise, the study of Aigbe (2004) supported the finding of this study who reported that distance to health facility location from maternal place of residence is a key factor in the choice of source of care for ANC as majority of the mothers, about three-quarters of them (76.6%) visited facilities that are within 30 minutes travel by vehicular transport. About 17.5 per cent of the mothers commuted for between 30 to 45 minutes while only 5.9 per cent of

the mothers journeyed for more than 45 minutes to source of care. These findings revealed the extent of effort (travel time) that mothers are willing to expend in seeking preventive health care, in this case, antenatal care. The findings of this study are in line with those of other works (Buor, 2005; Baker, 2005). In the same vien, it was found that primary health centres/private hospitals and traditional birth attendants were the main care providers utilised by mothers who commuted to these sources within 30 minutes vehicular time. These sources of care are low order health facilities which abound more in space and are often the closet sources to maternal residences (Aigbe, 2004). The findings also supports the observation of Kulmala, Vaahtera and Rannikko (2000); Chakraborty, Islam, Chowdhury and Bari (2002); Kabir, Iliyasu, Abubakar and Sani (2005) studies in developing countries confirmed that the use of ANC service is related to the cost of service. Heavy bills at the clinics and hospitals for treatment are seen to be reason why many pregnant women would refuse to go to PHC centres for treatment. Previous similar studies reports by the Federal Office of Statistics (FOS, 2000) revealed that (26%) of those surveyed in Lagos state were not satisfied with the health care service. The main reasons advanced for non-satisfaction by (56%), were high cost of treatment. It is worthy of note that high medical charges have become a significant barrier to PHC access. According to Plum (2003) study it was confirmed that cost of care is another factor that discouraged people from using primary health care facilities. Over the years this has been one of the advantages of traditional medicine as the charges are very moderate and low in most cases, and users have access to credit facilities with the traditional healers being members of the same community, the reverse is the case in modern medicine. Haddad and Fournier (2008) study established that though the cost of care may affect utilisation of primary health care service in many developing countries. Likewise, Matsumura and Gubhaju (2001) found in their study that the impact of employment towards utilisation of health service is universally acceptable.

The findings of this study confirm the claims of Women's reproductive rights in Nigeria (1998) that in serious cases, pregnant women were referrals to bigger hospitals but are delayed primarily because of absence of a qualified doctor. In addition, logistic problems and the weakness of referral system mean that timely access to secondary and tertiary health facilities is much more problematic, especially in the rural areas. Alakija (2000) reported that, the orthodox orientation, therefore promoted a huge investment in the training of physicians, the establishment and rapid expansion of secondary and tertiary health care facilities in the country, all of which underscored the strong emphasis in the curative as opposed to the preventive approach. For many in this school, the emphasis on the curative approach was synonymous with development and/or adequate provision of health care for the population. The use of full ANC service is higher in urban areas compared to rural areas. Overbosch (2004) reported that currently, more than a third of the rural pregnant women have to travel more than 5km to the modern provider of ANC in Ghana. Thus, accessibility to health care service may be much easier for the urban dwellers than the rural dwellers, thereby increasing the probability of an expectant mother in the urban center using ANC compared to her rural counterpart. Contrary to this finding, Majumder (2006) study reported that the probability of utilisation is very high in rural areas when the preference for the system of medicine is Homeopathy. Also, it was further found that availability of PHC facilities is seen to have negative impact towards utilisation of ANC. The underlying assumption was that in the urban areas health facilities are available to the people. However, the result indicated that as compared to the people of the rural areas, urban dwellers are likely to avoid utilising ANC from PHC Centres. This point out higher chances of self-treatment or family-treatment or other by the urban dwellers. On the contrary, higher chances of utilisation of ANC are there from PHC centers in towns by the rural people who generally experience unavailability of health facilities in their local areas (Majumder, 2006).

Furthermore, the null hypothesis 2 that stated that there is no significant relative contribution of administrative factors (availability of health resources, accessibility of health facilities, cost of ANC service, employer influence, referral cases, urban and rural differential) on antenatal care service utilisation among pregnant women in Ekiti State, Nigeria is rejected. The researcher concluded that, there was significant relative contribution of administrative factors (availability of health resources, accessibility of health facilities, cost of ANC service, employer influence, referral cases, urban and rural differential) to antenatal care service utilisation among pregnant women in Ekiti State, Nigeria.

The findings of this study is in agreement with the submission of Mekonnen, (2003); Nigussie, Haile and Mitike, (2004) and Deki, (2005) that accessibility was found to affect ANC service use where being from urban setting

increased ANC use by about 1.5 times. They reported further that similar findings were obtained from studies in other parts of Ethiopia and other developing countries which could be explain by the fact that accessibility to health facility and information is better for urban dwellers. Also Akinsola (2006) affirmed that health service should be accessible to everybody i.e. the primary health care centres must be located in a walking distance to the target population. Despite the introduction of primary health care (PHC), in order to achieve the health goal which is "Health for All", health services are yet to be fully utilised. There should be proper arrangement for health service to be easily accessible within the community.

In support of the above findings, Plum (2003) previous empirical evidence has shown that the provision of PHC service should be the one that will fits in to the society, for it to be fully utilised which means that, for PHC service to be fully utilised it must be in a way that will be acceptable with the people. The safe motherhood initiative strongly emphasized ensuring the accessibility and use of antenatal service as most of the deaths occurring from obstetric complications are preventable. However, recent studies in Ethiopia established that the proportion of mothers attending ANC was low even for pregnant women with access to the service. Also observed in 2005 EDHS study, only 28% of mothers received antenatal care from a health professional for their most recent birth (Family Care International (FCI) and the Safe Motherhood Inter Agency Group (IAG) (2006). The obstacle effect of distance is stronger when combined with lack of transport and poor roads (FMH, 2007).

Furthermore, in line with the findings of this study Wikipedia (2009), revealed that the presence of low levels of use of health service cannot be attributed to cost barriers alone, and that the interplay of materials, cultural and geographical factors also contributed to the factors affecting the utilisation of health care service. Similar reason given for non-utilisation of ANC service in some studied Population was non-accessibility of health facilities (Kulmala, Vaahtera, and Rannikko 2000; WHO, 2001; Kabir, Iliyasu, Abubakar and Sani, 2005; Awusi, Anyanwu and Okeleke, 2009).

In the current empirical evidence of Moore Alex-Hart and George (2011) their study shows that 68.7% of their respondents blamed their lack of utilisation of health facility for delivery on long distance to the health facilities. Previous similar studies have documented overwhelming evidence that distance to a health facility is a strong determinant of its choice for a maternal health service (Esimai, 2002). Distance to health service exerts a dual influence on use, as a disincentive to seeking care in the first place and as an actual obstacle to reaching care after a decision has been made to seek it. Many pregnant women do not even attempt to reach a facility for delivery since walking many kilometres is difficult in labour and impossible if labour starts at night(as was reported by 83.3% of our respondents), and transport means are often unavailable(reported by 77.1% of thier respondents). Those trying to reach a far-off facility often fail, and pregnant women with serious complications may die on route (FMH, 2007). In the recent study of Ghaffar et – al (2012), qualitative focus group discussions and participant observation revealed that accessibility were creating a negative perception. Many similar studies were in agreement with the findings of this study as they have reported significant associations of distance. In the rural areas, where roads and transport are not available, distance to the health facility appeared as an important barrier in the qualitative component of the study and in the quantitative survey, (Overbosch, Nsowah-Nuamah, van den Boom and Damnyag, 2004; Magadi, Madise and Rodrigues, 2009).

Also, in the study of Majumder (2006) it was established that cost of treatment seems to affect utilisation of PHC positively. It was indicated that pregnant women are compelled to pay more when they seek ANC service from PHC sources. Adekunle et al (2006) empirical evidence indicated that it is the expensiveness of treatment that is below standard that give the reason why sick people will refuse to go to PHC centres. In their research, they revealed that health care is capital intensive and more funds should be injected into it and for this reason, subscription to payment of fees will increase cost of treatment. Pregnant women who have spend most of their money on family was like transportation, foods and cloths may not have enough money to pay for the cost of treatments at the clinic, if the costs are not subsidized. This could reduce their interest on utilisation of the available health service. Also Akinsola (2006) observed that economic status should not determine ones level of access to the essential service. Affordability of primary health care service should not be driven by any market force but purely on the basis of social justice and social equity.

However, Haddad and Fournier (2008) in their study also established that introduced payment schedules based of

the selling essential drugs in many developing countries, particularly in Africa have proven to be partially valid, since there have been cases were the utilisation of primary health care service has increased and others where it has decreased; these inconclusive results have fuelled criticisms concerning the inequitable nature of these measures. Shaikh (2008) findings were in line with the reports of this study who found that cost of medical care is a real concern to poor people throughout the world. Similar studies has reported that women from poor families or those with limited financial resources may have difficulty paying for such costs and are likely to be deterred from using ANC (Gabrysh and Campbell, 2009). The findings of Thaddeus and Maine (1994) cited in Gabrysh and Campbell, (2009) study revealed that hospital births drastically declined in Nigeria following the introduction of user fees in the 1980s. The recent empirical evidence of Hauwa (2011) has shown that the costs of seeking healthcare may include costs for transportation, user fees (official or unofficial), medications and other supplies. In the study of Ghaffar et- al (2012), qualitative Focus group discussions and participant observation revealed that financial costs were creating a negative perception to ANC service.

In the same vein, the finding of this study agreed with the submission of Odunlami (2001) who revealed that equipment such as sphygmomanometers, thermometers, weighing scales, delivery kits, waste bins and mucous extractors were unavailable. Some did not have even a regular water supply and required their patients to provide their own water. Again, these problems highlighted point to the fact that the ANC at MCHC Centres are judged to be unsatisfactory and inadequate in meeting the health needs and problems of the public. Availability of good service is a determinant in health care utilisation. Also, Plum (2003) study affirmed that most of the PHC centres were starving of drugs while the private pharmaceutical stores are over stuffed with the same. He reported further that the University Teaching Hospital who served 10 percent of pregnant women get about 85 percent of funds for health sector while only 15 percent are allocated to the PHC centres in spite of the fact that about 90 percent of the pregnant women are served by the health centre.

The finding of this study is also in agreement with the study of Uzochukwu and Onwujekwe (2004) which found that lacks of drugs in the Bamako Initiative Health Centre deter poor households from using the ANC centre. Majumder (2006) study further reported that availability of health facilities is seen to have negative impact towards utilisation of ANC service. In the findings of Busato and Kunzi (2008) it was affirmed that one of the problems associated with an estimation of the regional availability of health care is that pregnant women or patients frequently travel outside their residential areas to seek for quality health care. In the study of Ghaffar et al (2012) it was established that qualitative Focus group discussions and participant observation revealed that shortage of medicines were creating a negative perception. Likewise, Matsumura and Gubhaju (2001) study revealed that the impact of employment towards utilisation of health service is universally acceptable.

Furthermore, Bandewar and Saha (2008) citing Chabbra and Saraf (1997) found that most obvious reasons for seeking ANC and treatment at the tertiary level irrespective of the nature the case, locality, age e.t.c. were economic, referrals, the fame of health facility and expert doctors. The other common reasons were availability of expertise, insurance benefits, and appropriate health care. Poor people and illiterates' preference to go to tertiary health care institutions because of economic reasons while the better-off pregnant women went because they were referred. This shows that some pregnant women come to ANC at PHC centres not by choice but for reasons beyond their direct control. However, the capability of ANC in improving MCHCS outcomes is greatly reduced in the absence of a viable health and referral system where women can receive emergency obstetric care when needed (Hauwa, 2011). Digambar and Harihar (2011) study found that using the full ANC service is higher in urban areas compared to rural areas. Pregnant women living in urban areas use full ANC service more than their rural counterparts. This may be primarily because of better availability and accessibility of health service in the urban areas. Eric (2012) found that there also exist considerable variations in the use of antenatal care in the geographical regions and between the rural and urban dwellers in Ghana. Geographical location (region) may also affect the utilisation of ANC service. Urban dwellers may be relatively closer to healthcare facilities than rural dwellers in most developing countries.

Conclusion

Administrative factors (availability of health resources, accessibility of health facilities, and cost of ANC service, employer influence, referral cases, urban and rural differential) significantly predicted Antenatal care service utilisation among pregnant women in Ekiti State, Nigeria. There was significant relative contribution of administrative factors (availability of health resources, accessibility of health facilities, and cost of ANC service, employer influence, referral cases, urban and rural differential) on ANC service utilisation among pregnant women in Ekiti State, Nigeria.

Recommendations

Based on the findings and conclusions of the study, the following recommendations were made:

1. More employment opportunities and some means of social support should be provided to pregnant women within the lowest level of income alongside the policy. This can be the provision of necessary medication prescribed for the pregnant women and ensuring that such drugs are at least available at the ANC centre to relieve the mother of the cost that may have to incur in purchasing the medicine.
2. There is the need for re-training of personnel to improve their quality and capacity in attending to pregnant women during ANC, labour and delivery. This can be achieved through conutinnig medical and health education for the medical personnel.
3. The government of Ekiti State, Nigeria through EKSPHCA, EKSHMB, EKSUTH and other health service providers (NGOs, religious institutions and private providers) must endeavor to improve on the distribution and maintainance of health facilities, human resources, good roads, necessary infrastructure and good ambulance at each ANC centre among other things in order to facilitate easy access to health care providers especially for the rural dwellers.
4. Reliable information from high-quality, policy oriented research and ongoing monitoring is needed to stimulate discussion, develop sound policies and guide implementation about ANC service utilisation in rural and urban areas of Ekiti State, Nigeria. The importance of closing the communication gap between health personnel and the pregnant women of their ailment should be stressed.

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An Investigation Of Czech Adult´S Motivation To Pursue Education From The Perspective Of The Self-Determination Theory

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Abstract
Self-determination theory (SDT) is one of the most important socio-cognitive theories studying human motivation in the field of education. It is concerned with supporting individual's natural and inherent growth tendencies (i.e. autonomous motivation) to behave in effective and healthy way without any external influence and interference, i.e. external motivation. The primary focus is placed on the degree to which an individual's behaviour is self-motivated and self-determined. The aim of this paper was to investigate the types of motivations leading Czech representative adult population to pursue their education. The Academic Motivation Scale (Vallerand et al., 1989) was administered to 1.025 respondents. A new structure from the EFA suggests that tested model representing the motivation of a participant to pursue education with two factors and covered by 15 items is a reasonable and reliable representation of the data. However, CFA Goodness-of-Fit (GOF) indexes were less promising. Although respondents scored higher on intrinsic motivation than on extrinsic motivation, sociodemographic comparisons revealed that some characteristics like age, lower level of education and being a male displayed a stronger connection to an extrinsic regulation.

Keywords: *Self-Determination Theory (SDT), Academic Motivation Scale (AMS), motivation, adult education, higher education, factor analysis*

Introduction

People are assumed to possess active dispositions to psychologically grow, to tend naturally to seek challenges, to discover new perspectives, and to internalize and transform into inner system specific cultural practices (Ryan & Deci, 2002). Within this perspective, people have a potential to act from a coherent sense of wholeness – a sense of self. However, people also naturally tend to integrate external prompts used by significant others, groups or individuals, into the inner system. This means that individuals are inclined to internalize external regulation – not intrinsically motivated activity – into the internal form of external regulation. That is, people take in external regulation and integrate it with their sense of self (Ryan & Deci, 2002). Process of this external transformation into self-regulation is called "internalization". The degree to which external regulation is internalized represents the basis for a self-determined behaviour. Questioning the quality and roles of self-determined behaviours is part of the Self-Determination Theory (SDT).

SDT (Ryan & Deci, 2002), a macro theory of human motivation, primary focuses on the discussion between the growth-oriented human organism and social contexts that might support or undermine sense of self. Ryan and Deci (2000) identified the three psychological needs that motivate the self to initiate behaviour, namely the needs for competence, autonomy, and relatedness – that if satisfied, allow optimal function and growth. Moreover, SDT underlines humans' natural growth toward positive motivation, which happens unless their basic needs are fulfilled.

A primary attention of SDT is placed on the degree to which an individual's behaviour is self-motivated and self-determined. SDT perceives intrinsic motivation as doing an interesting and satisfying activity, that is opposed to an activity that an individual does in order to obtain an external goal. On this basis, different types of motivations occur based on the degree to which they have been internalized. On a continuum based on whether behaviour emanates from the self, autonomous forms of behaviour, from non-self-determined to a fully self-determined, exist. Specifically, amotivated individuals act with no sense of intending to do what they are doing (Ryan & Deci, 2002). This is characterized by the state of lacking the regulation with nonself-determined quality of behaviour.

The next types of regulation on the continuum refer to motivated behaviour. Extrinsic motivation, that is placed between amotivation and intrinsic motivation, comes from external sources (Ryan & Deci, 2000) such as external regulation, introjected regulation, identified regulation, and integrated regulation. The lowest and the least autonomous is external regulation. Individuals holding this type of motivation do what they do because of external demand or possible reward. In introjected regulation an external regulation is at the beginning of internalization, which, however, is not truly accepted as one´s own. Moreover, causality of the behaviour is external, and thus such a behaviour is considered non-self-determined.

A more similar form of self-determined extrinsic regulation is regulation through identification. It causes personally valuable and personally important behaviour, although the aim of behaviour is to achieve something. Identification represents an important aspect of the process of transforming external regulation into the form of true self-regulation accompanied by a high level of perceived autonomy. Further, there is integrated regulation, which is the last and the most autonomous form of extrinsic motivation. In this type of regulation, the previous identifications are in line with personal values, goals, and needs being part of the self. However, the main goal of integrated behaviour is not one´s enjoyment or interest, but a personally important outcome. Thus, this behaviour is still considered to be extrinsic. The last and the most autonomous form of regulation on the self-determined continuum is intrinsic motivation. Intrinsically driven individuals behave in some way for pleasure and satisfaction which derive from it. Furthermore, it is possible to absorb a regulation at any point along the self-determination continuum. It means that one´s behaviour may change over time and may get closer to a sense of self or vice versa (Ryan & Deci, 2002).

Research on SDT has included laboratory experiments and field studies in several different settings. In order to do this, variant/different measures were developed. For example, the Self-Regulation Questionnaires (SRQ) assess the degree to which motivation to act in a certain way tends to be relatively autonomous versus relatively controlled (Williams et al., 1996). 8 items that measure the degree to which a person's motivation to adopt a particular behaviour or set of behaviours is relatively intrinsic or extrinsic create the Health Care Self-Determination Theory Questionnaire (Ryan & Connell, 1989). Included subscales represent intrinsic and extrinsic motivation with the possibility to obtain an overall self-regulation score. Moreover, the Perceived Autonomy-Supportive Climate Questionnaires assess the degree to which a particular social context of individuals is autonomy supportive versus externally regulating. Included questionnaires of the SDT theory tap the perceived autonomy support in educational (e.g. Black & Deci, 2000), occupational (e.g. Baard, Deci, & Ryan, 2004), health (e.g. Kasser & Ryan, 1999), and/or sports climate (e.g. Pelletier, Fortier, Vallerand, & Briere, 2001).

Besides methodological studies describing psychometric properties of the selected measurements (e.g. Deci, Connell, & Ryan, 1989; Hagger et al., 2006; Reeve, Bolt, & Cai, 1999), a different type of self-regulation continuum proposed by SDT has been widely tested in several research settings. Gravel, Pelletier and Reissing (2016) examined motivational processes associated with sexual health and well-being. Sexual Motivation Scale (SexMS), developed by these authors, represents a measurement that can adequately reproduce the correlated six-factor structure posited by SDT. Furthermore, Howard, Gagné and Bureau (2017) tested a continuum structure of self-determined motivation. As noted by the authors, their results, based on data from 486 samples representing over 205.000 participants who fulfilled 1 of 13 validated motivation scales, largely supported a continuum-like structure of motivation and indicated that self-determination is crucial in explaining human motivation. However, the inclusion of integrated regulation was not proved due to excessively high interfactor correlations and overlapping confidence intervals. Moreover, apart from the structure of the SDT continuum, researchers have begun to investigate the possibility that individuals can experience different types of motivation simultaneously (Vaters, 2015) or more simplex structure of the SDT (Ünlü & Dettweiler, 2015).

Considering that SDT foundation lies on the presumption that people have an innate tendency towards growth, integration and health, SDT has been utilized with a variety of health behaviours such as tobacco abstinence (Williams et al, 2011), weight loss (Trief, Cibula, Delahanty, & Weinstock, 2017) and cholesterol reduction (Fortier, Williams, Sweet, & Patrick, 2009). Williams and colleagues (2009) applied SDT to predict quality of life and psychological outcomes among diabetes patients. As hypothesized, perceived autonomy support from health care providers shared significant positive association with autonomous self-regulation for medication use, which in turn related positively to perceived competence for diabetes self-management. Furthermore, as far as the experimental point of view is concerned, Assor, Feinberg, Kanat-Maymon and Kaplan (2018) presented the first school change 22-month-long program in three intervention schools and three control schools focusing on violence and caring based on SDT. The results suggested that exposure to SDT concepts may promote a firm, yet non-controlling, teacher response to violence. More generally, authors highlighted the potential for incorporating SDT ideas in violence reduction programs.

Moreover, Rothes, Lemos, and Gonçalves (2014) identified adult learners' motives for enrolling in short, long vocational and long nonvocational courses in Portuguese educational settings. According to authors´ findings, characteristics of adult learners like lower qualifications, unemployment and being a male showed a stronger connection to an extrinsic orientation and vice versa. However, one research (Berker & Horn, 2003) also shows that higher level of participation in adult education is among young, employed and highly educated learners, who pursue intrinsic as well as extrinsic motivation for their participation.

Learners can dispose of multitude of motives that lead them to participate in adult education. Extrinsic motives might include essentially professional reasons like economic improvement and qualification increase, hope to

maintain an existing job, or even to get a better job. On the other hand, intrinsic motives might imply inner desire to learn, sense of self-realization, and social need to meet and share time with others (Daehlen & Ure, 2009; Kim, Hagedorn, Williamson, & Chapman, 2004). As adult education becomes increasingly important worldwide, in order to promote adult learners' enrolment, it is crucial to understand their motives and how these relate to the background variables, i.e. if they have a more autonomous or a more controlled motivation according to gender, age and education.

Considering the relatively scarce research in the field of SDT in the Czech educational environment, further research investigating the types of motivation for participate in adult education seems extremely valuable. Therefore, this research seeks to fulfil this gap by presenting the types of motivation leading Czech representative adult population to pursue their education. An analysis assessing psychometric properties of the modified Czech version of the AMS (Vallerand, Blais, Briere, & Pelletier, 1989) in a representative sample of the Czech population is also discussed. In addition, research results allow to examine the relevance of the SDT theoretical model (investigation of the level of autonomy and self-determination) to adult learners.

The structure of the study is organized as follows. The Method section describes the context of the research in the form of sample characteristics, measurement for data collection and performed data analysis. This is followed by a section with the main results of the EFA, reliability analysis and CFA. Further, prevailing motivations leading Czech adults to pursue their education with sociodemographic differences by gender, age, and education are presented. The study ends with a discussion including a set of research limitations and paths for future research.

Method
Participants
In total, the study comprises 1.025 respondents that are a representative sample of Czech adult population (see Table 1). The quota selection of the sample was settled for gender, age, and education. 530 (52%) females and 495 (48%) males aged between 18 and 87 (Mean = 47.09 years, *SD* = 16.94 years), often achieving secondary education without a school-leaving examination (37%) or with a school-leaving examination (34%), were part of this study. Almost half of the respondents (45%) lived with a partner but without children in the city (54%), even if away from the centre. The most frequent age category was 65+ (20%). It was followed by 25-34 and 35-44 age categories reaching an identical 18%.

Table 1. Sociodemographic variables

Variable	Category	n	%
Gender	Male	495	48
	Female	530	52
Age	18-24 years	106	10
	25-34 years	187	18
	35-44 years	185	18
	45-54 years	167	16
	55-64 years	176	17
	65 up	204	20
Education	Elementary	163	16
	Secondary without school-leaving examination	375	37
	Secondary wit school-leaving examination	353	34
	University	134	13

Measurement
Selected items from the Academic Motivation Scale (AMS; Vallerand et al., 1989) and additional items developed by the author were used in this study (see items presented in Table 2). Czech language translation with respect to the linguistic significance of the culture was conducted on AMS. For this reason, literal translation was not desirable. In total, the measurement consisted of 4 subscales, each consisting of 4 items. The first subscale covered intrinsic motivation (IM). An example item is "Because I feel good when doing this activity". The second subscale was identified regulation (IDR), and an example item is "Because I think that this activity is good for me". The third subscale represented external regulation (ER), and an example item is "Because I feel I have to do it". The last subscale covered amotivation (AM), and an example item is "I do this activity, but I am not sure if it is worth it". All items included the question "*Why did you choose to achieve your education during your life?*" which was to be answered on a 7-point Likert scale ranging from 1 (*does not correspond at all*) to 7 (*corresponds exactly*). An average of the total scores on each subscale was taken as the mean score.

Data analysis

The aim of this study was to investigate the types of motivation leading Czech representative adult population to pursue their education. An analysis assessing psychometric properties of the modified Czech version of AMS (Vallerand et al., 1989) in a representative sample of the Czech population was an integral part of the presented results. In order to assess underlying type of motivation driving respondents to study, the factor analysis was calculated. First, the exploratory factor analysis (EFA), which examines the underlying factor structure of a set of variables, was used. The number of factors was based on a visual inspection of the Catell's scree plot, Kaiser–Guttman criterion (K1), and a combination of parallel analyses and their interpretability. The Principal Component (PCA) with orthogonal Varimax rotation was used. Moreover, reliability analysis was checked using Cronbach´s alpha and McDonald´s omega. The dimensional structure was further tested by Confirmatory Factor Analysis (CFA; maximum likelihood).

Additionally, the study tested motivational differences according to gender, age, and education of adult learners. Therefore, mean differences across gender, age, and education were tested by non-parametric statistics based on unconfirmed assumptions of normality. For the comparison of the two different groups, the Mann-Whitney U test was used, and differences in mean values of more than two groups were tested with the Kruskal-Wallis H test. Differences in mean scores of the resulted factors were tested by the Friedman test. IBM SPSS v. 24 and IBM AMOS were used to perform the analyses.

Results

Exploratory factor analysis

Prior to performing PCA, the assessment of the suitability of the data for the analysis was checked. Inspection of the correlation matrix revealed the existence of coefficients of .30 and above. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO = .92) exceeded the recommended value of .60. (Kaiser, 1970). The Bartlett's Test of Sphericity reached statistical significance ($x^2(120) = 10763.66$, $p < .001$), supporting the factorability of the presented data.

The PCA with orthogonal Varimax rotation was calculated and it revealed the presence of a 2-factor solution with eigenvalues > 1, explaining 62% of the variance, 42% (F1) and 20% (F2) respectively. The 2-factor structure was further supported by the result of the parallel analysis, which showed a 2-factor solution with eigenvalues exceeding the corresponding criterion values for a randomly generated data matrix of the same size. Moreover, the scree plot revealed a clear break after the second factor. Resulting breakdown of items into the 2-factor solution was not identical as it was in the original AMS measurement, even though this structure reached the best statistical and interpretative fit. Rotated component matrix for PCA with Varimax rotation and their descriptive characteristics are displayed in Table 2.

Table 2. Rotated component matrix for PCA with Varimax rotation on 2-factor solution

No.	Item	F1	F2	h^2	M (SD)	α-i	ω-i
14.	Because I believe that this activity is important for me.	.87		.78	4.45 (1.81)	.94	.94
7.	Because I think that this activity is good for me.	.87		.77	4.21 (1.73)	.94	.94
13.	Because I feel good when doing this activity.	.86		.77	4.47 (1.77)	.94	.94
3.	Because I am doing it for my own good.	.85		.75	4.83 (1.70)	.94	.94
5.	Because I want to learn something new.	.84		.72	4.80 (1.71)	.94	.94
1.	Because I think that this activity is interesting.	.83		.75	4.20 (1.83)	.94	.94
9.	Because I can overcome myself.	.81		.66	4.23 (1.69)	.94	.94
11.	By personal decision.	.81		.65	4.42 (1.66)	.94	.94
10.	Because I feel I have to do it.	.70		.59	4.13 (1.67)	.95	.95
15.	Because I don´t have any choice.		.74	.60	3.19 (1.78)	.74	.74
6.	Because it is something I have to do.		.72	.60	3.68 (1.79)	.75	.75
12.	I don´t know; I don´t see what this activity brings me.		.69	.47	3.35 (1.64)	.75	.76
16.	I do this activity, but I am not sure it is a good thing to pursue it.		.68	.49	2.84 (1.63)	.74	.75
8.	There may be good reason to do this activity, but personally I don´t see any.		.65	.50	3.22 (1.85)	.78	.78
4.	I do this activity, but I am not sure if it is worth it.		.57	.41	3.18 (1.71)	.76	.77
	Number of items	9	6				
	M	4.41	3.34				
	SD	2.99	3				
	Eigenvalue	6.72	3.23				
	Explained variance in %	42	20				

Cronbach´s α	.95	.79
McDonald's ω	.95	.79

Notes. α-i = Cronbach α if item dropped; ω-i = McDonald's ω if item dropped.

The first factor (F1) comprised internal motives (intrinsic motivation) that lead participants to pursue their education. The factor consisted in 9 items that included all the items from the internal motivation subscale (13, 1, 9, 5), and all the items originally belonging to identified regulation subscale (14, 7, 3, 11). The only exception was item 10 ("Because I feel I have to do it") from the external regulation subscale that was perceived more intrinsically by respondents than the original meaning of the item meant to be. More specifically, participants disposed of inner feelings, which led them to pursue their education. Thus, this item was perceived as an inner motive on self-determination continuum. Moreover, factor loadings ranged from .87 for item 14 ("Because I believe that this activity is important for me"), and item 7 ("Because I think that this activity is good for me"), to .70 for item 10 ("Because I feel I have to do it"). The inspection of the item-total correlations showed that the correlation coefficients did not increase if the item dropped from the subscales indicating consistency with the particular factor.

The second factor (F2), on the other hand, comprised external motives (extrinsic motivation) that lead participants to pursue their education. All items from the amotivation subscale (16, 4, 12, 8) and two items from the external regulation subscale (6 and 15) loaded on this factor. Together, these 6 items represented non-self-determined type of regulation. The best explained variability was in item 15 ("Because I don´t have any choice") and the worst in item 4 ("I do this activity, but I am not sure if it is worth it"). Furthermore, correlation coefficients did not increase if the item was deleted from the factor indicating consistency of all items with the particular factor.

Reliability

The 2-factor model fit covering 15 items reached good internal consistency (α = .87, and ω = .89). More specifically, factor F1 (intrinsic motivation) reached α and ω = .95 (9 items) in which behaviour is valued and important to participants. The α and ω coefficient for the factor F2 (extrinsic motivation) covered by 6 items seems acceptable (α and ω = .79) and represents absence of intended interest to pursue an activity.

Confirmatory factor analysis

The 2-factor model fit was tested by Confirmatory Factor Analysis (CFA) with the maximum likelihood method (see Figure 1). Non-significant x^2 fit statistic, a chi-square to degrees of freedom ratio ($x2/df$) of less than 5, and their Goodness-of-Fit (GOF) indexes were assessed in order to see if the model fit the data well. More specifically, Root Mean-Square Residual (RMR) of .50 or less indicates good model fit. Tucker-Lewis Index (TLI) of values ≥ .90 is considered a good fitting model. Goodness-of-fit Index (GFI) and Adjusted Goodness-of-fit Index (AGFI) of values ≥ .85, and Comparative Fit Index (CFI) of values ≥ .90 indicate that the model fits the input data well (Kline, 2011).

Factor loadings of the items ranged between .87 (item 14, 7, and 13 from the F1 factor) and .45 (item 8 from the F2 factor). GOF statistics were calculated, x^2(df =89, p = .000) = 1540.51, x^2/df = 17.31, RMR = .37, TLI = .83, GFI = .83, AGFI = .76, CFI = .86. These results pointed out that model indexes did not reach the best fit. However, considering EFA results and the model interpretability, CFA findings represent an acceptable fit.
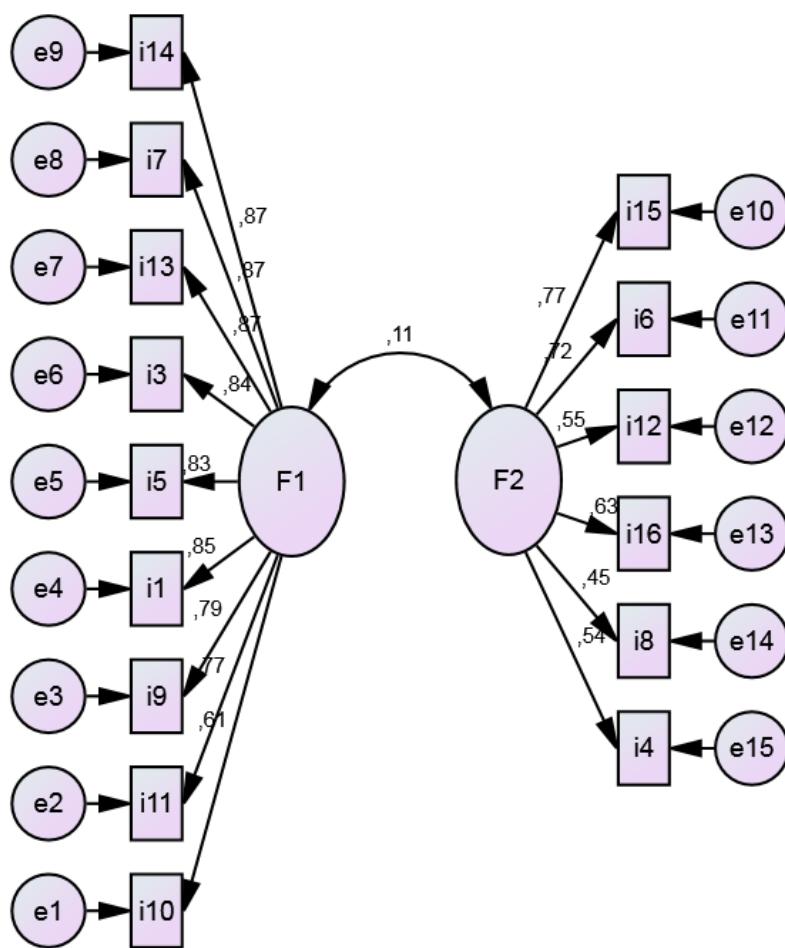
Figure 1. CFA results of 2-factor solution

Adult learners´ motivation to pursue education

Participants scored above the middle point of the seven-point scale ($M = .4.41$, $SD = 1.44$) on the F1 factor (intrinsic motivation). It indicates that the motive that let Czech adult population to pursue their education emanates rather from the self. Further, participants scored below the middle point of the seven-point scale ($M = 3.24$, $SD = 1.20$) on F2 factor (extrinsic motivation) meaning the state of lacking the intention to pursue an activity. In general, participants were more likely to be motivated internally than externally as measured by the self-reported measurement. However, the presence of both motivation types is evident. The results of the Friedman test indicated that there was a significant difference in F1 and F2 scores ($x^2(1, n = 1.025) = 222.14$, $p < .001$).

Gender did not make any difference in F2 factor ($U = 125212.50$, $z = -1.26$, $p = .21$). However, it differs significantly on F1 factor ($U = 120768.50$, $z = -1.20$, $p < .05$). Women scored higher ($M = 4.49$, $SD = 1.47$) than men ($M = 4.33$, $SD = 1.41$), and thus they were considered more intrinsically motivated. Age and achieved level of education revealed a significant difference in both factors. The 25-34 age group recorded the highest score on F1 factor than the other age groups. On the other hand, the lowest score was reached by participants of 65+ age category ($x^2(5, n = 1.025) = 14.67$, $p < .05$). Similarly, 65+ old respondents scored the lowest on F2 factor, while the youngest participants (18-24 years) recorded the highest score ($x^2(5, n = 1.025) = 15.85$, $p < .05$). Moreover, university graduates scored the highest on F1 factor with the lowest score of participants achieving basic education ($x^2(3, n = 1.025) = 120.80$, $p < .001$). The opposite trend can be seen in F2 factor ($x^2(3, n = 1.025) = 11.14$, $p < .05$). Participants with basic education reached the highest level on F2 factor, suggesting their lowest intrinsic motivation to pursue their education. Further, university graduates were characterised by the lowest score on F2 factor.

Discussion

The aim of this study was to investigate the types of motivation leading Czech adult population to pursue their education. Further, the analysis assessing psychometric properties of the modified Czech version of AMS measurement (orig., Vallerand et al., 1989) in a representative sample was an integral part of the presented results. The factor analysis pointed out that the model did not fit with the expected 4-factor structure covering intrinsic

motivation (IM), identified regulation (IDR), external regulation (ER), and amotivation (AM). Instead, the performed factor analyses (EFA and CFA) identified 2-factor dimension covering internal motives that made participants to continue their studies (F1; intrinsic motivation, 9 items), and external regulation (F2; extrinsic motivation, 6 items). The model accounted for excellent total explained variance (62%) indicating to what extent it is measured the construct really captured by the measure and what part of the variance remains unexplained, i.e., is influenced by other variables.

More specifically, the F1 factor (intrinsic motivation), concerning inner feelings which led participants to pursue their education, consisted of items originally falling on the intrinsic motivation, the identified regulation, and one item from the external regulation. The F2 factor (extrinsic motivation), meaning the state of lacking the intention to pursue an activity, covered items from the amotivation subscale and two items from external regulation subscale (6 and 15). Reliability of the revised scales reached acceptable values. Taken together, EFA suggested that model representing the types of motivations of Czech adult population to pursue education at different schools and institutions during their lifetime with 2-factors covered by 15 items was a reasonable representation of the data. However, CFA result of the tested model was less optimistic due to thresholds of GOF indexes. Overall, results coming from factor analysis matched similar findings (Rothes et al, 2014), highlighting a presumption that autonomous and controlled reasons for some activity may be predominant or may be combined at the individual level. Since people are not only intrinsically motivated, it is not unexpected that in many adult learners the instrumental value of education may be present as one of the reasons to engage, even in highly autonomous individuals. Therefore, the worth of lifelong education should be widely supported, so that the latter becomes a meaningful goal.

When considering high factor loadings (range from .87 to.70) and items communalities (range from .78 to 59) of the F1 factor, it can be assumed that participants perceived items identically and therefore might be redundant. Moreover, this presumption was also confirmed by excellent internal consistency (α = .95, and ω = .95) that displays how well subscale measures what it should measure. A high level for Cronbach´s α may mean that the items in the subscales are highly correlated. In this case, mean pairwise intercorrelations ranged from .68 to .75 indicate fair correlations. Moreover, α is also sensitive to the number of items, with larger number of items resulting in a larger α. However, item 14 ("Because I believe that this activity is important for me"), and item 7 ("Because I think that this activity is good for me"), seems to be asking the same thing (i.e. are identical) and therefore they might be reduced.

The mixed evidence in support of AMS underlying structure is provided in the current research. The factor structure displayed from minor (Alivernini & Lucidi, 2008; Karaguven, 2012; Orsini et al., 2015; Stover, Iglesia, Boubeta, & Liporace, 2012) to more significant differences (Fairchild et al., 2005). For instance, Smith, Davy and Rosenberg (2012) examined an alternative model of the AMS on a sample of 2.354 students. A 4-factor construct resulted from the EFA measuring amotivation, external regulation, identified regulation, and intrinsic motivation. CFA and reliability of the items repeatedly indicated good model fit for the 4-factor solution. On the other hand, Caleon et al. (2015) supported original 7-factor structure on 1.482 students using CFA and correlation analysis. However, it should be noted that the present research assessed a modified version of the AMS and therefore does not represent a literal validation as represented by the aforementioned studies. Similarly, Vaculíková (in press) conducted EFA on a sample of 467 students with identified regulation (IDR), external regulation (ER), amotivation (AM), and intrinsic motivation (IM) subscales of the AMS. In EFA a 4-factor model was generated explaining 61% of the total variance and consisted of 16 items. Internal reliability of α ranged from .82 to .60. The data proved IDR, ER, AM, and IM of students to be strong predictors of their motivation to pursue higher education. The only exception was item 5 ("Because I want to learn something new") from the IM, falling highly (factor loading of .74) into the IDR. Therefore, as noted by author, the subscale deserves further investigation.

Results showed that adult learners pursue their education mainly because they find it interesting and important (intrinsic motivation), but, to a lesser extent, they do it also because they have no choice or have to do it (extrinsic motivation). As far as sociodemographic characteristics are concerned, our findings that university educated women aged between 25 and 34 years old had higher intrinsic motivation, and adult learners with lower level of education had higher extrinsic motivation, support previous research (Guay et al., 2010). As stated by Rothes and colleagues (2014), when the reward becomes the main focus of the activity, learners can lose their interest in the activity itself. Therefore, learners with lower education level may dispose of more disadvantaged socials backgrounds that make education achievement less internally personal and more a result of coercive circumstances. These results were also expected according to previous research (Daehlen & Ure, 2009). Moreover, Carré's (2000) research showed that motives for participation on adult learning may vary by gender. Older, employed and more educated adults, mainly men, reported to a greater extent professional-operational motives (wanting to acquire

professional skills). Younger, less qualified and/or unemployed and mainly female participants, scored highest on vocational motives (demand for skills needed to obtain, preserve or evolve in a job).

Age is also significant influence in the adult motivation to participate in educational activities. According to this research, respondents in the 65+ age group scored the lowest on F1 (intrinsic motivation), but also on F2 (extrinsic motivation) factor. Since these participants approach retirement, not only do they perceive less advantages coming from education, but they experience less support from their employers as well (Kyndt, Michielsen, Van Nooten, Nijs, & Baert, 2011). However, it does not mean that education is no further valuable for this age category. On the contrary, part time students (very often above 25 years and employed adults with children) show even better academic performance than their younger colleagues (Hoyert & O'Dell, 2009).

The present study has several limitations that should be acknowledged. First, the study represented the privilege of 65+ old participants (20%) as it was reflected by the real structure of the Czech population. This generation went through a specific period of time when their life condition was affected by the end of the war and followed by communism. Therefore, the interest that led these participants to study could influenced present findings. Secondly, in particular older participants who do not participate in education any longer expressed retrospectively the motivation they had in the past. For this reason, it would be appropriate to monitor the relationship between their motivation and whether the respondents are currently attending any educational course, or a timestamp describing their last educational activity. Third limitation is represented by data collection in the form of the standardized interview. On this basis, respondents could answer in socially desirable way. On the other hand, questioned research items did not contain a sensitive content. Furthermore, respondents´ participation in the research was anonymous and voluntary. Finally, we believe that following researches that involve variables measuring context and detailed adult learners´ education history could bring significant results and explain what significantly differs the underlying motivation structure.

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Analysis Of Student Professions Graduated From
Computer Engıneering Through Social Networks Using Data Mining Techniques

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Abstract

Along with the developments in information technologies, the social networks, on which personal and professional competences have been exposed, have become a platform allowing users to create resume-like profiles, in which professional experiences are highlighted with no written rules however the information declared is considered correct.

In this thesis, 834 graduates, who have completed their undergraduate studies at the Faculty of Computer and Information Sciences in Sakarya University, were selected. The names and job sectors of the institution, organization and business were labelled accordingly by accessing their current job details from social media. It has been observed that the graduates mostly work in Information Technology, Finance and Private Sector, and Security and Media are least preferred job sectors. A data warehouse was built after basic statistical treatment of data coming from labelled job sectors and the grades of the 10 compulsory courses that the students took during their undergraduate education. Apriori algorithm and RapidMiner tool were used to determine the association between the sectoral trends of graduate students and the courses they have studied. Taking the association between job sectors-course success into consideration, a useful model for the curriculum of the Faculty of Computer and Information Sciences in Sakarya University has been developed.

Introduction

Nowadays, it has become very easy to access and evaluate the data created by people on their social media. Professional networking sites, a branch of social media, are used to share occupational experiences and to make communication easier for users, as well as to see the occupational phases of their contacts. Through social media, users can build their resume-like profiles, expose their professional competencies, find new business opportunities in similar or different career field, and create career goals with the help of their profesional connections.

Significant amounts of data from social media can only be understood when they are turned into processed data for decision makers, such as managers or analysts. One of the most elemental methods for collecting these data and making them meaningful is data mining. Through data mining, which is defined as the state of use of "valued data" obtained from large-scale data, it is possible to reveal relationships between data, to make many predictions out of these relations and to extract hidden patterns and trends (Özkan, 2008).

In a study conducted in 2017, the students' academic achievements at the end of a four-year study program were predicted using data mining methods in order to examine the performance of undergraduate students. The results of the study show that it is possible for unsuccessful students to success with advice and support given on time and for successful students to be provided with new suggestions and opportunities (Asif, Merceron, Ali, & Haider, 2017).

In another study conducted by Dokuz Eylül University, all the 1952 students, who enrolled in distance education courses, were surveyed by sending e-mail to their university e-mail addresses. Classification and clustering analysis, which are of data mining techniques, were applied in data of 285 surveyed students. Results from data analysis provide useful inferences in terms of factors affecting success in distance education. It is believed that the study will be a guide to create training plans that fit the characteristics of registered students in the distance education program (Aksaraylı & Pala,2017).

In another study, in which the relationship between students' class attendance and academic performance was analyzed, association rules were derived using the Apriori algorithm. As a result of the research, it was determined that students' gender, academic department, type of education and year of enrollment were influential on avarage student performance as well as the tendency of non-attendance (Dalkilic & Aydin, 2017).

Association rules from a dataset of road accidents in the province of Ankara in 2010 were mined and rule extraction was done by the Apriori algorithm. At the end of the study weather conditions, road types and damage status were evaluated (Söylemez, Doğan, & Özcan, 2016).

In a study conducted on the department of Computer Engineering in Osmangazi University in Eskişehir province, the association between academic dismissal policy and students' grades was revealed, also the dependance of the education period on being in receipt of a grant or a loan and the connection between students' financial situation and the occupations of their mothers were found using Apriori and Predictive Apriori algorithms (Kılınç, 2015).

In a study done in 2014, the academic performance at the end of the semester was predicted by using student data derived from the online learning environment (Akçapınar, 2014).

In another study, students were surveyed about computer programming courses at the department of Computer Engineering in Yıldız Technical University. Survey data facilitates tracking of the stages in software development process (Cihan, Kalıpsız, Cingiz, & Doksöz, 2013).

The Study

Along with technological developments, stored big data has increased exponentially as a result of the growth of electronic data in universities. The data, which is interpreted by using the advances in the field of data mining, plays an important role in increasing the quality of the existing processes.

The main purpose of this study and all similar studies is to process, interpret and produce meaningful information with available information systems. At this point data mining makes it possible to turn high volume of data into meaningful information that have not been discovered before by bringing various computer technologies, statistical studies and other disciplines together. The patterns revealed by data mining must be reliable, meaningful, understandable, useful and valid (Cabena, Hadjinian, Stadler, Verhees, & Zanasi, 1998; Fayyad, Piatetsky-Shapiro, Smyth, & Uthurusamy, 1996; Holsheimer & Siebes, 1994).
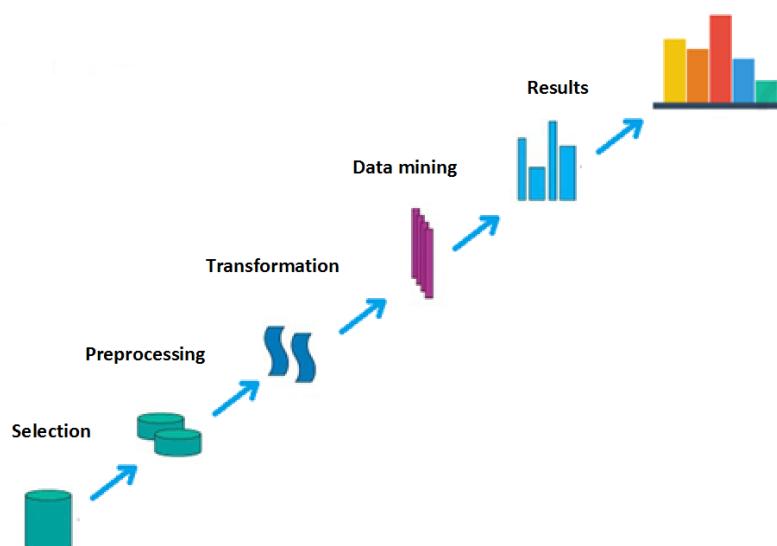
Figure 1: Data mining process (Özkan, 2008)

Figure 1 summerizes data pre-processing steps while mining data (Özkan, 2008).

Association Rules

Data mining models are essentially examined in two main chapters. First one is the predictive model which is used to make a prediction of unknown results from the patterns revealed before and the second one is the descriptive model that allows the identification of the current data. Data mining techniques can be specified as clustering, association rules, sequential pattern, classification, time series analysis and decision trees (Argüden & Erşahin, 2008). The most common data mining technique is the association rules (Agrawal et al., 1993). In other words association rules are used to detect co-existence/occurrence in data (Özkan, 2008).

Apriori Algorithm

The most popular technique to mine association rules is the Apriori algorithm. It is used to identify frequent items and itemsets in the database. According to market basket analysis, "support" and "confidence" are two measures to reveal associations between items sold. 'The support metric' specifies the percentage of an association frequency in all items purchased. "The confidence metric" sets out the probability that customers who purchase a product from group A also buy a product from group B. The association rule, the situation that the customer will buy an item from group B when it buys an item from group A, is shown in the form of A → B. In this case, the support metric is expressed in Equation 1 (Özkan, 2008)

$$\text{Support}(A \rightarrow B) = \text{number}(A,B) / N \tag{1}$$

In Equation 1, the number (A, B) represents the number of transactions that contain A and B product groups together and N is the number of all purchases. The confidence metric, which identifies the probability that the A and B product groups will be purchased together, is calculated as in Equation 2 (Özkan, 2008).

$$\text{Confidence}(A \rightarrow B) = \text{number}(A,B) / \text{number}(A) \tag{2}$$

Consistency between data is directly proportional to value of support and confidence metrics. In this study, Sakarya University Computer and Informatics Engineering alumni's data obtained from social media was analysed by job sectors and academic success and sector trends have been identified.

2225 students graduated from the foundation of the Faculty of Computer Sciences and Informatics in Sakarya University until 01.09.2017. In the study, 834 graduates, who have selected Sakarya University Computer Engineering Department on their LinkedIn profile, were reached.

After alumni data was obtained from the social networks, it was also verified by checking the first and last names with Student Information System of Sakarya University. Data pre-processing was done by comparing the names, middle name, surname, maiden name and e-mail addresses written on the social media accounts. In this context, the size of the sample space was found 35% more than the total number of graduates. In the srudy, ten courses taught by the Department of Computer Science since it was founded were selected. These courses and their short names are shown in Table 1. The number of graduates whose all grades are accessible is 589. The missing grades of the graduates were completed according to correlation and regression associations of the courses. As a result, 834 records were processed.

Table 1: Courses completed by alumni and its code

Course Name	Short Name
Discrete Mathematics / Discrete Structures	DISCR
Introduction to Data Communication and Networks Computer Networks	NETWORK
Software Engineering	SOFTWARE
Basic Electrical Circuits Electrical and Electronic Circuits	ELCT
Operating Systems	OS
Web Programming	WEB
Database Design and Implementation Database Management Systems	DB

Theory of Probability	PROB
Probability and Statistics	
	OOP
Object-Oriented Programming	
Introduction to Algorithms and Programming	ALGRTM
Data Structures and Algorithms	

A number of classification and labelling have been carried out for the companies where the selected graduates work in as in Table 2. The details, such as the name of the company, job sector and service area in which it operates, and the position of the graduate, were taken into account while selecting the keywords. As a result of labelling, the sectoral information of the corporation where the graduate work was labeled and data reduction for the relevant study was made.

Table 2: Sector identification of the corporations where the graduate work

Keywords for the corporation or position	Labelled Sector Information
Bank, Participation Bank, Finance, Investment, Payment, Card, Risk	Finance
Netaş, Botaş, Sepaş, Energy, Electric, Electronic, Distribution	Energy Sector
Borusan, OTOKAR, Toyota, Ford, Motor, Hyundai, TOFAŞ, Goodyear, Bridgestone	Automotive
Turkey, Turkish, Ministry, Municipality, General Management, Turkish Armed Forces, Istanbul Water and Sewerage Administration, Istanbul Electric Tramway and Tunnel Establishments, Hospital	Service Sector(Public)
University, Ministry of Education	Education
Danışman, Proje, ,Eğitim, Education, Consult, Intelligence	Consultancy/R&D
ERP, Dynamics Ax, SAP, ABAP, Corporate, Industrial	ERP
".com", ".net", Hepsiburada, Tatil, ETS, GittiGidiyor	E-Trade
Communication, Turkcell, Vodafone, Ericsson, Turk Telekom, Wireless, Network, Telecommunication, Security	Communication/ Security
Freelance, Costum, Self-Employed	Freelance
Media, TV, Advertising, Agency	Media
Software, Informatics, IT, Data, Soft, Information, Technology, Solution, Web	IT

After the sector identification has been done, frequency ratio values from all data were determined and shown in Table 3. It has been observed that IT, Finance and Private Sector are the most preferred sectors by the graduates while Security and Media are the least preferred ones.

Table 3: Frequency analysis according to specified sectors

Sector Name	Frequency	Percentage(%)
IT	206	24,7
Finance	105	12,6
Service Sector(Private)	88	10,6
Consultancy/R&D	66	7,9
Education	61	7,3
Service Sector(Public)	60	7,2
Communication	59	7,1
Automotive	45	5,4
ERP	43	5,2
E-Trade	41	4,9
Energy Sector	23	2,8
Freelance	15	1,8

| Security | 14 | 1,7 |
| Media | 8 | 1,0 |

As it is not possible to graduate for the student who fails any course, the grades given in Table 4 were accepted while assessing graduates' grades.

Table 4: Categorizing grades

Letter Grade	Assessment
AA /BA	Very Good
BB/CB	Good
Adequate / Excused	Good
CC/DC/DD	Medium

As a result of labelling, 3 different success criteria were created for each course. As from this phase of the study, the grades will be described as very good, good, medium, not as letters/numbers.

Table 5. Categorizing alumni's grades

Course Short Name	Very good	Good	Medium
DISCR	DISCR_VGOOD	DISCR_GOOD	DISCR_MEDIUM
NETWORK	NETWORK_VGOOD	NETWORK_GOOD	NETWORK_MEDIUM
SOFTWARE	SOFTWARE_VGOOD	SOFTWARE_GOOD	SOFTWARE_MEDIUM
ELCT	ELCT _VGOOD	ELCT_GOOD	ELCT_MEDIUM
OS	OS_VGOOD	OS_GOOD	OS_MEDIUM
WEB	WEB_VGOOD	WEB_GOOD	WEB_MEDIUM
DB	DB_VGOOD	DB_GOOD	DB_MEDIUM
PROB	PROB_VGOOD	PROB_GOOD	PROB_MEDIUM
OOP	OOP_VGOOD	OOP_GOOD	OOP_MEDIUM
ALGRTM	ALGRTM_VGOOD	ALGRTM_GOOD	ALGRTM_MEDIUM

In this study RapidMiner tool was used to create the association rules. The screenshot of the model prepared in RapidMiner is shown in Figure 2. The model in Figure 2 can be explained briefly;

- Data set was loaded on RapidMiner as a first step,
- At the second step, the attributes to have been worked on from the data were selected,
- In order that the model to process easily, nominal data was transformed into polynominal at the third step.
- At the forth step, data was scanned with FP-Growth, a special version of the apriori algorithm, and finally association rules were created.
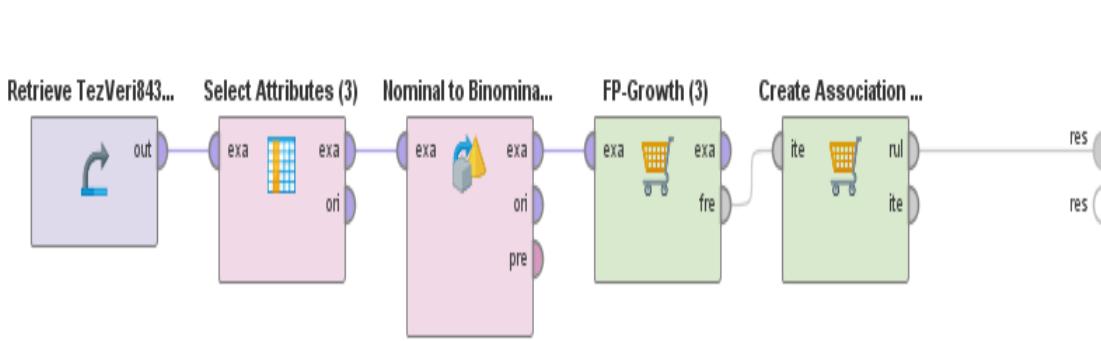
Figure 2. The display of the model prepared in Rapidminer

Findings

Table 5 contains some rules which were obtained as a result of association analysis done on the sectors and all the courses. The association rules can be interpreted as;

At rule number 1, it is predicted that graduates with medium grades in Web Programming, Database and Object-Oriented Programming, Software and Algorithms courses will work in the IT sector with a probability of 27%. Furthermore, the likelihood of coexistence of these cases in the dataset is 2%.

Looking at rule 3 from a different point of view, it was found that students with medium grades in Object-Oriented and Programming courses and very good grades in Web Programming had medium grades in Network and Electrical courses with a probability of 55% and the likelihood of coexistence of these cases in the dataset detected 5%.

At rule number 8, it is predicted that graduates with very good grades in Object-Oriented Programming and Algorithms courses will work in the Finance sector with a probability of 19%. Furthermore, the likelihood of coexistence of these cases in the dataset is 2%.

Looking at rule number 10, it is found that graduates with very good grade in Discrete Structures course and working in Finance sector had also very good grade in Probability course with a probability of 50% and the likelihood of coexistence of these cases in the dataset is 2%.

Table 5 : Association between Sectors and All Courses

	Association Rule	Result	Support	Confidence
1	SOFTWARE=SOFTWARE_MEDIUM, ALGRTM = ALGRTM_MEDIUM, OOP = OOP_MEDIUM, WEB= WEB_MEDIUM, DB = DB_MEDIUM	Sector = IT	0,02	0,27
2	NETWORK = NETWORK_MEDIUM, SOFTWARE= SOFTWARE_MEDIUM, ALGRTM = ALGRTM_MEDIUM, OOP = OOP_MEDIUM, DISCR = DISCR_MEDIUM, DB = DB_MEDIUM	Sector = IT	0,02	0,39
3	OOP = OOP_MEDIUM, WEB= WEB_VGOOD	NETWORK =NETWORK_MEDIUM, ELCT = ELCT_MEDIUM	0,05	0,55
4	NETWORK = NETWORK_MEDIUM, ELCT = ELCT_MEDIUM, OS = OS_GOOD	Sector = Finance	0,03	0,22
5	NETWORK = NETWORK_MEDIUM, ELCT = ELCT_MEDIUM, OS = OS_GOOD	Sector = IT	0,03	0,28
6	ELCT = ELCT_MEDIUM,	NETWORK	0,03	0,96

	OS = OS_MEDIUM,	=NETWORK_MEDIUM		
	Sector = Hizmet Sektörü(Kamu)			
7	ALGRTM = ALGRTM_MEDIUM,	SOFTWARE	0,02	0,85
	OOP = OOP_MEDIUM,	=SOFTWARE_MEDIUM		
	WEB= WEB_MEDIUM,			
	Sector = Hizmet Sektörü(Özel)			
8	OOP = OOP_VGOOD,	Sector = Finance	0,02	0,19
	ALGRTM = ALGRTM_VGOOD			
9	WEB= WEB_VGOOD,	Sector = IT	0,02	0,22
	DB = DB_VGOOD,			
	OOP = OOP_VGOOD			
10	DISCR = DISCR_VGOOD,	PROB=PROB_VGOOD	0,02	0,5
	Sector = Finans			

Conclusions

The frequent and increased use of social media has been noticed by researchers and scientists and it proves that there have been new problems to solve. The importance given and the interest shown to data mining all over the world have been increasing every year and the areas of usage have been spreading as well as expanding.

Along with the developing technology, it is well-known that the mining and interpreting of the data coming from social media can reveal undiscovered knowledge. It is also possible that the data mining studies can be used for very different purposes by combining the data from social media with relevant data obtained from different environments. Although data mining techniques arouse from computer sciences, it is believed that in the future the techniques used on social media will be developed with the help of different disciplines such as behavioral and social sciences or business. For example, data mining studies done on social media notifications can help to reveal unknown information, varying from individuals' mood, shopping trends, or social habits to work / nutrition routines.

In this study, data mining applications have been examined and it has been seen that most of the studies in the field of education carried out in order to analyze student achievement. It is thought that the studies of analysis in this field will be beneficial to the educational activities by considering them as the predictors for the next generations. In addition, diversifying the areas of usage of data mining applications will be beneficial both for businesses and for humanity.

The student's model implemented in the study can also be used to predict academic success-course relation. To extend the scope of the study it can be helpful to create a functional model for the curriculum by taking into account the sectoral preferences of the graduates as well as be beneficial while student quota for optional courses is being calculated or the relationship between the graduates and the faculty mission and vision is evaluated.

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Analysis Of The Status Of Ict In The Management Of Personnel Services In Colleges Of Education, In South East Nigeria

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Abstract

The electronic transmission of information is required for effective and efficient teaching and learning in institutions in the modern times. Information and Communication Technology (ICT) is the modern electronic techniques of processing, storing, retrieving and circulating information within and outside an organisation with speed and with little or no stress. The major purpose of this study is to determine the problems militating against the integration of ICT in Anambra State College of Education in South East Nigeria. A case study research design was adopted in the study. A stratified random sampling technique was adapted for selecting the Heads of Department, Deans and Directors of programmes. The sample consists of 20 respondents. The instrument is a 50- item Likert-type instrument scored on a 4-point scale. The instrument has two section

  Section A is concerned with personal data of the respondents while Section B contains 50 items in three clusters on availability of ICT, task areas of utilization and factors militating against ICT integration. The internal consistency reliability of the instrument using Cronbach Alpha technique is established at 0.93. It is found that ICT is not available and effectively utilized in the College. It is, therefore, recommended that government and management of the institution should make ICT facilities available and provide enabling environment for their utilization.

Introduction

The challenges of school systems throughout the world are that of providing an effective education for all children and young people which will prepare them for inclusive participation in the workplace, social environment, political sphere and sports arenas (United Nations Education, Scientific and Cultural Organisation, cited in Hooker, 2009). The electronic transmission of information is required for effective and efficient teaching and learning in institutions in the modern times.

Information and Communication technology (ICT) is an umbrella term that covers all advanced technologies in manipulating and communicating information. ICT is the modern electronic techniques of processing, storing, retrieving and circulating information within and outside an organisation with speed and with little or no stress. It refers to technologies that provide access to information through telecommunications (Jim, 2012).

There are indications that some Colleges of Education cannot accurately give the population of their staff, students and physical facilities that are on ground for effective teaching and learning. Staff promotions, retirements and other fringe benefits are unduly delayed because of poor documentation, manipulation of records or even complete loss intransit of vital documents. People who are not bonafide students can pose as students in the guise and commit various academic atrocities. There are result alterations and falsifications, certificate racketing, faking of results to gain admission, computation of the results of already rusticated/expelled students, impersonation and other related challenges. These inadequacies in the management of Colleges of Education arose because of non- integration of ICT in these colleges. To achieve effective and efficient integration of ICT in Colleges of Education in the south East, it is important that the responsibilities of assigning and carrying out jobs with the use of ICT facilities have to be undertaken. These will improve the educational delivery process. The integration of ICT in different tasks areas such as students' personnel services and staff personnel services will greatly enhance teaching and learning in the Colleges of Education in South East. The problems militating against the integration of Information and Communication technology (ICT) have led to speculations as to the extent of utilization of ICT in the management of the College of Education in Anambra state. Therefore, there is the need to analyze the problem militating against the integration of information and communication technology (ICT) in Anambra State College of Education, South East, Nigeria.

Purpose of the Study

The main purpose of the study is to determine the problems militating against the integration of ICT in Anambra state. Specifically the study seeks

1. To ascertain the ICT facilities available in the College of Education.
2. To determine the adequacy of ICT facilities in the College of Education
3. To ascertain the level of ICT utilization in Staff

4.   and students as well as personnel task areas in the college of Education.

Research Questions
     The following research questions will guide the study:
1.   What are the ICT facilities available in the College of Education?
2.   To what extent are the available ICT facilities adequate for effective management of staff personnel matters?
3.   To what extent are the available ICT facilities adequate for effective management of students' personnel matters in the College of education?
4.   What are the factors that militate against the effective use of ICT in the college of education?

Hypothesis
     To guide the research study, one null hypothesis was formulated and tested at 0.05 level of significance;
H0 1.   There is no significant difference between the mean rating scores on factors   militating against the use of ICT facilities by male and female administrators in the College of Education.

Methodology
A case study research design was employed in the study. This study sought to determine factors militating against the integration of ICT in the State College of Education in Anambra State, Nigeria.

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 consists of 20 respondents.

The instrument used for data collection was questionnaire titled 'Analysis of ICT Integration in Anambra State College of Education' (AIIQ). The instrument was a 50-item Likert-type instrument scored on a 4-point scale of (VA) Very Adequate (A) Adequate (LA) Less Adequate , (NA) Not available; Very Highly Applicable, Highly Applicable, Less Applicable, Not Applicable; (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 50 items in three clusters on availability, task areas of utilization and factors militating against ICT integration.

The instrument was face validated by three experts from Educational Administration and Planning and one from Psychometrics all from the University of Nigeria, Nsukka. The internal consistency reliability of the instrument using Cronbach Alpha technique was established at 0.93

The researcher and one trained research assistant administered the instrument directly and retrieved same from the respondents.

Data collected was analysed 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 item while a mean of 2.49 and below showed disagreement to the items of the instrument. t-Test was used at 0.05 level of significance to test the hypothesis.

Results
The results are presented in line with research questions and null hypothesis that guided the study.

Table 1
Mean response of heads of departments, Deans of Schools and Directors of programmes on availability of ICT facilities in Anambra State college of Education.

Availability of ICT facilities	N	Mean	Std. Deviation	Remarks
AVA1 Internet-connected laptop	26	1.8462	.36795	Rejected
AVA2 Internet – connected desktop Computer	26	1.7308	.45234	Rejected
AVA 3 Scanner	26	1.6154	.49614	Rejected
AVA4 Electronic library	26	1.7308	.45234	Rejected
AVA 5 Institutional Cybercafé	26	1.6538	.48516	Rejected "
AVA6 Fax (facsimile)machines	26	1.4615	.50839	
AVA7 CD-ROMs	26	1.7308	.45234	
AVA8 Flash drives	26	1.6923	.47068	
AVA 9 Dept/School website	26	1.6538	.48516	
AVA10 Computer laboratory	26	1.6923	.47068	
AVA11 Multimedia Projector	26	1.6538	.48516	
AVA12 Interactive Board	26	1.5769	.50383	
AVA13 Digital Camera	26	1.5000	.50990	
AVA14 Institution website	26	1.7692	.42967	
AVA15 Management/Administrative software packages	26	1.4231	.50383	
AVA16 Risograph machine (RZ)	26	1.3462	.48516	
AVA 17 Institutionally-produced educational software	26	1.3846	.49614	
AVA18 Computer-Networking(Local area Network)	26	1.5000	.50990	
AVA19 Computer-Networking(Wide Area Network)	26	1.3846	.49614	
AVA20 Examination scoring machine (OMR)	26	1.3462	.48516	
AVA21 Department /School email address	26	1.6923	.47068	
AVA22 College e-mail address	26	1.7308	.45234	
AVA23 CD player	26	1.3462	.48516	
AVA24 Multimedia classrooms(Audio Visual Centre)	26	1.2308	.42967	
Adequacy of ICT facilities				
ADEQ1 Internet-connected laptop	26	2.3462	1.12933	
ADEQ2 Internet – connected desktop Computer	26	2.1154	.86380	
ADEQ 3 Scanner	26	1.8077	.74936	
ADEQ4 Electronic library	26	2.1154	.99305	
ADEQ 5 Institutional Cybercafé	26	2.0769	.97665	
ADEQ6 Fax (facsimile)machines	26	2.1923	1.20064	
ADEQ7 CD-ROMs	26	2.8077	.98058	
ADEQ8 Flash drives	26	2.7308	1.00231	
ADEQ9 Dept/School website	26	2.3846	.98293	
ADEQ10 Computer laboratory	26	2.5769	1.02657	
ADEQ11 Multimedia Projector	26	2.4231	1.06482	
ADEQ12 Interactive Board	26	2.1538	.96715	

ADEQ13 Digital Camera	26	2.1538	1.08415		
ADEQ14 Institution website	26	2.1154	.90893		
ADEQ15 Management/Administrative software packages	26	1.6538	.84580		
ADEQ16 Risograph machine (RZ)	26	1.7692	1.03180		
ADEQ 17 Institutionally-produced educational software	26	1.9615	.99923		
ADEQ18 Computer-Networking(Local area Network)	26	1.8462	.88056		
ADEQ19 Computer-Networking(Wide Area Network)	26	1.6538	.93562		
ADEQ20 Examination scoring machine (OMR)	26	1.7692	.95111		
ADEQ21 Department /School email address	26	2.4615	1.06699		
ADEQ22 College e-mail address	26	2.4231	.94543		
ADEQ23 CD player	26	1.7692	.86291		
ADEQ24 Multimedia classrooms(Audio Visual Centre)	26	1.2692	.60383		

Source: Field work

From Table 1 a mean of 2.50 was significant; therefore all the ICT facilities listed AVA 1 – 24 are not available. While items ADEQ 7, 8, 9 and 10 which represent level of adequacy of CD-ROMS, Flash drives and computer laboratory met the benchmark of 2.5 and is considered acceptable.

Table 2

Tasks Areas	N	Mean	Std. Deviation	Remarks
Staff personnel services: Task1 Staff records	26	1.9615	.91568	Not used
Task2 Staff recruitment	26	1.8462	.78446	Not used
Task3 Staff Promotion matters	26	2.1538	1.00766	Not used
Task4 Disciplining of staff	26	2.0385	.99923	Not used
Task5 Retirement matters of staff	26	2.3462	1.09334	Not used
Task6 Staff salary matters	26	2.7308	1.18516	Not used
Student personnel services: Task7 Admission process	26	2.5769	1.10175	Used
Task8 Registration matters	26	2.5385	.94787	Used
Task9 Students records	26	2.5000	.90554	Used
Task10 School fees	26	2.5000	1.06771	Used
Task11 Management of students scores	26	2.1923	1.09615	Not used
Task12 keeping and updating of students' score card	26	2.1154	.99305	Not used
Task13 Determination of graduating and repeating students	26	2.0769	.93480	Not used
Task14 Determination of rusticated/expelled students	26	1.8462	.92487	Not used
Task15 Calculation of students' result	26	2.3462	.97744	Not used
FM1 Lack of ICT skills/manpower	26	3.0385	.91568	Used
FM2 Lack of Seminar/ workshops/conference	26	2.9615	.95836	Used
FM3 Non awareness of the availability of ICT resources in the School/Dept.	26	2.9231	1.09263	Used
FM4 Irregular supply of electricity	26	3.5000	.76158	Used
FM5 Insufficient ICT support staff	26	3.1538	.88056	Used
FM6 High cost of setting up ICT infrastructure	26	3.1538	.73170	Used
FM7 Cost of maintenance of ICT facilities	26	3.0385	.72004	Used
FM8 Lack of training/retraining of academic . and non academic administrators in ICT	26	2.8846	.90893	Used
FM9 Lack of encouragement from management.	26	2.3462	1.09334	Not used
FM10 Fatigue and stress associated with ICT use.	26	2.2308	.86291	Not used
FM11 Obsession and distractions through engrossment in leisure entertainment to the detriment of administrative duties.	26	2.8462	1.08415	Used

Source: Fieldwork 2014
From the table 2 , it can be seen that items on task 6,7,8,9 and 10 have mean scores of 2.73, 2.58, 2.53 and 2.50 with a standard deviation of 1.19, 1.10, .95,.91 and 1.07 respectively. The results are indicative of the fact that the respondents are of the opinion that utilization of ICT is only on Salary matters ,students admission process, Registration, student record and school fees administration. It is not utilized in management of students scores; keeping

and updating of students' score cards, determination of graduating and repeating students determination of rusticated/expelled students and calculation of students results. This is indicative of the fact that ICT is sparingly used in management of students' personnel services in Anambra State College of Education.

The mean scores on the factors militating against the use of ICT facilities are above 2.50 except for items FM 9 and 10 with the mean of 2.35 and 2.23 respectively. Therefore the factors militating against the use of ICT include:lack of ICT skills/manpower, lack of Seminar/ workshops/conference, non - awareness of the availability of ICT resources in the School/Dept., irregular supply of electricity, insufficient ICT support staff, high cost of setting up ICT infrastructure andcost of maintenance of ICT facilities,

Table 3: t-test analysis of mean response scores of female and male administrators perceived factors militating against ICT integration in Anambra State College of Education.

Sex	N	Mean	Std. Deviation	T	Sign
FEMALE	12	31.8333	6.10266	-.183	.856
MALE	14	32.2857	6.41427		

The calculated t is -.183, P .05, when equal variances are assumed. Therefore,

There is no significant difference between the mean rating scores on factors militating against the use of ICT facilities by male and female administrators in the state College of Education.

Discussion

The results of this study indicated that most of the information and communication technology (ICT) facilities studied were not available and utilized. ICT facilities were only utilized in salary matters, students admission process, registration, student record and school fees administration .It is not utilized in the management of students scores; keeping and updating of students' score cards, determination of graduating and repeating students', determination of rusticated/expelled students and calculation of students results. The low utilization of ICT might be attributed to the non-availability of ICT facilities in the institution and to other problems militating against the integration. The result is in line with that Adesna and Gunsaja as cited in Abraham (2003) that the quality of educaton that our learners acqure bears drect relevance to the availability or the lac of physcal facilities and overall atmosphere where the learning takes place. This fact was confirmed by the opinions of all the respondents.

Conclusion

The analysis of the problem militating against the integration of ICT in colleges of education is very important in effective and efficient service delivery in the South East Nigeria. The problem of non-availability ICT facilities if solved by the government will go long way to greatly reducing the incidence of inefficiency and ineffectiveness in this tertiary institution because utilization can only be made possible when ICT facilities are provided and made available.

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Anxiety Studies for Vocational School Student

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Abstract

In this paper, we focus to determine the gender differences in math and trait anxiety in the middle of university student, and variances in the learning accomplishment. Contestants were 125 students from Business Department of Kocaeli Vocational School in Kocaeli University, all of whom finalized trials of math anxiety, and trait anxiety.

At the end of the course in that they were sign up, student was judged over a multiple-choice and an open-question exam. Linked by the male matching part, female student testified sophisticated planes of math, and trait anxiety, and larger likely anxiety in the test conditions painstaking. Moreover, female students didn't present lesser learning accomplishment than male student in the the open-question and the multiple-choice exams (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. (2016).

Keywords: learning accomplishment, vocational school, math and trait anxiety

Introduction

Some investigators propose that test anxiety may consume cognitive properties thus stopping student from focused on the exam (Haldeman, V. A., J. M. Peters and P. A. Tripple, 1987; Benson at all. 1992). Some studies' result has been projected to enlighten the connection between test anxiety and learning accomplishment. One of them refer to the circumstance that anxiety could root student' drive and challenge the erudition approaches (Haldeman, V. A., J. M. Peters and P. A. Tripple, 1987; Eysenck, 1992). He stressed that when the fundamental reason, test anxiety may decrease student' performance while taking an exam and the learning accomplishment by intrusive by the examination grounding.

Some papers on test anxiety had fixated on gender variances that having constantly created that female student involvement sophisticated planes of test anxiety than make males (Alexander, & Martray, 1989). But there is not much studies with these variances between male students and female students testified levels of anxiety may effect on the learning accomplishment. The top to bottom near of test anxiety testified by female students is not commonly convoyed by lesser act grooves (Hembree, 1988; De Paulo, P. J.1986; Haldeman, V. A., J. M. Peters and P. A. Tripple, 1987;). It needs to deliberate the matter of test anxiety to understand student' learning development that could be definite as a condition-special trait categorized by the predilection (Hodapp, Glanzmann, & Laux, 1995). Test anxiety is the group of physiological, and behavioral responses that convoy apprehension with imaginable negative significances of disappointment of an examination (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016; De Paulo, P. J.1986).

This search focused the next items:

- *To search gender differences in learning accomplishment by analyzing male and to examine gender differences in trait and math anxiety,*
- *Female student' scores in an open-question and a multiple-choice examination.*

Research method

Participants were 125 Business Department in Kocaeli Vocational School from Kocaeli University all of whom were sign up in an exploration plans course at the period of the 2016-2017 learning year. The model contained 74 women by a mean age of 19.22 years and 51 men by a mean age of 19.86 years. Contestants were running the succeeding gages and opinion poll (De Paulo, P. J.1986; Lixin Renjennifer L. Greenwendy M. Smith, 2016; Vitell, S.J.1986; Murphy, P. and G. Laczniak, 1981):

- <u>Math Anxiety Rating Scale - Mars</u> (Betz, N.E., 1978): this device trials math anxiety by presenting 15 situations (cronbach's alpha = .87). The plaintiff must present the level of anxiety related by each item by a five-point likert-type ruler fixed by 1 (no anxiety) 2 (slightly anxiety) 3 (fairly anxiety) 4 (very anxiety) and 5 (high anxiety). The group of the item grooves produces a total groove for math anxiety, ranging between 15 and 75 (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016; Lixin Renjennifer L. Greenwendy M. Smith, 2016).

<div align="center">Math anxiety questionnaire</div>

Please answer the questionnaire by considering how often you experience each of the items described below. Make sure you think thorough the answers. It is very important to answer the all items (Lixin Renjennifer L. Greenwendy M. Smith, 2016).

	No anxiety	Slightly anxiety	Fairly anxiety	Very anxiety	High anxiety
1. I usually have been at ease in math classes.					
2. I see math as a subject i will rarely use.					
3. I'm no good at math					
4. I'll need mathematics for my future work.					
5. Generally, i have felt secure with attempting math.					

6. I'd be happy to get good grades in mathematics.					
7. I maken't think that i could make advanced math.					
8. It wouldn't bother me at all to take more math courses.					
9. For some reason, even though i study, math seems unusually hard for me.					
10. My mind goes blank and i am unable to think clearly when working in mathematics.					
11. Knowing mathematics will help me earn a living.					
12. Math has been my worst subject.					
13. I think i could handle more difficult mathematics.					
14. I'm not the type to make well in mathematics.					
15. Math makeesn't scare me at all.					

Findings

Gender variances were analyzed by rub on autonomous t-tests to all trials poised: the anxiety measures, the test-situation questions, and the final exams. On the anxiety measures, female student were found to report sophisticated levels of math anxiety (t(119) = 3.25, p = .004) and trait anxiety (t(119) = 2.80, p = .010), as compared by male student (table 1) (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016).

Table 1. T-tests for anxiety measures by gender and means, standard deviations, p-value

Anxiety measures	Female student	Male student	T-test	P
Math anxiety	62.23 (13.50)	55.38 (16.72)	3.25	.004
Trait anxiety	26.44 (9.61)	21.16 (10.08)	2.80	.010

In order to analyse gender variances in math anxiety in clear aspect, it was applied detached t-tests for each mars item. As presenting in table 2, male and female student changed in the answers to items 1, 6,10 and 15 and (t(119) = 3.15, p = .005; t(119) = 2.98, p = .018; t(119) = 4.16, p = .007 and t(119) = 3.41, p = .006 respectively), by female students recording a sophisticated regularity of amount of the conditions defined in these items (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016).

Result and discussion

The aim of our search was to determine variances between female students and male students of vocational school student in the testified level of math, and trait anxiety, and the likely level of anxiety at the time met by detailed kinds of test conditions (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016).

As for the trials of anxiety, female student testified sophisticated planes of math, and trait anxiety than made male student. The main result of the study showed that dependable by around exploration on gender adjustments in math anxiety (e.g., Hembree, 1990), and trait anxiety (Zalta & Chambless, 2012) and in none of this study, the gender variances haven't been determined. A much deeply study of the results exposed that female student testified higher levels of anxiety specially for test conditions including open questions, oral presentations, and algorithms or math exercises (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016). Also, no gender variances in likely anxiety levels were determined in relative to the multiple-choice scale conditions.

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Application Of Machine Learning Technology To Make Original Works Of Art And To Aid Art Teaching

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Abstract

The controversy of whether artificial intelligence can produce original works of art has been fiercely debated in the art world with Professor of the Rhode Island School of Design Mark Milloff arguing that artificial intelligence cannot create art, and categorizing machine generated works, what may seem as original work, as mere technological illusions, which are but imitations and not true innovations. Notwithstanding, stakeholders in the art industry must address the reality that machines will continue to make progress in influencing how artworks are produced. Recent advances in computing power and the decrease in the cost of computing have allowed for the proliferation of artificial intelligence and machine learning based image processing. This paper addresses the issue of artificial intelligence with particular attention to machine learning to create original works and not just mere imitations. Additionally, by examining the organization and feasibility of deep learning, this article will focus on technological opportunities in the diverse fields of art, which has long been strictly restricted to humans. If further breakthroughs become a reality, then how art is taught in the future will go through a significant transformation.

Introduction

The words "can" and "may" are, despite their similar and sometimes mixed usage, particles that have entirely separate nuances. "Can" refers to the technical ability to be able to do or achieve something, while "may" is mainly used to denote permission – think about the difference in meaning between the phrases "can I go to the bathroom?" and "may I go to the bathroom?"

Can artificial intelligence create art? If it can, may it? These two questions, although similar, yield entirely different answers from its creators and the public alike. Plainly speaking, researchers of artificial intelligence have already given life to artificial neural networks that can create images that already surpass human manual ability. Although yet trivial, the tunes developed by an AI system are stunningly vivid and concurrent. Then, may artificial intelligence create art? The answer to this question is much more controversial, for it forces us to contemplate upon the very concept of art and humanity.

The rapid evolution in the field of artificial intelligence and machine learning had given birth to the eager application in the area of art as in any other spheres of life. In June 2016, Google launched Magenta, a crowd-sourced project that applies machine learning to different fields of art, including music and visual image while aiming to build a community of artists and researchers. By exposing to Magenta millions of training examples and gradually adjusting the parameters, the research team in Google allowed it to establish its very own imagery about random objects. Also, the application of algorithms also allowed random noise to inspire generate purely original and astonishing images, which, according to BBC News, were compared to "the art a human might create when they had taken mind-altering drugs such as LSD, others to the work of tortured genius Vincent Van Gogh" (Wakefield, 2015). Similar projects are being conducted on other spheres of art. "Sony CSL Research Laboratory is planning to release a whole album of songs written by artificial intelligence (Ward, 2017)" reports Culture Trip. The Sony AI system called Flow Machines "analyzes a database of songs and then creates compositions following a particular musical style."

While many technological adaptations of artificial intelligence in fields such as mechanical engineering, medicine, and lifestyle are accepted and even eagerly welcomed, the stretch of artificial intelligence into the sphere of art and creativity has met, on the contrary, harsh criticism. Jonathan Jones, an art critique of The Guardian, had mocked The New Rembrandt, a 3D painted Rembrandt painting by an AI program, as "an April Fool's joke", stating that it was "a horrible, tasteless, insensitive and soulless travesty of all that is creative in human nature" (Jones, 2016). Mark Milloff, a painter and art professor at the Rhode Island College of Design, denotes such attempts for AI to create art as "a technological trick" (Lee, 2016).

The resistance in the art industry against the application of AI to art seems to be primarily centered on the supposed core of creating art itself: human intent. The Oxford English Dictionary defines art as "The expression or application of human creative skills and imagination, typically in a visual form such as painting or sculpture, producing works to be appreciated primarily for their beauty or emotional power" (Results for "Art," English Dictionary, Oxford Living Dictionaries). Another definition states that art is "works produced by human creative skill and imagination." The emphasis upon the existence of humanity and the soul in art greatens in some of the most influential quotes. Elder Uchtdorf quoted "the desire to create is one of the deepest yearnings of the human soul," and Adrien Elmer "art is when a human tells another human what it is to be human." The connection between humanity and art has been unseparated since the birth of art itself. Through the passing of millennium, science has disproven the belief that lightning was the wrath of gods, while astrology and mathematics have challenged the idea that the earth was the center of the universe. However, until now, the belief that art was related to the human soul and humanity itself has never been toppled. Perhaps the criticism and controversy upon using artificial intelligence to create art are intimately bound with the faith in humanity's supposedly divine, singular ability to exert creativity.

Amongst reviewing the ethical accusations against AI, however, one must recall that artificial intelligence itself is a replica of the human intellect. The structure of the deep learning model and the way they learn suggest that creating intelligence isn't about making machines smarter, but about making machines like human beings: to think, learn, and even imagine like us. If artificial intelligence advances to the point in which it can parallel the diverse functions of the human brain, then there is nothing that holds it back from becoming something very "human" indeed. Another fact that must be reviewed is that the criterion of labeling art isn't absolute; rather, it shifted with eras and the tides of popular culture. The expressionist and post-modernist movement alike had proven that art is sufficient when it can generate emotions in people. If art by artificial intelligence can do the same, who's to say that AI lacks in creativity?

It must also be noted that utility of artificial intelligence in art isn't about taking human artists out of a job: it is more about galvanizing and vitalizing the world of art. Francesca Rossi, a research scientist at IBM J.T. Watson Research Center, says "I think you have to be clear about what the goal is…The goal is to help humans be more creative, and not just to replace painters or songwriters or whatever. I think that's usually the way it's perceived, so that's why you have this resistance. So maybe the systems should be put in a package that shows clearly that you want to help people be more creative." (Ward, "2017). A new wave in art has always met great resistance, but one must remember that embracing it has also always opened a new chapter in its history. The question isn't about what AI may or may not do for art, but what it could, and will do.

Image Classification
Image Classification uses a particular type of deep neural network, called a convolutional neural network (CNN). CNNs are particularly useful for distinguishing images and categorizing them. (Krizhevsky, et.al. 2012)
Our main goal is not to design algorithms that learn how to generate art and music. Such a goal would be premature as the area is in its infancy. But to make progress, we can use AI to distinguish between genuine original artwork and counterfeit works. Already there are AI programs that can distinguish between genuine currency and counterfeit currency. (Goodfellow et.al. 2014)

I. Convolutional Neural Network (CNN)
Pixeled images are processed by a multi-layer network that identifies visual features. As shown in the Figure 1, the network consists of four main steps (i.e. convolution, pooling, full connection, and output prediction).
(Goodfellow et.al, 2016)
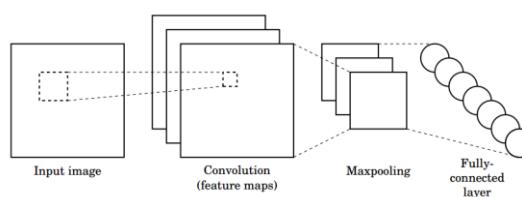
Figure 1.

Because neural networks process images as a two-dimensional array, each pixel in the image is given a numerical values from 0 to 255. A wholly black pixel is given the value of 0 and a wholly white pixel is given the value of 255. Red, green, blue layers or RGB layers are needed for colored images so a numerical value is given for the intensity of color's saturation in the pixel. The computer will then recognize the images in digital form by giving it a value of 0s and 1s. (Goodfellow et.al, 2016)

II. Steps of CNN

1. Simply put, convolution can be understood as the sorting of digital information. Its purpose is to simplify input images by sorting out particular features. A feature detector — also called as kernel, or filter — is placed on an input image. The values on the pixel and on the feature map are multiplied and the resulted values are placed on a feature map or an activation map. Although the feature map may lose some information, the processing speed is increased because the reduced size of the image requires less calculations. The purpose of the feature detectors is to eliminate features that are not important to the processing task, emphasizing the features that are only important. Multiple feature maps may be used to further filter the image while preserving the spatial relationship between pixels. This process is represented in Figure 2 below. (Goodfellow et.al, 2016)
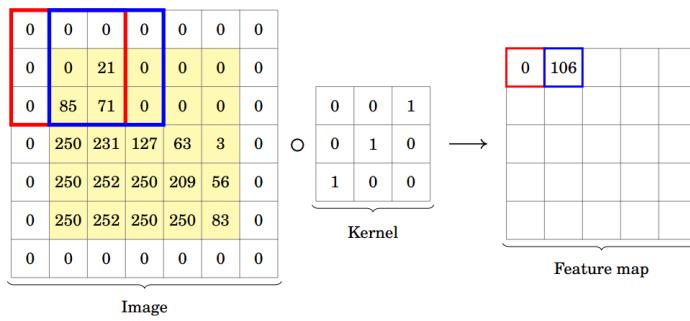
Figure 2.

2. ReLU layer

ReLU layer, rectifier layer units, is a process by which a rectifier is subsequently applied after convolutional layers are built. The mathematical foundation for this layer is $f(x)=\max(0, x)$, as seen in Figure 3 below. In other words, the activation is simply threshold at zero; his increases nonlinearity in images. In other words, the ReLU layer accelerates the convergence of stochastic gradient descent compared to the sigmoid/tanh functions which in turn accelerates the overall computational time for the CNN. (Krizhevsky et al., 2012)
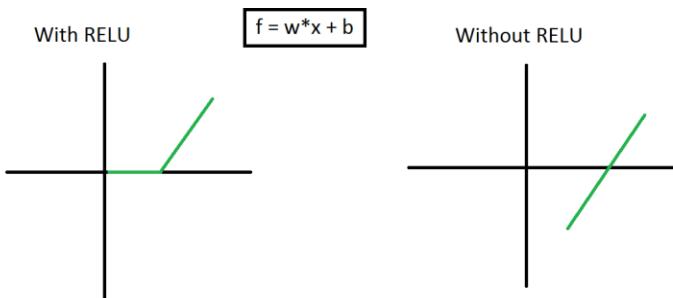
Figure 3.

3. Max Pooling

Like convolution, max pooling's purpose is to reduce the spatial size of the image and to decrease the computational complexity of the calculations. The most common procedure for this is called max pooling, as seen in Figure 4.
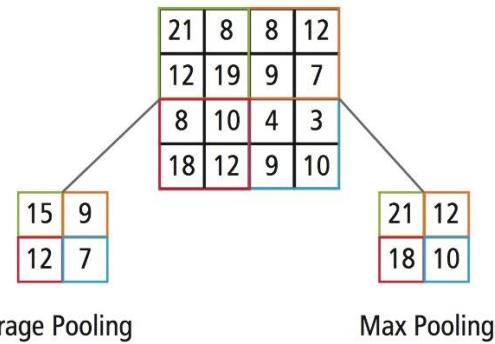
Figure 4.

This is done by taking the maximum value in each grid from the feature map as seen in Figure 4 above. In this example the maximum value in the green grid is 21, the brown, 12, the red 18, and the blue 10. By only considering the maximum values and disregarding other values, the number of parameters are reduced, thus preventing overfitting.

4. Flattening

After max pooling, feature maps go through the flattening process by which the numbers are taken row by row and placed in a single long column. Once all pooled features are flattened, the results form an input layer to be connected to a deep neural network.

5. Full Connection

Once the Convolutional Neural Network is connected to the Deep Neural Network, the attributes of both networks may be combined to take advantage of the what each network provides as a benefit. (Krizhevsky et al., 2012)

Deep Neural Network

While deep learning and artificial intelligence has elevated recently in the global technology market as a significantly prestigious mechanism, the concept of deep learning has in fact been around for several decades. Although the idea of creating an algorithm-based network was first introduced in the 1980s, deep learning technology had to undergo years of refining and breakthroughs to resemble that of today finally. (Goodfellow, 2016.)

At first, deep learning was primarily achieved by training a perceptron, or an algorithm for supervised learning. Training samples inserted into the perceptron results in a calculated output, and after each entry and exit procedure, the algorithm is adjusted to prevent errors. However, the approach of utilizing a single perceptron for deep learning soon met a drawback of it only being able to learn linear, simple information, which meant that the algorithm was powerless against outliers that eluded the category of the perceptron. (Goodfellow, 2016.)

To resolve this issue, researchers created a multilayer perceptron, also called a feedforward neural network. A neural network was nothing more than a composition of multiple units; each consisted of a single perceptron, connected to each other to create networked layers of algorithms. The layers were composed of three parts, according to their functions: the input, output, and one or more hidden layers, as seen in Figure 4. Such organization of neurons allowed the neural network to process high-dimensional vectors, for each layer serve to establish a comprehensive goal of learning, sorting, and utilizing data. Especially, the one or more hidden layers help to store the abstract representation of input data, similarly as does the human brain. (Goodfellow, 2016.)

Deep neural network
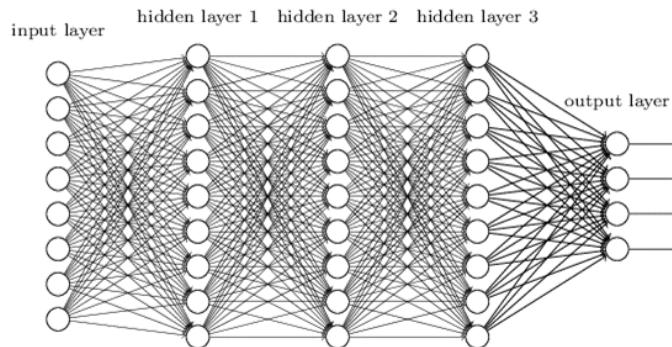
Figure 4.

The utility of hidden layers often proved to be effective, but met a few drawbacks such as vanishing gradients or overfitting, in which the back-propagation process – process in which the error contribution in each perceptron is detected and dealt with – lost significance due to too many hidden layers or was to concurrent with the training data. Only after decades of setback was these difficulties resolved, majorly by autoencoders and the Boltzmann Machine, that allowed the learning of probability distribution and thus precise, non-overlapping calculations. Therefore, the deep learning model was finally able to process and handle data in a flexible, comprehensive manner. It was after this procedure that it was viewed as a complete technological duplicate of the human brain. (Goodfellow, 2016.)

Applications
Work is underway currently in Stanford where programmers are training convolutional neural networks to recognize who the artist that created an image is just by inputting an image into a network. (Viswanathan, 2017) As CNNs advance in power and efficiency and as the computation power of computers increase, the potential for AI and all its permutations becoming more and more prevalent in the art community will exponentially develop.

Implication For Education And Teachers
That AI cannot substitute for a human teacher or tutor effectively may be an accurate statement currently. However, that fact should not mean a total rejection of the role artificial intelligence in art education because this paper has illustrated the potential uses of CNNs in processing and classifying images.

Educators must assume the concept that new technologies in AI when fully exploited will change the way art is taught and learned. This has larger ramifications because the traditional methods of learning, working, collaborating, and communicating are increasingly being modified. Educators must begin to devise new pedagogies, implement innovative digital systems, develop new areas of knowledge, and inform policymakers and educational stakeholders. (Luckin, et. al 2016)

Conclusion
To some scholars and artists, the question of "can" and "may" in artificial creativity is much more of a problem than "can" and "may" as in going to the restroom. To them, it is either a heretic idea or a mere joke: a bad one, too. Technically speaking, the structure of deep learning is no more than layers of data tissues and nodes. However, deeming the model unfit of creativity, for this reason, would be denying the very creativity of humans, for technically speaking, the human brain is but layers of data tissues as well. If the goal of creating AI is indeed to create "artificial intelligence," there is nothing that can, or should, stop computers from thinking, perceiving, and creating, as human beings do.

The idea of a constantly evolving breed with intelligence and even creativity is admittedly a disturbing one. Most scholars and technicians have realized that an era in which artificial intelligence will inhibit majority of human life has already come and that the fear of them taking over "human" jobs is a reasonable one at the least. However,

researchers also claim that the ultimate objective of deep learning is to better human life, not replace it, even if it could. Similarly, the function of AI in the field of art revolves around the interest in duplicating, not eradicating, human creativity. This artificial intelligence should be viewed and studied as more of a tool: a gift. Embracing this new achievement and learning to utilize it affectively may lead to a more fruitful future in the field of art and creativity.

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Application Of Technology To Make Original Compositions In The Field Of Music Education

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Abstract
The inquiry into whether original music can be composed by computers or machines alone has become a controversy with technology companies such as Google and Apple competing with each other to become the pioneer in machine-created music. While the question of whether machines will ever produce original music remains unclear, a second question, whether music education will be impacted by these developments, remains to be addressed adequately. This paper begins the discussion of how future technologies will impact music evolution, composition, and education with particular focus placed on artificial neural networks. By examining the arrangement and congruity of machine learning with music composition, this paper examines the limitations and possibilities of machine aided music composition, and thereby its effect on music education of the future.

Introduction
The rapid evolution in the field of artificial intelligence and machine learning had given birth to the eager application in the area of art as in any other spheres of life. In June 2016, Google launched Magenta, a crowd-sourced project that applies machine learning to different fields of art, including music and visual image while aiming to build a community of artists and researchers. By exposing to Magenta millions of training examples and gradually adjusting the parameters, the research team in Google allowed it to establish its very own imagery about random objects. Also, the application of algorithms also allowed random noise to inspire generate purely original and astonishing images, which, according to BBC News, were compared to "the art a human might create when they had taken mind-altering drugs such as LSD, others to the work of tortured genius Vincent Van Gogh" (Wakefield, 2015). Similar projects are being conducted on other spheres of art. "Sony CSL Research Laboratory is planning to release a whole album of songs written by artificial intelligence (Ward, 2017)" reports Culture Trip. The Sony AI system called Flow Machines "analyzes a database of songs and then creates compositions following a particular musical style."

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The resistance in the art industry against the application of AI to art seems to be primarily centered on the supposed core of creating art itself: human intent. The Oxford English Dictionary defines art as "The expression or application of human creative skills and imagination, typically in a visual form such as painting or sculpture, producing works to be appreciated primarily for their beauty or emotional power" (Results for "Art," English Dictionary, Oxford Living Dictionaries). Another definition states that art is "works produced by human creative skill and imagination." The emphasis upon the existence of humanity and the soul in art greatens in some of the most influential quotes. Elder Uchtdorf quoted "the desire to create is one of the deepest yearnings of the human soul," and Adrien Elmer "art is when a human tells another human what it is to be human." The connection between humanity and art has been unseparated since the birth of art itself. Through the passing of millennium, science has disproven the belief that lightning was the wrath of gods, while astrology and mathematics have challenged the idea that the earth was the center of the universe. However, until now, the belief that art was related to the human soul and humanity itself has never been toppled. Perhaps the criticism and controversy upon using artificial intelligence to create art are intimately bound with the faith in humanity's supposedly divine, singular ability to exert creativity.

Amongst reviewing the ethical accusations against AI, however, one must recall that artificial intelligence itself is a replica of the human intellect. The structure of the deep learning model and the way they learn suggest that creating intelligence isn't about making machines smarter, but about making machines like human beings: to think, learn, and even imagine like us. If artificial intelligence advances to the point in which it can parallel the diverse functions of the human brain, then there is nothing that holds it back from becoming something very "human" indeed. Another fact that must be reviewed is that the criterion of labeling art isn't absolute; rather, it shifted with eras and the tides of popular culture. The expressionist and post-modernist movement alike had proven that art is sufficient when it can generate emotions in people. If art by artificial intelligence can do the same, who's to say that AI lacks in creativity?

It must also be noted that utility of artificial intelligence in art isn't about taking human artists out of a job: it is more about galvanizing and vitalizing the world of art. Francesca Rossi, a research scientist at IBM J.T. Watson Research Center, says "I think you have to be clear about what the goal is…The goal is to help humans be more creative, and not just to replace painters or songwriters or whatever. I think that's usually the way it's perceived, so that's why you have this resistance. So maybe the systems should be put in a package that shows clearly that you want to help people be more creative." (Ward, "2017). A new wave in art has always met great resistance, but one must remember that embracing it has also always opened a new chapter in its history. The question isn't about what AI may or may not do for art, but what it could, and will do. Perhaps at this crossroad of a new era, it is time for humans to boldly face the change and see where it will take us.

Past Depictions In Media
Sometimes the ideal way to witness the diverse opinions and anticipation towards a particular culture or technology is looking at the various media portraying it. Mass media reflects the ideas and promises of -as well as concerns towards- a topic because it mirrors the thoughts of concurrent crowds and researchers. On the other hand, it also functions as an inspiration for future artists, writers, and directors. Thus, mass media both makes and is made by the audience, and by discovering various pieces created in the bygone era one may glimpse at the past and future of innovation. This section of the paper will discuss painting machines and artificially intelligent artists that appear in past films, and look to the current actualization of these previous depictions.

While a robot artist seems like a fascinating topic for film and TV show directors, no film that expands solely upon this issue exists. This may be because: first, a plot about art or an artist has never been the 'money code' in the history of Hollywood, and second, deep learning in the field of art is too new an idea to have inspired directors and screenwriters in the past. Aside from creating simple graffiti or descriptive sketches, machines in the past media have seldom served the roles of artists. However, the list is not empty, for the film "What a Way to Go!" (1964) portrays an incredibly avant-garde mechanical system that is surprisingly similar with the most modern collaborations between machine learning and art.

In this big-budgeted, ambitious film, depicts the marriage life -or lives, for she marries several times along the course of the plot- of Louisa, a widow with a fortune of $200 million. The punch line of the gag is that every time she gets married to a man, her spouse's obsession or talent ends up killing him and leaving her a dowager all over again - another is that each husband's death leaves her wealthier but unhappier. One of Louisa's spouses was a man named Larry Flint, an ex-patriot artist living in Paris. Larry, an extremely future-oriented artist, builds an abstract painting machine (Figure 1) that consists of several controllable arms with paintbrush tips. The device translates its interpretations of sound, from the random noises of a jackhammer to classical music on a record player, to its paintings. By experimenting more diverse, complex sounds on the painting machine, Louisa, and Larry succeed in building a fortune from the machine's exceptional pieces – that is, of course, before the malfunction of the apparatus causes the robot arms to beat Larry to death.

Figure 1.
Retrieved from http://cyberneticzoo.com/robots-in-art/1964-painting-machines-larry-flint-american/

The setting and produced works of the painting machine in "What a Way to Go!" serves to illuminate a few notions. The popularity of the abstract paintings created by Larry's machine, despite them having been created by a robot and not a human artist, can be seen as a reflection of -and perhaps a parody of- the popularity of post-modern art during the mid-1900s: art considered beautiful if beautiful to the eye, and nothing more. During this era, Jackson Pollock and Andy Warhol, both post-modernist artists, concentrated on the unconventional artistic methods of painting, such as hyper-abstract painting and mechanical mass-production. Another crucial notion to note is that the idea behind Larry Flinch's machine is incredibly in synch with those of AI-based painting machines in the 21st century. In describing his invention, Larry tells Louisa that "the sonic vibrations that go in there. And that gets transmitted to this photoelectric cell which gives those dynamic impulses to the brushes and the arms. And it's a fusion of a mechanized world and a human soul" (Cybernetic Zoo, 2012). The idea that a robot combines precise mechanical programming and human creativity is astounding, especially when recalling that the film was written before the existence of deep learning technology. The fact that the robot arm ends up killing its creator is a little less surprising, but intriguing nonetheless, for machines at this certain era were generally viewed as only benefactors, if not wonders.

Image Classification
Image Classification uses a particular type of deep neural network, called a convolutional neural network (CNN). CNNs are particularly useful for distinguishing images and categorizing them. (Krizhevsky, et.al. 2012)
Our main goal is not to design algorithms that learn how to generate art and music. Such a goal would be premature as the area is in its infancy. But to make progress, we can use AI to distinguish between genuine original artwork and counterfeit works. Already there are AI programs that can distinguish between genuine currency and counterfeit currency. (Goodfellow et.al. 2014)

I. Convolutional Neural Network (CNN)
Pixeled images are processed by a multi-layer network that identifies visual features. As shown in the Figure 2, the network consists of four main steps (i.e. convolution, pooling, full connection, and output prediction). (Goodfellow et.al, 2016)
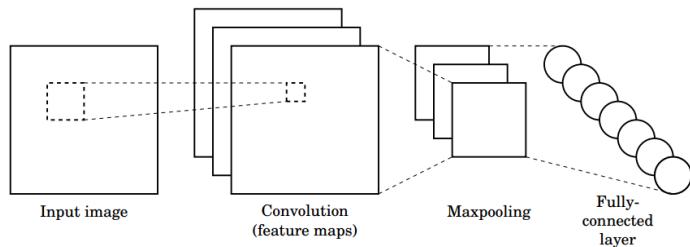
Figure 2.

Because neural networks process images as a two-dimensional array, each pixel in the image is given numerical values from 0 to 255. A wholly black pixel is given the value of 0 and a wholly white pixel is given the value of 255. Red, green, blue layers or RGB layers are needed for colored images so a numerical value is given for the intensity of color's saturation in the pixel. The computer will then recognize the images in digital form by giving it a value of 0s and 1s. (Goodfellow et.al, 2016)

II. Steps of CNN

1. Simply put, convolution can be understood as the sorting of digital information. Its purpose is to simplify input images by sorting out particular features. A feature detector — also called as kernel, or filter — is placed on an input image. The values on the pixel and on the feature map are multiplied and the resulted values are placed on a feature map or an activation map. Although the feature map may lose some information, the processing speed is increased because the reduced size of the image requires less calculations. The purpose of the feature detectors is to eliminate features that are not important to the processing task, emphasizing the features that are only important. Multiple feature maps may be used to further filter the image while preserving the spatial relationship between pixels. This process is represented in Figure 3 below. (Goodfellow et.al, 2016)
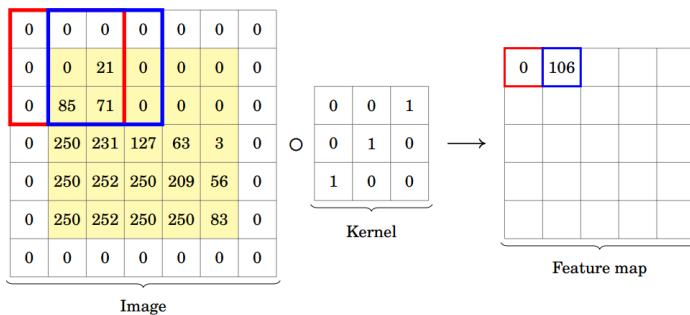
Figure 3.

2. ReLU layer

ReLU layer, rectifier layer units, is a process by which a rectifier is subsequently applied after convolutional layers are built. The mathematical foundation for this layer is $f(x)=max(0, x)$, as seen in Figure 4 below. In other words, the activation is simply threshold at zero; his increases nonlinearity in images. In other words, the ReLU layer accelerates the convergence of stochastic gradient descent compared to the sigmoid/tanh functions which in turn accelerates the overall computational time for the CNN. (Krizhevsky et al., 2012)
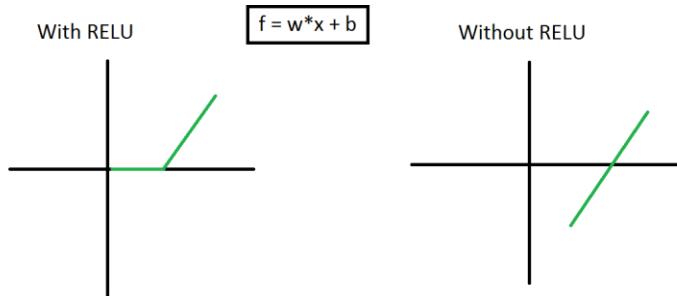
Figure 4.

3. Max Pooling

Like convolution, max pooling's purpose is to reduce the spatial size of the image and to decrease the computational complexity of the calculations. The most common procedure for this is called max pooling, as seen in Figure 5.
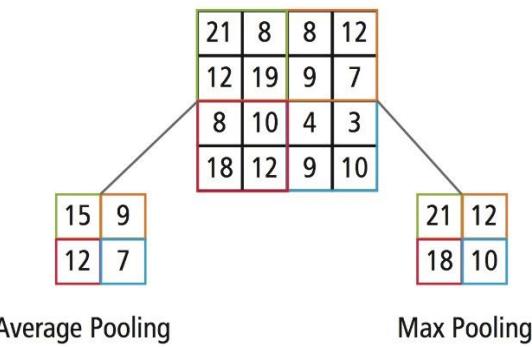
Figure 5.

This is done by taking the maximum value in each grid from the feature map as seen in Figure 5 above. In this example the maximum value in the green grid is 21, the brown, 12, the red 18, and the blue 10. By only considering the maximum values and disregarding other values, the number of parameters are reduced, thus preventing overfitting.

4. Flattening

After max pooling, feature maps go through the flattening process by which the numbers are taken row by row and placed in a single long column. Once all pooled features are flattened, the results form an input layer to be connected to a deep neural network.

5. Full Connection

Once the Convolutional Neural Network is connected to the Deep Neural Network, the attributes of both networks may be combined to take advantage of the what each network provides as a benefit. (Krizhevsky et al., 2012)

The Study: A Deep Neural Network

While deep learning and artificial intelligence has elevated recently in the global technology market as a significantly prestigious mechanism, the concept of deep learning has in fact been around for several decades. Although the idea of creating an algorithm-based network was first introduced in the 1980s, deep learning technology had to undergo years of refining and breakthroughs to resemble that of today finally. (Goodfellow, 2016.)

At first, deep learning was primarily achieved by training a perceptron, or an algorithm for supervised learning. Training samples inserted into the perceptron results in a calculated output, and after each entry and exit procedure, the algorithm is adjusted to prevent errors. However, the approach of utilizing a single perceptron for deep learning soon met a drawback of it only being able to learn linear, simple information, which meant that the algorithm was powerless against outliers that eluded the category of the perceptron. (Goodfellow, 2016.)

To resolve this issue, researchers created a multilayer perceptron, also called a feedforward neural network. A neural network was nothing more than a composition of multiple units; each consisted of a single perceptron, connected to each other to create networked layers of algorithms. The layers were composed of three parts, according to their functions: the input, output, and one or more hidden layers, as seen in Figure 6. Such organization of neurons allowed the neural network to process high-dimensional vectors, for each layer serve to establish a comprehensive goal of learning, sorting, and utilizing data. Especially, the one or more hidden layers help to store the abstract representation of input data, similarly as does the human brain. (Goodfellow, 2016.)
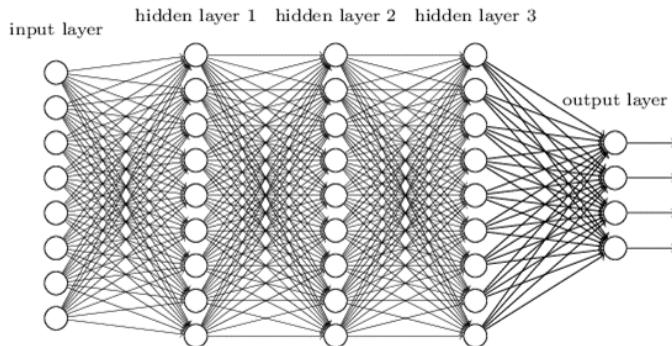
Figure 6.

The utility of hidden layers often proved to be effective, but met a few drawbacks such as vanishing gradients or overfitting, in which the model lost significance due to too many hidden layers or was to concurrent with the training data. Only after decades of setback was these difficulties resolved, majorly by autoencoders and the Boltzmann Machine, that allowed the learning of probability distribution and thus precise, non-overlapping calculations. Therefore, the deep learning model was finally able to process and handle data in a flexible, comprehensive manner. It was after this procedure that it was viewed as a complete technological duplicate of the human brain. (Goodfellow, 2016.)

The current successful deep learning model (Figure 6) consists of effective nodes and a couple of final steps called Forward Propagation and Back Propagation (Figure 7). Forward Propagation can be described as a step in which a predicted value of the input data is formed. Back Propagation is when that expected value is compared with the actual value. Through these procedures, a network gains both calculative precision and intellectual insight, the primary traits that differ deep learning neural networks from conventional computer programs and assimilate them to the human brain in intelligence.
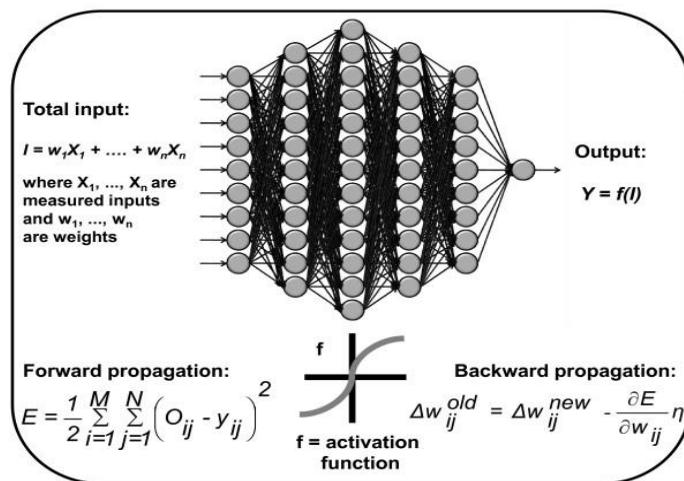
Figure 7.
Retrieved from https://www.researchgate.net/figure/51200358_fig3_Illustration-of-the-architecture-of-the-back-propagation-neural-network-BPNN-The-BPNN

Implication For Education And Teachers

That AI cannot substitute for a human teacher or tutor effectively may be an accurate statement currently. However, that fact should not mean a total rejection of the role artificial intelligence in art education because this paper has illustrated the potential uses of CNNs in processing and classifying images.

Educators must assume the concept that new technologies in AI when fully exploited will change the way art is taught and learned. This has larger ramifications because the traditional methods of learning, working, collaborating, and communicating are increasingly being modified. Educators must begin to devise new pedagogies, implement innovative digital systems, develop new areas of knowledge, and inform policymakers and educational stakeholders. (Luckin, et. al 2016)

Figure 8.

ROLE OF TEACHERS

As the role of AI increases in the sphere of education, teachers will be required to develop new skills.

According to the creators of the AI Education system (Luckin, R.et.al. 2016), these requirements will likely be:

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 resources effectively. (Luckin, R.et.al. 2016)

The figure and the numbered list above both demonstrates H. Luckin's assertion of how the individuals of this era may prepare for deep learning's further influences in the future education system.

Conclusion

To some scholars and artists, the question of "can" and "may" in artificial creativity is much more of a problem than "can" and "may" as in going to the restroom. To them, it is either a heretic idea or a mere joke: a bad one, too. Technically speaking, the structure of deep learning is no more than layers of data tissues and nodes. However, deeming the model unfit of creativity, for this reason, would be denying the very creativity of humans, for technically speaking, the human brain is but layers of data tissues as well. If the goal of creating AI is indeed to create "artificial intelligence," there is nothing that can, or should, stop computers from thinking, perceiving, and creating, as human beings do.

The idea of a constantly evolving breed with intelligence and even creativity is admittedly a disturbing one. Most scholars and technicians have realized that an era in which artificial intelligence will inhibit majority of human life has already come and that the fear of them taking over "human" jobs is a reasonable one at the least. However, researchers also claim that the ultimate objective of deep learning is to better human life, not replace it, even if it could. Similarly, the function of AI in the field of art revolves around the interest in duplicating, not eradicating, human

creativity. This artificial intelligence should be viewed and studied as more of a tool: a gift. Embracing this new achievement and learning to utilize it affectively may lead to a more fruitful future in the field of art and creativity.

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Artificial Intelligence and Robots In Education

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Abstract

The state in which the public education system finds itself has many critics with some criticism having some merit. To improve the quality of teaching, educators and administrators have pined for better working conditions, more resources and improved infrastructure. Furthermore, while some environments have problems associated with over-crowded classrooms, others have to deal with the adequacy of human resources and lack of eligible students to feasibly sustain schools. To address some of these issues, some schools have turned to artificial intelligence and robots in the classroom to mitigate and to cater to individual student's requirements. The present and future role of robotics and artificial intelligence in education has, therefore, become a significant issue of discussion. This issue has further increased in significance with venture-capitalist showing a determination to invest in specialized education programs based on machine learning. Nevertheless, the question of whether such investments will be effective has not yet been adequately addressed. This paper asserts that it is worth contemplating whether these new technologies will mitigate some of the real problems that exist in the educational field. This paper addresses the issue of the future role of artificial intelligence in education with a particular focus on whether artificial intelligence will change the traditional classroom and better the education system to ultimately provide a better experience for both educators and students. This paper contends that, despite the buildup in media about artificial intelligence, deep learning machines still lack the many qualities that make up an effective educator.

Introduction

On April 2017, Google launched a prestigious tool called AutoDraw. Using a broad database of drawn images, AutoDraw scans the scribble on screen and provides a list of images that the user supposedly meant to illustrate. Of course, artificial intelligence and deep learning technology are not new; in fact, it has never been new at least in the 21st century since it has been decades since artificial neural networks and their prototypes were introduced to the world in the era of the digital revolution we reside in. A short search on the internet informs you that much of technologies and gadgets that had once been fantasy are becoming a reality. Self-driving cars, navigating drones, and smart phone gadgets that lead a conversation are no longer fiction. However, Google's AutoDraw brings us to a somewhat unsettling chapter of technological progression: that artificial intelligence has now the ability to 'correct' humans. If provided a bigger, more substantial database, computers would have the capacity to suggest to, inform, and guide. In other words, artificial intelligence would now be able to educate human beings.

It is not surprising that deep learning and artificial intelligence, among other technologies, would replace people in a majority of jobs. After all, the fundamentals of deep learning resemble that of a functioning brain: data and algorithms layered like neural tissues to learn, suffice, and think independently. The similarity between deep learning and the human brain is what allows Siri to manage our calendars and computers to trade our stocks. What's different is that computers are much less prone to mistakes: with the right data, the chances that computers will fail to answer a question correctly is very slim. Over the past decade of rapid progression, scientists and the public alike had to admit that computers are now more intelligent than humans: they make fewer mistakes, are more informative, and even learn considerably faster than any human being. Therefore, who could assert that artificial intelligence is not qualified to take the mantle of a teacher?

While the utility of artificial intelligence in some fields are under harsh skepticism, AI is already animatedly partaking in the sphere of education. In 2014, Google already launched Classroom, a program in which computers help teachers post class announcements, assign work, and grade assignments. ETS has successfully utilized artificial intelligence as a replacement of SAT and GRE essay graders. While these achievements are astonishing as they are, the more recent developments that strive to graft education and artificial intelligence aim much higher than mere grading systems or teacher's assistants. In 2016, Microsoft's co-founder and chairman Bill Gates has announced that the Bill and Melinda Gates Foundation has invested a sum of $240 million into what is called "personalized learning." Unlike an orthodox -but astonishingly inefficient- model of a classroom, a personalized learning programmed powered by artificial intelligence would have the ability to cater to each pupil's individual needs and circumstances. The AI pioneer Marvin Minsky's description of the technology vividly illustrates how wholly a computer program would partake in educating

a human being: "…we could try to build a personalized teaching machine that would adapt itself to someone's particular circumstances, difficulties, and needs. The system would carry out a conversation with you, to help you understand a problem or achieve some goal…It would assist you by telling you what to read, stepping you through solutions, and teaching you about the subject in other ways it found to be effective for you" (Lane, C., Grover, S., & Roschelle, J. 2014). Bill Gates explains that personalize learning is based on the core the fact that people progress at a different rate. If a substantial database of data and algorithms were to be constructed, artificial intelligence would indeed garner the ability to be on the same page as each student: a feat that, human-led education systems have very seldom accomplished.

The function of an AI program as a teacher is not omniscient, of course. Primarily, deep learning only allows the deduction of answers, and mostly is incapable of specifically illustrating the process of the deduction, nor the correlation between questions and answers: just put, AI critically lacks in insightful cognition. The same cause makes it seem impossible for an AI too, despite its intelligence, show wisdom in fields such as philosophy and art. The economic gap between pupils that hinder some from getting access to learned computers is another factor. Bill Gates himself had admitted that the progress of personalized learning is "in early stages" and the satisfactory outcome will emerge "in five years, ten years from now, will it be highly penetrated? That's not clear" (Newton, C. 2016). However, the rewards from overcoming the obstacles are colossal. While the development of AI in education will not make humans irrelevant, a strong artificial intelligence is anticipated to eradicate a form of education in which individual needs are overridden by a totalitarian progress of learning. Perhaps the prestige personalized learning by artificial intelligence is receiving itself is in itself a backlash against the orthodox "assembly line" form of education that has dominated classrooms for far too long.

Technology: Deep Learning Model
Deep learning, or stacked neural networks, is a substantial part of artificial intelligence, is the technology of creating a computational human brain. To achieve this, multiple algorithms are intertwined and designed into neural combinations, with a prime goal of pattern conception, as seen in Figure 1. The network attempts to simulate the construction of a human neural network found in the human brain. A well-structured neural network is capable of 'clustering and classifying' data. Furthermore, through enough data circulation, or 'training,' the neural network may develop abstract concepts that allow it to adapt to a wide variety of circumstances.

Figure 1.
Retrieved from: https://hackernoon.com/log-analytics-with-deep-learning-and-machine-learning-20a1891ff70e

As mentioned, deep learning is another term for 'stacked neural networks,' or systems that consist of several layers. The layers are formed from nodes, a computation tool that does what the neuron does in the human brain: recognize and transmit stimuli. Furthermore, a node is responsible for weighing the stimuli's value, assigning significance to the input data.

In a deep learning model, multiple layers – including the input, the hidden, and the output layers – formed with nodes coexist and work together to achieve the convoluted process of pattern recognition. In a network, each layer trains on different features based on the function. This setting is called a feature hierarchy, or a hierarchy of increasing intricacy and abstraction. A more complete the hierarchy is, the 'deeper' the neural network may understand data. After it is programmed, a neural network undergoes multiple training and tests, in which the layers process various data and

develop not only intelligence but also intuition and comprehensive classification of information. Therefore, a substantial database and training may shape a neural network that indeed parallels the human brain in intellect.

Implications For Education

The core scientific goal of Artificial Intelligence in education is to "make computationally precise and explicit forms of educational, psychological and social knowledge which are often left implicit." (Self, J. 1999) The use of deep learning models combined with adaptive learning environments will help educators and learners better understand the implicit nature of learning. For example, artificial intelligence can assist educators and learners illustrate the incremental steps that takes place in the learning of any subject or the misconceptions that may hinder learning. (Vanlehn, et.al. 2005)

An example of a system illustrating the blending of AI and education is the AIEd system in Figure 2. (Luckin, R.et.al. 2016)

1. Adaptive Learning Environments

A digital learning environment that adapts teaching and learning approaches and materials to the capabilities and needs of individual learners. (Luckin, R.et.al. 2016)

2. Models

These represent something from the real world in a computer system or process, to assist calculations and predictions. (Luckin, R.et.al. 2016)

According to its creators, the AIEd system that is designed to provide appropriate individualized feedback to a student. This is achieved by starting with three models, the pedagogical model which represents effective approaches to teaching, the domain model which represents the subject being learned, and the learner model which represents the student. Data and information from these models are processed by algorithms and fed into an interface. The interface may be computer screen, robot, or any instrument that interacts with the student. The content is adaptive which means that the content is individually tailored to the learner. The data and results from the adaptive content is first captured and then inputted into a deep learning model (Data Analysis in figure 2). Given enough data, the Deep learning model will be able to determine what adjustments should be made in the learning process. (Luckin, R.et.al. 2016)

Figure 2.
Retrieved from: https://www.pearson.com/content/dam/corporate/global/pearson-dot-com/files/innovation/Intelligence-Unleashed-Publication.pdf
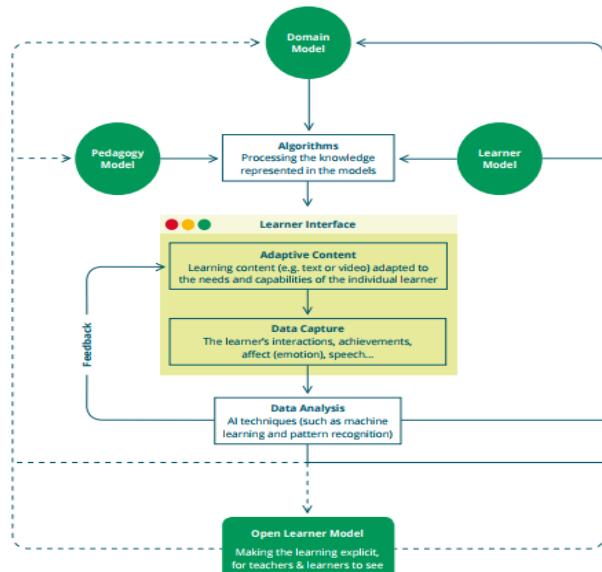
3. Learner Interface

Whether the interaction between the learner be in the form of a computer screen, mobile phone or a robot, the interface between the learner and the adaptive content must be focused on improving the learning process and not focused on just the technical aspects. Concentrating just on these technical aspects does not automatically promote better and faster learning. Having the incorrect type of interface could actually be detrimental to the learning process. (Koper, R. 2014) Therefore, the design of any interface, for example that of a robot, would be a factor in how effective the overall process should be. In addition to the design, the process by which humans learn as shown in Figure 3 below is another factor to be considered in the system. (Koper, R. 2014)
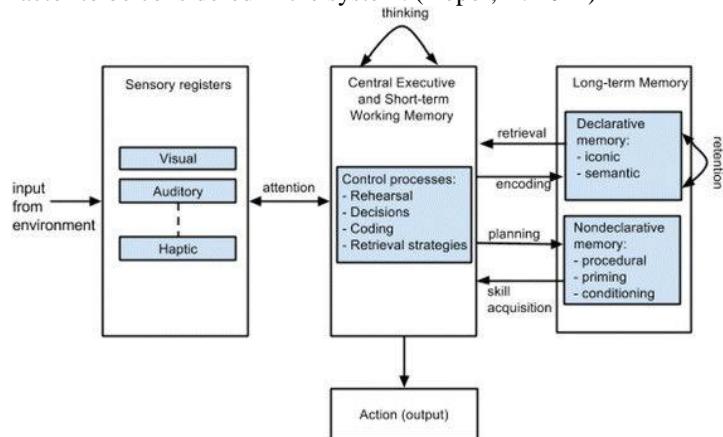
Figure 3.

The modal model of the architecture of human information processing (adapted from Ashcraft and Radvansk [2010] p.38)

4. Advantages And Disadvantages

It takes several years to train an effective human teacher or tutor. In addition, it costs financial resources to train such instructors. However, once a AI system is programed with significant efficiency in teaching a subject, that program can be digitally reproduced within a matter of seconds without any more cost than the memory space on a hard drive. The expertise and skill will be ingrained in the AI system and can be updated with new data and information almost instantly and simultaneously. The AI system will not be subject to the vicissitudes of human existence nor the inevitable individual emotional states that affect teaching. The AI system will, furthermore, be available anytime and at anyplace.

The AI industry and AI programming are still in its infancy, and still its cottage industry stage of development. There are individuals working on programs and systems and conduct experiments with prototypes. However, this state is usually the furthest point of development as large commercial interests have not taken up the mantel and invested into the necessary steps for development of a truly efficient application. Therefore, there is currently no central or overarching control mechanism to coordinate or collaborate different stakeholders and participants. (Luckin, R.et.al. 2016)

5. 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 teachers will specifically need:

1. An ability to make value judgments on AI products which would enable them to evaluate AI products based on their knowledge and understanding of AI technology.
2. To develop research skills regarding AI and be able to interpret data and use that data to help learners obtain information more efficiently.
3. An ability to utilize AI assistants and incorporate them into to work with human assistants.
4. An ability to manage AI resources effectively. (Luckin, R.et.al. 2016)

Conclusion

Based on the research that the development of the deep learning technology and artificial intelligence in the past decade has been astonishing, scholars assert that a complete satisfactory amalgam of artificial intelligence and the field of education will take place in a matter of years. The adaptation of artificial intelligence in the school system holds great prestige, for it would grant the possibility of an education system in which nobody is left behind. Scientists hope that the natural flexibility of the deep learning technology that allows omnipresence will be able to cater to students worldwide, with the substantial supervision of large data. On the other hand, further development in the future will have to take place under sturdy values and morals, for the power that education holds in the shaping of young minds are incredibly substantial.

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Figure 1. Retrieved from: https://hackernoon.com/log-analytics-with-deep-learning-and-machine-learning-20a1891ff70e
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Assessing The Quality Of Supervision Experiences In The Different Research Stages At Postgraduate Level

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Abstract
The nature of supervisory relationship is dynamic that changes over the course of candidacy. Subsequently, the supervision demands of supervisees also change to help them in performing certain tasks at specific research stages. In this context, this research is proposed to investigate the supervision experiences of supervisees in four different research stages (i.e. Stage 1: developing synopsis, Stage 2: collecting data, Stage 3: writing thesis and Stage 4: submitted thesis). In the light of six supervision aspects (i.e. Project management, Intellectual support, pertinent research skills, Inter-personal communication skills, Workload management and Supportive skills) the quality of supervision was assessed from supervisees' perspective. Cross-sectional survey design was used to assess the supervision experiences of (N=422) supervisees in four distinct stages of research supervision. The data were collected from 12 public and private universities of the Punjab. For this study, a multi-sectioned, self-constructed Supervisor-Supervisee Relationship Questionnaire (Saleem, 2014) was used. The findings of the study highlighted the need to train the supervisors to manage their time not just in terms of teaching and supervision of research students, but also keeping the stages of their research in mind. By addressing the stage specific needs of supervisees the quality of supervision could be improved.
Keywords: *quality of supervision, research stages, supervision dynamics, supervision experiences*

Introduction
In Pakistan, during the last decade a Substantial increase in the enrollment rate at postgraduate level "the number of PhD students enrolled in universities has increased over 40 per cent (from 6,937 to 9,858 students) in the past year and more than 28,122 students are registered for the MPhil/MS with an increase of 65 percent (from 16,960 to 28,122) over the past two years" (Noor, 2013). However, there are insufficient number of supervisors facing workload of large number of supervisees.

While, no formal guidelines, code of supervision or practices that can be found for supervisors' training or any induction course for supervisees to meet their research related specific needs in Pakistan. The recent focus on the completion rates especially in social sciences discipline and the supervision experiences are considered as result of PhD supervision process and product.

However, the visible layer of this focus is supervisory relationship and their experiences throughout the process of supervision that might be influenced by the nature of research and supervision process in different study disciplines. It is evident that supervisory relationships and the quality of supervision are significant determinants that contribute to the success of the doctoral journey (Ives & Rowley, 2005; Saleem & Mahmood, 2017; Sambrook, Stewart, & Roberts, 2008; Styles & Radloff, 2001; Zhao, Golde, & McCormick, 2007).

The recent focus of literary work in this area highlighted the significance of studying contingent nature of supervision management process (Gurr, 2008; Gatfield, 2005; Bhoe, 2016). Highlighting the dynamic nature of supervisory relationship, Piccinin (2000) described the relationship between the student and supervisor starting from selecting a research topic, planning the research, identifying and acquiring the necessary resources, managing the project, actively conducting the research. The relationship between a supervisor and its candidate is not a static one, but it changes over the course of the candidacy. As the nature of tasks vary across the different research stages, the supervision needs of guidance and support also change to accomplish the different tasks successfully.

The changing landscape of the postgraduate level program necessitates new perspectives of understanding and studying the research supervision experiences. Studying the supervisory problems in particular stages of research can place important implications to highlight the potential issues of supervisees and to minimize their unproductive efforts. It can possibly extract the stage-wise directions for supervisors and supervisee to complete each stage as well as the whole research successfully.

However, addressing the issues of supervision management and to make the process more effective and efficient. No empirical evidence since we have that could establish the stage specific problems of supervision faced by supervisees and the nature of support they need to accomplish different tasks at the different stages of their research journey.

Objective of the Study

In this context our research attempts:

To investigate the quality of supervisees' supervision experiences (SSE) in different stages of research through the lens of six different aspects of supervision.

Methodology

Research Design

Cross-sectional survey design was used to investigate the supervision experiences of the supervisees across the four stages of research supervision i.e.

- **Stage 1**: developing synopsis (S1),
- **Stage 2:** collecting data (S2),
- **Stage 3**: writing thesis (S3) and
- **Stage 4:** thesis submission (S4) of research supervision, right from the beginning to completion of the research work.

Sampling

We used stratified sampling technique to select the (*N*=422) postgraduate level supervisees in their different stages of research from 12 public and private universities of Punjab.

Table 1

Demographic Characteristics of Respondents (supervisees) Included in Sample

Sr.	Demographic characteristics	(N)=422	Number of non-responsive cases
1.	**University Sector**		
	Public	330 (78%)	4 (1%)
	Private	88 (21%)	
2.	**Study Discipline**		
	Life Sciences	120 (28%)	
	Education	96 (23%)	10 (3%)
	Social Sciences	86 (20%)	
	Physical Sciences	68 (16%)	
	Management Sciences	31 (7%)	
	Arts and Humanities	11 (3%)	
3.	**Research Stages**		
	Developing synopsis	94 (22%)	
	Collecting data	112 (27%)	5 (1%)
	Writing up thesis	127 (30%)	
	Have submitted thesis	84 (20%)	
4.	**Gender**		
	Female	291 (69%)	
	Male	128 (30%)	3 (1%)

Instrument of the Study

In order to collect the data from supervisees we developed a multi-sectioned *Supervisor-Supervisee Relationship Questionnaire* (SSRQ= 65 items) for investigating phase-wise supervision experiences of postgraduate level supervisees during the four different stages of their research journey. The self-constructed SSRQ was consisted of sixty-five (65) items to be rated on six point scale for the supervision aspects.

Analysis and Findings

Quality of research supervision across four stages of the research

Descriptive statistics were calculated to describe the supervision quality across the six aspects of supervision i.e. Project management (PM), Intellectual support (IS), Pertinent research skills (PRS) Inter-personal communication skills (IPCS), Workload management (WM) and Supportive skills (SS), across the four different stages i.e. Stage 1: developing synopsis (S1), Stage 2: collecting data (S2), Stage 3: writing thesis (S3) and Stage 4: submitted thesis (S4) of research supervision.
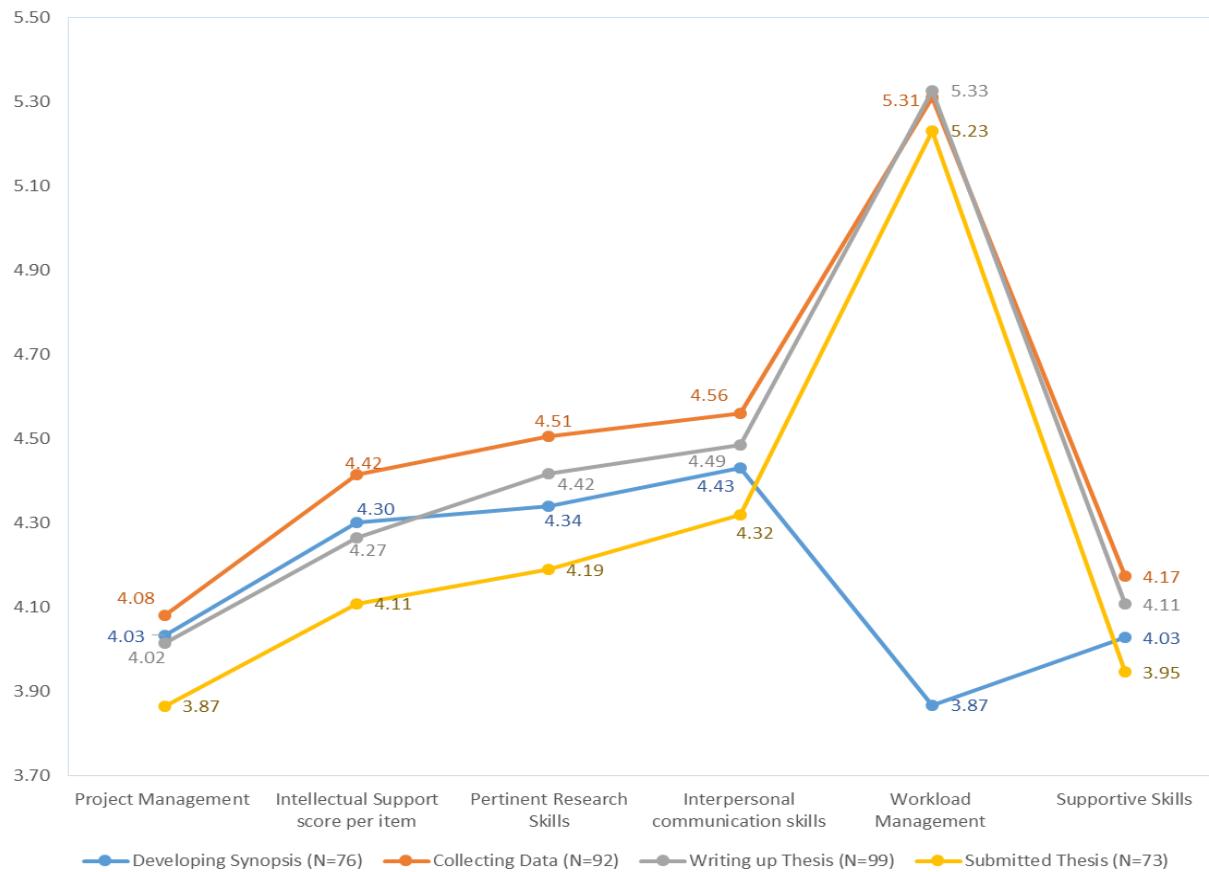
Figure 1: Stage wise supervision experiences of supervisees

Major Findings

- Similar Experiences of supervisees at synopsis development and thesis write up stage except the experiences regarding workload management (Stage 1= *Mean* 3.87 and Stage 3= *Mean 5*.35)
- The least satisfactory experiences of supervisees who had submitted their theses regarding supervision management and support system
- Least Satisfaction regarding supervision support at each stage of research journey

Conclusions

It seems that at the beginning of the research candidacy it has been taken for granted that students have already taken the courses of advance research methods so it has been perceived that they know how to develop their ideas into researchable topics and how to conduct their research in manageable way.

Considering the research supervision as static entity results in late submission, struckness or drop out from the economically and intellectually highly invested degree programmes.

Beliefs on Accounting and Mathematics

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Abstract
The notion that significant accounting and marketing advances are closely interwoven is not particularly new. To analyse the current state of interaction between accounting and the marketing and to relate the trends to the historical development of business is an intellectual discipline. There is an enduring argue who ought to teach mathematics and in what manner this mathematics ought to be educated. The acquaintance grew in mathematics passage is used in another passage. Beliefs that undergraduates have about mathematics pointedly stimulus on their scholarship. We investigated gender differences of beliefs about mathematics coming from vocational school in business driver. The results exposed helpful beliefs about mathematics in their homework driver but be situated not confident where this acquaintance will be castoff well along. Still, they don't agree with the discernment of mathematics as presence stimulating castigation.

In this homework, it is examined gender differences in accounting and mathematics belief among university undergraduates. Participants be situated 76 undergraduates from accounting and task department of Kocaeli vocational school in Kocaeli university and 88 undergraduates from accounting and task department of social science vocational school in Gümüşhane university and so, totally 164 undergraduates (95 female and 69 male), all of whom completed measures of belief questionnaire.

Keywords: accounting, beliefs, knowledge, mathematics, vocational school

Introduction

In financial accounting, mathematical models as a methodology are the most popular parts of this area during the last years. Badly-behaved of statement flanked by proficient accounting, mathematics and undergraduates who homework in non-mathematics homework drivers often epitomizes a complication in grasping the question stock (Matic, l., j., 2014; Flegg at al., 2012). Accounting and mathematics do not work only for accountant and arithmeticians as a source of scientific theory and a badly-behaved-explaining means. It is closely mingled per art, where it has abundant bids (Ernes, 2003). These authors pointed out that we, as the coaches of mathematics, have to to be cognizant of the importance of mathematics in art, societal and money matters department drivers to be able to apropos-strategy the training of mathematics to undergraduates. Also, they added that we ought to be sentient about undergraduates' brashness and beliefs about mathematics and we ought to come to be an intuition into the knowledge. We need use two words that beliefs and attitudes, when describing someone's thoughts and verdicts based on his observations and experiences. We note a critical approach that some affection an insolence as assembly of beliefs even though others pigeonhole a credence as one factor of insolence (Matic, l., j., 2014).

He stayed that there are many educational studies that undergraduates' beliefs round mathematics and mathematics scholarship have been a generally shared in last years. Furinghetti and Pehkonen (2002) defined beliefs as "personage's idiosyncratic acquaintance and presented depiction on the understanding of mathematics as a assortment of acquaintance, beliefs, origins, attitudes, and feelings". He stayed that this definition has different gears: credence round mathematics, belief about mathematics teaching, belief about mathematics learning and finally, credence round mathematics learner (Matic, L., J., 2014; Görentaş And Yıldız, 1999).

Methodology

We have studied learners' beliefs about accounting and mathematics in all-purpose and to undeveloped mathematics passages engaged. Our core unbiased was to see if there are kindred flanked by these beliefs and their genders (Matic, L., J., 2014).

Participants: the applicants in this homework be situated 76 undergraduates from accounting and task department of Kocaeli vocational school in Kocaeli university and 88 undergraduates from accounting and task department of social science vocational school in Gümüşhane university and so, totally 164 undergraduates (95 female and 69 male). The undergraduates be situated surveyed using feedback form that be situated run already the keep fit trainings in the basic mathematics passage. The feedback form be situated not pre-broadcasted, so applicants be situated those undergraduates who came to the keep fit trainings. The basic mathematic passage contains elementary subjects as that numbers, operations, equation, functions with special functions, basic geometry by little emphasize the theoretical aspect and much concentration to algorithm and algebraic operations (Matic, L., J., 2014).

Questionnaire: the undergraduates be situated questioned correspondingly to re-join to roughly belief's interrogations, prearranged on *a 4-point likert-type scale, ranging from 1 = strongly disagree, 2 = disagree, 3 = agree to 4 = strongly agree* (table 1). The questions expected to reveal their beliefs about mathematics and the application of mathematics in the time out of the homeworking driver. The nonaligned possibility was mislaid because of that we desired the undergraduate to yield a position.

Findings

The interrogations designed at sensational undergraduates' beliefs for accounting, mathematics and the bid of accounting and mathematics in the time out of their homeworking driver (Matic, L., J., 2014). The nonaligned possibility was mislaid then we desired the undergraduate to yield a position. The announcements from the feedback form and the grades of the undergraduates' rejoinders are offered in table 1. A more share of the masculine undergraduates agreed with the announcements 1, 2, and 3 than the share of male undergraduates. The proportion for the announcement 6 was the same. This means that significant share of undergraduates from both genders well-thought-out that mathematics was central for female and male undergraduates, with 81% of female undergraduates and 73% of male undergraduates who approved with this announcement.

The two genders of undergraduates diverged- added than half of female undergraduates approved while more than half of male undergraduates be injurious to with individuals' announcements in the announcements 4, 5, and 7. 52% of female undergraduate well-thought-out mathematics as "stimulating", even though 56% of male undergraduates be injurious to per that. When it emanates to basic math passages taken, 59% of masculine undergraduates considered that basic math passages be situated "interesting", while 57% of male undergraduates be injurious to with this announcement. 48% of female undergraduates sued that they maxim the bid of "function" in the time out of their homework driver, related to 50% of male undergraduates who be injurious to with it. At the neck and neck of 0.05, a substantial modification was initiate flanked by the female and male undergraduates in announcement 4 (p < 0.02) and statement 5 (p = 0.03), what deep-rooted that there be real noteworthy modification flanked by individuals two genders of undergraduates (Matic, L., J., 2014).

Table 1. Responses to the belief's statements: percentages, mean, standard deviation

Statements:	Gender	Stdis. %	Dis %	Agr. %	Stagr. %	Mn	Sd
1. Everyone who studies social and economic driver ought to Have knowledge of basic mathematical disciplines.	F	5	9	79	71	3.32	0.68
	M	13	17	76	58	3.07	0.69
2. Mathematics is a necessary part of social and economic driver.	F	15	22	82	45	3.03	0.84
	M	21	46	69	28	2.77	0.90
3. It is important to me not just to be able to solve a bsdly-behaved, But also, to understand the mathematics behind it.	F	10	26	85	43	3.05	0.77
	M	14	52	66	32	2.78	0.81
4. Mathematics is an exciting subject in general.	F	22	58	74	10	2.56	0.85
	m	33	74	51	6	2.08	0.78
	f	14	58	70	22	2.68	0.73
5. Basic math passages be situated interesting to me beyond the fact that i had them as a part of my homework driver.	M	30	72	51	8	2.25	0.90
6. I think equations have applications in the rest of my homework driver.	F	15	50	68	37	2.65	1.82
	M	23	54	58	29	2.52	182
7. I think functions have applications in the rest of my homework driver.	F	30	46	52	36	2.52	1.98
	M	35	61	40	28	2.43	1.91

F= female, male, mn = mean, sd = standard deviation, stdis= strongly disagree, dis=disagree, agr=agree, stagr = strongly agree

Results

The findings exposed that the female undergraduates saw mathematics as an "central" slice of their homework driver and well-thought-out that everyone who scholarships in female homework driver ought to enjoy undeveloped scientific acquaintance. They decidedly "treasured" a thoughtful of scientific perceptions, not one a routine of practice, but this was not utterly buttressed with grades in the mathematics questions. They found mathematics passages "interesting", and they think that basic math concepts will be used in the "rest" of their homework driver, what signposts that the rapport flanked by mathematics and female was evident to them at the second year of their driver (Matic, L., J., 2014).

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Can "Stress Management Groups" Be Successful In Managing Organizational Communication and Conflict Problems?

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Abstract

Stress management groups can be applied to businesses such as quality control groups. Stress management in businesses is as important as quality management at least. The purpose of this study is to question the possibility of establishing and implementing stress management groups in businesses. The study also questions the applicability of stress management groups in conflict management. In the study, the relations between the concepts were questioned by using literature review. Stress must be managed because it is inevitable. A problem can be defined as the perceived difference between a desired and current state of reality. If the problems are not identified and solved, there is a risk that the company becomes too inefficient and suffers too high costs in order to be able to successfully manage any potential future changes. Organizational problems are a result of the often poor time management and reluctance towards delegation. In the general management area, the some commonly encountered problems are planning, difficulties managing growth, and a lack of previous management experience. The significant human resource management problems are development through vocational education development and recruitment. Such problems can lead to increased interpersonal conflicts and communication problems in the organization. The creation of stress management groups has positive effects on organizational problems and managing conflicts. Conflict is also unavoidable in organizations and must be managed for this reason. Communication occurs when a receiver understand a subject in the same way as the sender. Stress management groups can facilitate conflicting parties to understand each other and can be applied to organizations as an alternative method.

Introduction

"Conflict is the gadfly of thought. It stirs us to observation and memory. It instigates to invention. It shocks us out of sheeplike passivity, and sets us at noting and contriving." (John Dewey)

In business world, communication is necessary for conducting business in an efficient manner. Any business involves two types of communication: external communication that is directed to the actors in the business environment, and internal communication or organizational communication that is directed to employees. In addition, it is not possible to imagine organizational communication without conflicts. Conflicts are normal in any organization, because people have different opinions, while some individuals cannot accept other people's different opinions. It is dangerous for an organization to have too many conflicts, as well as not to have any conflicts at all. Sometimes, conflicts can be useful, as they help to make correct decision, although they might represent a huge obstacle to an organization and its business (Spaho, 2013).

Conflict occurs between people in all kinds of human relationships and in all social settings. It is an organizational reality everyone faced when working with others. Due to the wide range of potential differences among people (which could be cultural, ethical, educational etc), the absence of conflict usually signals the absence of meaningful interaction (Boateng, 2014). It has been proposed to promote conflict in organizations. Because any organization that is harmonious, peaceful, calm or cooperative, tends to be unresponsive to stagnation and change. In order to increase creativity, there is a need to promote a level of conflict in organizations (De Dreu & Van de Vliert, 1997).

Organizational Communication

Communication is transfer of information from sender to receiver, implying that the receiver understands the message. Communication is also sending and receiving of messages by means of symbols. In this context, organizational communication is a key element of organizational climate (Drenth et al, 1998). Organizational communication is the process by which individuals stimulate meaning in the minds of other individuals by means of verbal or nonverbal messages. For efficient communication, it is necessary that the receiver understands the meaning of the message and indicates it to the sender through some expected reactions (Spaho, 2013: 104).

Each organization must enable communication in several directions: downward communication, upward communication, horizontal communication, and diagonal communication. Downward communication flows from top management to employees. This type of communication is characteristic for companies with an authoritative

style of management. Upward communication flows from employees to top management. The main task of this communication is to inform top management of the situation on the lower levels. It is the best way for top management to analyze the efficiency of downward communication and organizational communication in general. Horizontal communication flows between employees and departments, which are on the same organizational level. It enables coordination and integration of activities of departments, engaged in relatively independent tasks. Diagonal communication flows between people, which are not on the same organizational level and are not in a direct relationship in the organizational hierarchy. This type of communication is rarely used – usually in situations when it supplements other types of communication. Diagonal communication is used, e.g. as labor unions organize direct meetings between employees and top management, avoiding the first line and middle level managers (Miljković & Rijavec, 2008).

Conflıct Management

Three different views on conflict have evolved over time, interactionism, traditional (the belief that conflict is disruptive and must be avoided) and resolution focused view (Robbins & Judge, 2011). One of them, the advocates of the solution-oriented view, has the idea that conflict is inevitable, but focusing on productive conflict resolution is necessary. Conflict could be functional but in other instances, it is rather not productive. Conflicts cost organizations lots of time (Peterson & Behfar, 2003) as a result of interaction with customers and focusing on group members, produce stress leave painful feelings and reduces trust and respect (Boateng, 2014).

Conflict can have positive and negative effects on the organization (Spaho, 2013):
• Positive effects initiate necessary social changes, developing of creative ideas and innovations, presenting important problems, making quality decisions and solving problems, organization re-engineering, developing solidarity and group cohesion.
• Negative effects are similar to bad cooperation, as they waste time that can be used in a more productive manner.

Quality Circles

Quality Circle is a small group of 6 to 12 employee doing similar work who voluntarily meet together on a regular basis to identify improvements in their respective work areas. Quality Circle is a people – building philosophy, which provides self motivation and improves work environment. The objectives of Quality Circles are multifaced – Change in attitude; self development; development of team spirit, improvement in organizational culture. The launching of Quality Circles involves the following steps (Welekar & Kulkarni, 2013):
• Expose middle level executives to the concept.
• Explain the concept to the employees and invite them to volunteer as members of Quality Circles.
• Nominate senior officers as facilitators.
• Form a steering committee.
• Arrange trainings
• A meeting should be fixed preferably one hour a week for the Quality Circle to meet.
• Formally inaugurate the circle.
• Arrange necessary facilities for the Quality Circle meeting and its operation.

Once a QC is formed, it has to pass through the following distinct phases of development (Welekar & Kulkarni, 2013):
• Problem to be identified analyzed and solved.
• Solutions to be implemented in due time.
• Monitoring to be carried out.
• Higher management to encourage QCs to innovate Problem solving methods.

Stress Management

The people who enter the organization with the family are born in the nature, the necessity and the need for social life live in various organizations. However, these organizations cannot always respond to all the needs of individuals and their expectations from the organization may not be realized. In organizations, individuals suffer from distress and anxiety from time to time due to some reasons arising from themselves and their environment. The physical, social and psychological conditions of the working conditions in organizations that take an important part of human life affect the health of the individual and cause stress in the individual (Yıldırım et al., 2011). In today's modern societies, stress has become a major health problem for people who spend most of their lives in business life. For this reason, the distinction between work stress and non-work stress remains quite artificial. It is almost impossible to separate these two (Can, 1999). The physical, social and psychological conditions of the working conditions in organizations that take an important part of human life affect the health of the individual and cause stress in the individual (Koç, 1994).

The concept of stress comes from the Latin word "estrica" and the French word "estrece". Stress is the reaction of the organism against all kinds of changes (Baltaş & Baltaş, 1999). Stress occurs when the organism's needs exceed the organism's resources (Ekmekçi, 2008). Excessive stress can be fatal. Because in this case, the individual consumes excess energy and is exhausted (Zoraloğlu, 1998). As the intensity and level of stress increase excessively, exhaustion in the individual will occur and a rapid decrease in productivity may occur. Stress of the individual causes organizational stress. Therefore, as the problems of the organization affect people, the problems of the people working in the organization also affect the organization (Güler et al., 2001). Coping with stress; it is defined as the cognitive and behavioral efforts that individuals develop when they encounter stressful situations (Türküm, 1999).

Stress Management Groups
Stress management groups were developed based on example of quality control groups. In addition quality control groups, it aims to solve internal communication problems. Another difference is to address the emotional aspects of every problem. The emotional direction in problem solving in quality control groups is neglected. However, the emotional side of problem solving is intense. Because problems make feel psychologically bad.

Team Motivation
In order to carry out team work successfully in organizations, the organizational climate should be at a positive level. There should also be motivation for working together. Traditional management approaches are replaced by a democratic, participatory and human-based understanding of management. The organizations that add their employees to the management are more successful nowadays. Teamwork is one of the most effective ways to enable employees to participate in management. The team is defined as a group of few people with complementary skills. Team members have common goals, performance goals and common approaches that they can consider to be mutually responsible. A further definition for the team concept is: A working group of very few people who have a common purpose, performance goals and an approach that their members are responsible to each other and have complementary capabilities. (Katzenbach & Smith, 1998). The concepts of team and teamwork represent the desire for participation, harmony and cooperation. Groups can often be labeled as teams. This is because these people hope that they will work well together. However, not every group working together will be a team. The team is not simply a group of people connected to a group and working in the same environment. In teams, members take their decisions and actions in collaboration with team members, using their resources and information to focus on the same common goal (Satman & Duyan, 2012: p.2).

The concept of motivation in a definition; it is considered as the force affecting the frequency, continuity and direction of the person's behavior. Motivation; It aims to provide the willingness, efficiency and effective work of the employees and to create the desire and desire of the employees to achieve business. Positive or negative organizational climate is effective on motivation within the organization (Gök, 2009: pp.589-592).

Organizational Climate
Organizational climate is one of the main issues that have been used frequently in the management and organization field in recent years. The psychological and sociological structure of organizational life is the two basic points that make up the organizational climate. Organizational climate is determined as the result of basic activities such as supporting employees in organizational life, establishing healthy friendship relations, taking risks together and motivating them. The creation of a positive climate is even more important in organizations where teamwork is critical. In this way, it is possible to eliminate the rumors that the managers complain about. In short, the organizational climate is the working environment of the organization perceived by the employees. It is important to have a healthy communication within the organization, to realize an effective management and to make the right decisions. In institutions where communication is strong, there is a high level of openness, mutual understanding and trust among the members. On the other hand, there are insecurity, suspicion and confidentiality in the institutions that have disconnected communication. The perception of climate in such institutions is also negative (Akbulut & Kutlu, 2016). Organizational climate is used in relation to general air and emotions in an organization and is generally composed of employees' behaviors and relationships. Because the organizational climate refers to the working environment that the employees in an organization have created directly or indirectly in the institution. In this sense, the organizational climate cannot be seen and handled, but it can be felt or perceived. The purpose of the widespread study of the organizational climate is the influence of organizational climate on organizational behavior. Organizational climate can be defined as the feelings and perceptions that people feel in their organizations in the most general sense. Six dimensions were determined in relation to the organizational climate (Yılmaz & Altınkurt, 2013):
1) Supportive and facilitating behaviors of the leader,
2) Cooperation, sincerity and warmth of the working group,

3) Conflict and uncertainty,
4) Professional and organizational spirit,
5) Importance, diversity and attractiveness of the work,
6) Mutual trust emotion.

Conclusion

Stress management groups can be applied in organizations such as quality control groups. Stress management in organizations is as important as quality management. It is possible to establish and apply stress management groups in organizations. Stress management groups can also be applied in conflict management. The creation of stress management groups has positive effects on the management of organizational problems and conflicts. Conflict is a reality which is inevitable in organizations such as stress and therefore it is necessary to be managed. Stress management groups can make it easier for conflicting groups to understand each other and can be applied in organizations as an alternative method.

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Competition Or No-Competition: A Comparative Analysis Of Finnish And Pakistan/Traditional Education System

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Abstract

The traditional education system of Pakistan is facing the serious repercussions as compared to the Finnish education system, irrespective of the existence of competition or non-competition. Erudition is the most important asset which cannot be redundant or depleted even after decades. It is the dynamism and power of learning that creates the vision, infuse objectivity, strengthen national integration, and finally, ensures economic prosperity. However, Pakistani education system is lagging in accomplishing its MDGs, EFA, and Vision 2030. Furthermore, lack of strategic implementation, social restraints, gender gap, higher cost of education, and war against terror are some of the prevalent problems in Pakistani education system. Similarly, financial constraints, lack of training, unqualified instructors, and poor structure of public sector have drastically detonated the Pakistani education system. On the contrary, the Finnish education system is the best among the comity of the nation because of its standardized testing, fewer assignments, free education opportunities, reverence to teachers, and considering the less as more. However, provision of career counseling, transforming the education system at grass root level, and providing the equal and better quality of syllabus to all over Pakistan will help in improving the Pakistani education system. In addition, the education system of Pakistan can be ameliorated by providing professional training to teachers and offering more scholarship to needy and deserving students. In a nutshell, the Pakistani traditional education system is highly vulnerable as compared to the Finland education system, irrespective of the prevalence of competition. This research focused at comparative analysis between the Pakistani and Finish Education system. The main aim of the paper is to analyze the issues currently present in the Pakistani education structure and followed by the recommendations and improvement strategies.

Complexity Theory In Political Systems And International Relations

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Abstract

The world of politics and international relations experienced a benchmark event with the advent of artificial intelligence based Micro-targeting campaigns and worldwide data mining programs. Traditional political systems have begun to rapidly evolve into new forms of network societies and political organizations. Modern definitions, such as liberalism, democracy, and republicanism, find themselves challenged with an ever increasingly complex political system in which globalization and technological stress on traditional political values and concepts affect the viability of traditional political systems. In 2008, Big Data had significantly influenced the United States presidential elections, and by 2012 and 2016, political election campaigns via online programming had become the international norm. Such a new political environment evokes a distinctly new approach by which political systems may be assessed. This paper will discuss the nature and strength of complexity theory and its applications in contemporary political systems, examining the methodology and the causes of the successes or failures of sociopolitical systems in an evolving environment. By doing so, this thesis aims to address the current and future utility of complexity theory and assert that this perspective may dramatically change the ways that politics and political science will be taught in future classrooms and curriculums.

Complex Systems

As Neil Harrison points out in his book, *Complexity in World Politics*, a complex system is commonly described as more than the sum of its parts. That is, properties of the system are emergent, created by the interaction of the units. The basic unit of any social group is the individual. In biological terms, the human body is a system; socially, each human is an essential unit within several systems, and any social group, including the state, is an emergent system. Social and political institutions emerge from the interaction of individual humans and human groups. (Hughes, 2007)

Groups may be local or national; they may be loose knit coalitions or adhesive groups of fervent followers, and may be more or less centrally organized. Out of the interactions among this mélange of groups and individuals emerges the set of institutions, people, and practices that scholars call the "state." The state is not a closed system: it is open to other natural and social systems. For example, defined as a political system, it is open to technological, cultural, and economic systems that influence political choices and processes. The state also is open to other states and, as constructivism argues, is influenced by interactions with them. Although the state is evidently an open system, theories of world politics conventionally assume that all systems are closed to their environment much as optimal natural science experiments are controlled and isolated from unwanted external influences. Despite occasional attempts to bring in domestic politics, the state is usually modeled as a unit with exogenous identity and objective interests. This greatly reduces the range of possible causal explanations for any perceived social event, simplifying causal analysis and hypothesis generation and testing. (Harrison, 2006)

The uncertainty of complex social systems calls into question conventional world politics assumptions about causation. Conventional world politics theories presume that causation is proximate and proportionate. Like most of social science, they have adopted Hume's rules for causal explanations. These rules require that the cause can be shown to precede the effect, that cause and effect are contiguous and that there is a "necessary connection" between events such that this cause can be shown to always precede this effect under consistent conditions. First, they only apply in closed systems in which conditions can be controlled. But if social systems are open, it is unlikely that conditions will remain constant or be comparable between different states of affairs. (Harrison, 2006)

In a complex system, many factors symbiotically cause an effect. Theorists should look to the evolution of the system, not to individual events, for causes of observed effects. To intervene effectively in complex systems requires, first, that policymakers recognize the inherent uncertainties in their understanding of both the system and the effects of our interventions therein. Second, policy must seek out points of leverage that may be well hidden. Complex systems in world politics demand policy caution. Brian Arthur suggests that when intervening in complex systems "you want to keep as many options open as possible. You go for viability, something that's workable, rather than what's

"optimal" . . . because optimization isn't well defined anymore. What you're trying to do is maximize robustness, or survivability, in the face of an ill-defined future. And that, in turn, puts a premium on becoming aware of nonlinear relationships and causal pathways as best we can. You observe the world very, very carefully, and you don't expect circumstances to last." Because complex systems are counterintuitive, good policy requires thinking broadly about problems and finding leverage points for intervention. (Harrison, 2006)

In complex systems, problems are unclear, solutions have uncertain effects, and points of leverage are never simple. But complex systems can be pushed and prodded, and changed; yet, caution is required and instruments are imprecise. Because institutions and social systems are influenced by human perceptions of the world and how it works, dethroning the rational choice paradigm is the best way for scholars to positively influence world politics. But policy under complexity opens many other avenues of research, and the benefits are likely to be great. The complexity paradigm offers a novel perspective on world politics at all levels that will generate new theories and models of issue-areas. It also encourages innovative methods for understanding political reality and advising policymakers. This paradigm can increase our understanding of the complexity of world politics and reduce the probability of surprising events. (Harrison, 2006)

Artificial Intelligence
Up to this point, I have summarized the position taken by Neil Harrison, as he has explained the problems with complexity theory in politics. Now I will address the question whether artificial intelligence can be used to solve some of these problems. If we assume that complexity theory should be employed in international politics, then, how can we harness the power of Artificial Intelligence to assist with complexity theory.

There are three Major Branches of AI
1. Learning system: Computer changes how it functions or reacts to situations based on feedback
2. Natural language processing: Computers understand and react to statements and commands made in a "natural" language, such as English
3. Neural network : Computer system that can act like or simulate the functioning of the human brain.
I will be addressing the third network. We can program artificial neural networks to create complexity theory models.By utilizing machine learning concepts, we can achieve a synergy by which we can utilize artificial intelligence to bolster and create better predictive models to create better policy.

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.

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. Deep learning, or stacked neural networks, is a substantial part of artificial intelligence, is the technology of creating a computational human brain. To achieve this, multiple algorithms are intertwined and designed into neural combinations, with a prime goal of pattern conception, as seen in Figure 1. The network attempts to simulate the construction of a human neural network found in the human brain. A well-structured neural network is capable of 'clustering and classifying' data. Furthermore, through enough data circulation, or 'training,' the neural network may develop abstract concepts that allow it to adapt to a wide variety of circumstances.

Figure 1.
Retrieved from: https://hackernoon.com/log-analytics-with-deep-learning-and-machine-learning-20a1891ff70e

As mentioned, deep learning is another term for 'stacked neural networks,' or systems that consist of several layers. The layers are formed from nodes, a computation tool that does what the neuron does in the human brain: recognize and transmit stimuli. Furthermore, a node is responsible for weighing the stimuli's value, assigning significance to the input data. (McCarthy 2007)

In a deep learning model, multiple layers – including the input, the hidden, and the output layers – formed with nodes coexist and work together to achieve the convoluted process of pattern recognition. In a network, each layer trains on different features based on the function. This setting is called a feature hierarchy, or a hierarchy of increasing intricacy and abstraction. A more complete the hierarchy is, the 'deeper' the neural network may understand data. After it is programmed, a neural network undergoes multiple training and tests, in which the layers process various data and develop not only intelligence but also intuition and comprehensive classification of information. Therefore, a substantial database and training may shape a neural network that indeed parallels the human brain in intellect. (McCarthy 2007)
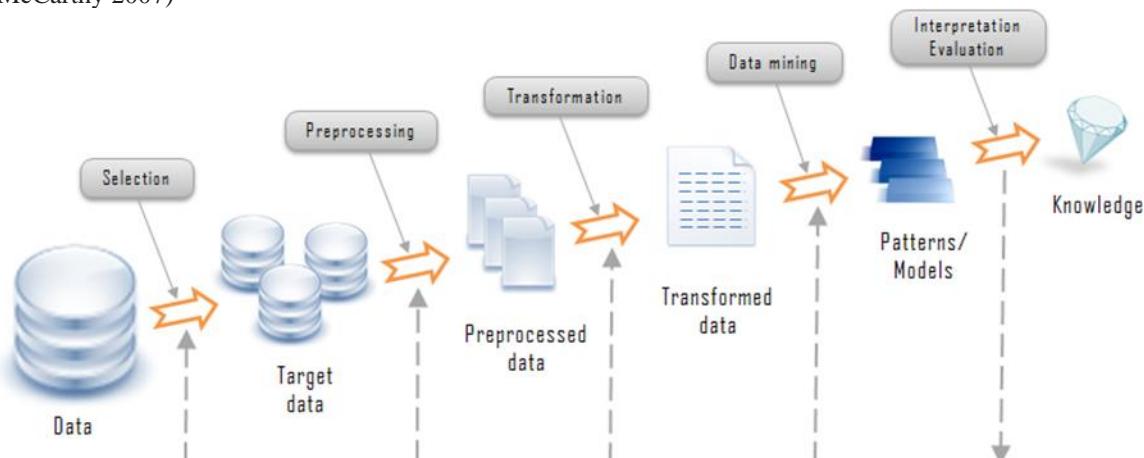
Figure 2.
(Retrieved from http://www.zentut.com/data-mining/what-is-data-mining/)

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 1).

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. (McCarthy 2007)

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. (Luckin, 2016)

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. (Luckin, 2016)

It takes several years to train an effective human teacher or tutor. In addition, it costs financial resources to train such instructors. However, once a AI system is programed with significant efficiency in teaching a subject, that program can be digitally reproduced within a matter of seconds without any more cost than the memory space on a hard drive. The expertise and skill will be ingrained in the AI system and can be updated with new data and information almost instantly and simultaneously. The AI system will not be subject to the vicissitudes of human existence nor the inevitable individual emotional states that affect teaching. The AI system will, furthermore, be available anytime and at anyplace.

The AI industry and AI programming are still in its infancy, and still its cottage industry stage of development. There are individuals working on programs and systems and conduct experiments with prototypes. However, this state is usually the furthest point of development as large commercial interests have not taken up the mantel and invested into the necessary steps for development of a truly efficient application. Therefore, there is currently no central or overarching control mechanism to coordinate or collaborate different stakeholders and participants. (Luckin, R.et.al. 2016)

Conclusion
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 Complexity theory 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 AI may move and entertain its creator by helping the creator create better policy.

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Congruence, Difficulty, Cost, And Importance Of Cooperative Learning In Teaching English As A Foreign Language

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Abstract

This presentation provides an overview of the dynamics and procedures of the various major cooperative learning approaches, explicates the rationale for using them in teaching English as a foreign language (EFL), and concludes with a discussion of the challenges of implementation based on empirical evidence from a mixed-methods study into teachers' perceptions of the problems and prospects of using cooperative in their classes. The approaches covered in this presentation span the concrete structural approach of Kagan (1985) as well the more conceptual Student Team Learning (Slavin, 1995), Learning Together (1999), and Group Investigation approaches (Sharan and Sharan, 1992). The presentation employs contemporary thoughts, principles, and priorities of ESL/EFL language teaching and learning as a theoretical framework to examine the cooperative learning approaches. In addition, we discuss the challenges of implementation based on the results of a semantic differential scale and content analysis of journals kept by 18 in-service teachers to record their perceptions of the congruence, cost, difficulty, and importance of using cooperative learning as well as to express their views regarding the problems and prospects of implementation in their respective classrooms.

Constructing The Measurement Of Efl Students' Core Competencies Practices in Learning Activities

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Absract

The study aims to develop an instrument of English students' core competencies practices in learning processThe development used qualitative and quantitative method in deferent steps and analysis. Sixth steps were applied in the instrument constructions; they were literature studies; defining constructs and sub-constructs; constructing indicators; assessing and judging indicators; defining face validity, confirming content validity, consistency testing and confirming constructs validity. The result came out with three main constructs; soft skills, hard skills and academic character. Soft skills classified into six sub-constructs with 45 indicators. Hard skill was classified into 10 indicators with no classification into sub-construct. While academic character classified into seven sub-constructs with 41 indicators. The instrument suggested to be used to monitor students' practices of Core Competencies in learning activities at Universities. Furthermore, the instrument were developed by refereeing to current literature from some countries, it is expected that the instruments and the method of its' development contribute to area of students' and graduates' core competencies.

Criticism Questioning Strategy For Critical Thinking

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Abstract

This study adopted 30 students enrolled design studio subject, a combination of Media and Creative Studies and Journalism in Chinese programme students from the second year of the respective degree programs using Hamblen's model art criticism approach in design studio course at a higher learning institution. This research employed the quasi-experimental design, a single-group interrupted time series-design to measure the students' academic achievement. The data collection involved two instruments, mainly teaching module and five set questions of the test. The objective was to determine students' academic achievements. The statistical procedure namely descriptive statistics was used to measure means and standard deviations; and inferential statistics, Repeated ANOVA was used to measure the differences in five set questions of test scores and lessons (studio art productions) scores of students across of time spent in the 14 weeks were employed. From the findings it can be concluded all the 30 students tested have revealed a reasonable amount of developmental progression in their tests, whereas for lessons (studio art productions) scores, students were able to make criticism or critical judgment of their artwork by adapting a good understanding. The effectiveness of Hamblen's model displayed students' good understanding of art criticism in their tests and lessons (studio art productions), evidently showed there was substantial increase in terms of students' critical thinking.
Keywords: *Hamblen's Model, Criticism questioning, Inquiry to art appreciation, Critical thinking*

Introduction

In this digital era, art criticism (inquiry to art appreciation) found to be neglected by many art schools, colleges or universities, although artistic knowledge is found to be the primary component apart from studio art production in most art curriculums. The lack of concern towards teaching of art criticism at almost all levels of art programs, therefore art criticism must be given consideration and importance in the process of teaching and learning of art education. Most of the times, students do not know what to say, how to go about it, or they are fearful of making the wrong judgments. This is because majority of art students are only keen in making studio art production and might only have little or dull way of writing their critical judgment (Harrinni Md Noor & Zarina Samsudin, 2016; Ali Nouri & Soheila Farsi, 2018). Looking at the teaching perspective, art educators having difficulty to include cognitive learning in their art and design subjects because most students are thinking that skillful in making studio art production is the primary component in learning. However, the integration of two components, namely artistic knowledge and mastery of skill enables students to reach their ability in art. One approach that commonly can be used is teaching them art criticism in the classroom. Researchers, Burton, Horowitz, and Abeles (1999), (2000); Housen, (2001); King (1990), (1992), (1994), (1995), (2002); King, Staffieri, and Adelgais (1998); Lampert (2006a) found that, the inquiry-based classroom activities for students should involve problem-solving and answering questions that have a few possible resolutions (as cited in Lampert, 2011). These kinds of activities can develop and stimulate thinking skills in students. By applying strategies in learning, students are not only being taught to make art criticism in a correct way, but also stimulate their critical thinking (Murawski, 2014).

Many scholars such as Ennis (2002); Jones et al. (1995); Paul et al. (1997) and Perry (1999) described that, critical thinking skills are mostly studied in art programms because it is the needed outcome of an educational activity. The construct of critical thinking is actually a reflective thinking that has many possible resolutions. On the other hand, Astin (1993); Ewell (1994); King (1990), (1992), (1994), (1995), (2002); King et al. (1998) and Tsui (2002) mentioned that, critical thinking is art education and in general education are found to be open-ended and inquiry based teaching process to nurture students' critical thinking. Hence, Amabile (1996); Barrett (1997); Burton et al. (1999), (2000); Cole et al. (1999); Cromwell (1994); Danko-McGhee and Slutsky (2007); Dorn (1999); Eisner (1998); Geahigan (1997); Housen (2001); Hurwitz and Day (2007); Lampert (2006a), (2006b), (2011); Mahoney (2015) Rolling (2013); Stewart (1997) and Stout (1999) explained that art education programmes comprises of a good deal of theoretical on how inquiry-based learning that are often used both in elementary and higher education art classrooms.

Research Objectives

The objectives of this research are:

(a) To quantify the scores concerning of students' achievement levels in the design studio subject;

(b) To measure the differences in five set questions of tests mean scores of students across of time spent in the 14 weeks;

(c) To measure the differences in lesson (studio art production) mean scores of students across of time spent in the 14 weeks; and

(d) To determine the effectiveness of Hamblen's model in criticism questioning strategy for critical thinking.

Literature Review

(a) The Concept of Art Criticism (Inquiry to Art Appreciation) Approach in Art Education

Numerous art educators have propositioned art criticism as an essential foundation of content if art programs of instruction are to make substantial enhancements. The art criticism studies directed toward making of criticism of an art object by giving clues for identification of sources of contents, goals and activities to be used in curriculum instruction. The study of art criticism (inquiry to art appreciation) approach is an important component in art education, an outcome for self-expression. Hamblen (1987) affirmed that criticism and evaluation of an artwork is fundamental, a crucial role of art appreciation. Art criticism highlights the significance and meaning of an artwork concerning with art in the contemporary context either in the form or spoken or written (Greer, 1984). As well as Smith (1973) and Taunton (1983) described that art criticism is an exploration of procedures on looking and concepts of what to look for the purpose of discovery in contrast to artistic meaning.

Through an analysis of an artwork, it increases aesthetic perception and appreciation, which depends on feelings and intuition for other human beings and at the same time it supports humanity (Jones, 2008). Observations and understanding a work of art usually encompasses both aesthetics and art criticism. Stankiewicz (1985) established that criticism or appreciation towards the aesthetic qualities of art is the fundamental goal in any visual imagery study. Dewey (1934/1980/2005) found that art is an activity and it is purely influenced by human experience. The differences between recognition and aesthetic perception towards an art object is that recognition of an art object is to interact with purely cognition. The process of aesthetic perception involves both cognitive and self-expression through imaginative communication of an aesthetic response, hence develops toward an aesthetic education. Furthermore, Munro (1956) established that the understanding and enjoying a work of art can be achieved through an aesthetic experience of viewing and engaging with artworks which knowledge is gained through an historical analysis of the artworks.

On the other hand, Feldman (1967) emphasized the significance of art criticism language when talking about an artwork. The writer established that, making criticism and critical talk is very essential, which all art educators must work endlessly in developing students' critical skills. Furthermore, Feldman claimed that art critic, as model is important to art education programmes since educators in the art field are involved in art criticism (inquiry to art appreciation) through studio art instruction. Feldman in the process of making criticism, the instruction involves description, analysis, interpretation and evaluation. Art criticism in Feldman's opinion, it is an activity that uses a wide range of critical categories for an art talk. In the classroom setting, the purpose of the art talk and the nature of the students' experience is persuaded by the art educators' needed goal, whereby the studio art instruction is intended to facilitate students in producing an artwork and to assist them in developing more sensitivity towards their aesthetic responses to art. Similarly, Barrett (2011) in approaching art criticism, the art educator identified four dimensions, and they are describing, interpreting, judging, and theorizing about an artwork. Among the four stages, interpretation found to be most important and multifaceted dimension for making criticism. Although it is interwoven with the other three dimensions, interpretation of the meaning of an artwork is the principal relevant to making criticism. Hence, the only way of understanding an artwork is what Barret (2011) calls as repeated practice of art criticism.

A critical analysis happens through the internalized aesthetic response of a work of art, for educational purposes, art criticism is a verbal communication that involves responses and evaluation. Akin to Feldman, Ecker (1967) stressed that art educators must include criticism and aesthetics for a better understanding of judging a work of art as a vital activity in the classroom. Art criticism develops in the context of the critic who should rationalize aesthetic judgment. To justify an aesthetic judgment, making description about the art through art talk must carefully carry out and this must meet the test of referential sufficiency. The art educator identified that this as being "genuine" qualities, which are found in the art. Moreover, a critic that uses the genuine qualities in describing statements able to support judgment in making criticism of a work of art. As for Silverman (1979), the

writer differentiated aesthetic perception as unique phenomenological abilities and art criticism as desired background knowledge in terms of history, philosophies and its meanings or purposes.

Nevertheless, Mittler (1980, 1982) explained that, art criticism is a needful knowledge and actual evidence which can cultivate critical evaluative responses, that primarily dependent on the perceptual features of an art object. On the contrary, Johansen (1979) found that art criticism involved as a process theoretical knowing of art which appreciation included in qualitative of knowing. In spite of, both Mittler (1980, 1982) and Johansen (1979) discovered art criticism is an underlying basis for inquiry to art appreciation. As well as Anderson and Milbrandt (2005) emphasized that, the process of making criticism towards an artwork involves knowing of meaning and its significance. Humanities, values and understanding through the art at a greater level involves us to understand our own presence. Only through the process of making art criticism, students are able to use the language of art better (Ragans, 2000). This knowledge is needed for the purpose of understanding, criticism and creating studio art productions. Through the process of art criticism, it helps students' feelings and intuition skills while learning about artists and meanings of art. It also helps students to make interpretation and understand the messages. It does not explain its feelings similar like written or spoken communication, but it is representational of a feeling and how an observer perceived the art.

(b) Hamblen's Model (1984)
An aesthetician, Munro (1956) helped to form some kind of base in the early years that later art educators formed their work in teaching art criticism. The esthetician presented critical judgment concerning works of art that incorporated the steps of description, formal analysis and interpretation. Munro's strategy stimulated the student to perceive the work of art through various perspectives in order to achieve a better understanding of an art object. The process of criticism involves two significant activities, namely creative thinking to be able to produce good ideas and critical thinking for a good evaluation. This researcher's theory emphasizes in the area of criticism that comprises of making explanation and judgment of an artwork. These also incorporated discovery learning of Hamblen's model (1984) is the general goal of art education, which emphasis should be given to art criticism. However, using just a good model to critically is not sufficient enough, but there should be a specific guideline for instructional guidelines for art criticism that need to be implemented for critical knowledge (Culp, 2015) and problem solving (Nilson, Fetherston & Mc Murray, 2013). By formulating art criticism questioning strategy for students' to develop critical thinking, it promotes their interest in the development of analytical skills. For beginners, this process should be given a lot of thoughts so that student's interest can be sustained (Harrinni Md Noor & Zarina Samsudin, 2016).

Hamblen's model was developed using Bloom's taxonomy to be used for questioning strategy in art criticism, starting with knowledge, comprehension, application, analysis and evaluation (Hamblen, 1984). The writer developed the art critical model using two significant theories, namely Bloom and Feldman:

(a) Factual — The student identifies, remembers or explains evidence. The student recognizes the perceptual qualities and states ideas about the artwork.
(b) Analytical — The student identifies causes and reasons. The student analyzes information to reach a conclusion and analyzes conclusions to find evidence to support.
(c) Speculative — The student generates creative ideas and creates guesses about the artwork.
(d) Evaluative — The student judges the merit of the artwork, using the preceding criteria for assessment.

Research Methodology
This quantitative investigation employed quasi-experimental design using a single group interrupted time series design to measure this group of students' academic achievement by repeated measurements and observation. This research design used the closed-ended questions for both the teaching module and five set questions of test on design studio subject. A sample of 30 students *(N=30)* participated in this experimental design. The location of this study was in a private higher learning institution. The instrumentation used for the data collection procedure were teaching module and five set questions of test, namely pre-test (test 1), in-between-test (test 2), middle-test (test 3), in-between-test (test 4) and post-test (test 5). The reliability test was tested using Cronbach's Alpha (a measure of internal consistency and scale reliability), the test-retest questions completed by the students. The acceptable value of the test to be considered reliable in this investigation is .70 alpha and higher. The internal consistency reliability of the five sets questions of test is reported in the table below:

Table 1: Internal consistency reliability index for the test items
(five set questions of test)

Cronbach's Alpha	N of Items
.805	5

The five set questions of test items reported an internal consistency reliability index Cronbach's Alpha of .805 suggesting that the items have relatively high internal consistency, good set questions of the tests. In an effort to improve the validity and to minimize the potential for evaluator error and bias, this investigation used five different individuals to assess the students' five set questions of test and lessons (studio art productions), which all of them are the infield expertise of the design studio subject. The descriptive statistics made use of measures of central tendency such as means, measures of variances such standard deviations to determine the students' achievements in this research activity. Inferential statistics, namely repeated measures of ANOVA were also employed to make a comparison data from related groups or the same groups over a particular time.

Findings

RQ 1: What are the students' five set questions of test mean scores conducted for design studio course?

Table 2: Descriptive statistics of five set questions of test mean scores

	N	Mean	Std. Deviation
Pre-test (Test 1)	30	12.48	4.44
In-between-test (Test 2)	30	31.38	5.60
Middle-test (Test 3)	30	51.25	5.42
In-between-test (Test 4)	30	68.75	5.38
Post-test (Test 5)	30	89.19	4.97
Valid N (listwise)	30		

A descriptive statistics mean scores comparison between tests was conducted as demonstrated in Table 2. There were 32 (N=30) samples of student participated in this experiment. In the pre-test (test 1) the mean score is 12.48 (*SD*=4.44), however, there is good a improvement for in-between-test (test 2) with mean score of 31.38 (*SD*=5.60). In the middle-test the mean score is 51.25 (*SD*=5.42) better than pre-test (test 1) and in-between-test (test 2) mean scores. As for in-between-test again (test 4), the mean score is 68.75 (*SD*=5.38) which students performed better than pre-test (test 1), in-between-test (test 2) and middle-test (test 3). Finally, in the post-test (test 5), the mean score is 89.19 (*SD*=4.97) indicated students performed excellently in this test.

RQ 2: What are the lessons (studio art productions) mean scores?

Table 3: Descriptive statistics of lessons (studio art productions) mean scores

	N	Mean	Std. Deviation
Lesson 1	30	13.41	3.40
Lesson 4	30	30.97	4.21
Lesson 7	30	51.00	5.00
Lesson 10	30	68.56	5.34
Lesson 14	30	86.91	3.25
Valid N (listwise)	30		

A descriptive statistics mean scores comparison between lessons (studio art productions) was conducted as demonstrated in Table 3. There were 32 (N=30) samples of student participated in this experiment. In the lesson 1 the mean score is 13.41 (*SD*=3.40) but there is an improvement in lesson 4 with a mean score of 30.97 (*SD*=4.21). In lesson 7 the mean score is 51.00 (*SD*=5.00) better than lesson 1 and lesson 4 mean scores. As for lesson 10 the

mean score is 68.56 (*SD*=5.34) which students performed better than lesson 1, lesson 4 and lesson 7. In the lesson 14, the mean score is 86.91 (*SD*=3.25) indicates students performed excellently in their final lesson.

RQ 3: What is the mean scores of lessons (studio art productions) based on the four dimensions of Hamblen's model?
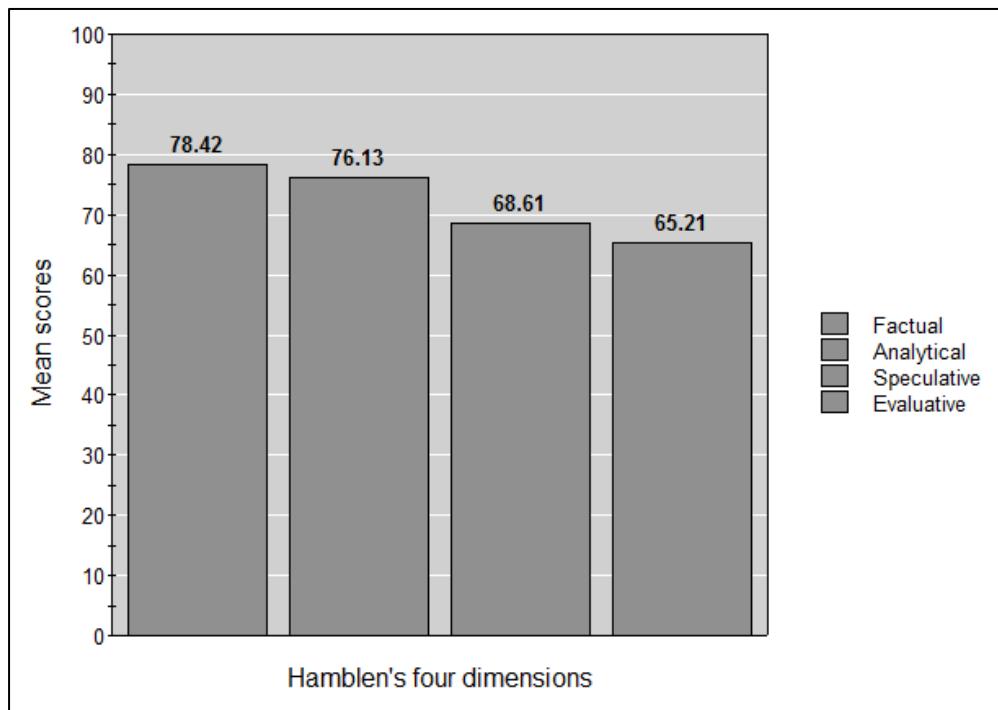
Figure 1: Mean scores of lessons (studio art productions) of the four dimensions of Hamblen's model

As illustrated in bar graph of Figure 1, the mean scores of lessons (studio art productions) based on the four dimensions of Hamblen's model. The bar graph showed that students have showed a considerable with even balance capability covering the four elements of Hamble's model. Nevertheless, upon closer investigation, the highest ability element is factual with a mean score of 78.4 scored by the students. On the contrary, it is found that students seemed to score very poor in the evaluative dimension with a mean score of 65.2. In the meantime, as for the other two dimensions, analytical and speculative, students scores showed mean scores of 76.1 and 68.6 respectively. Needless to mention, factual found to be the highest dimension which, students scored followed by the other three dimensions as shown in Figure 2. From the findings above, it can be concluded that students performed exceptionally well in the factual and analytical dimensions. In contrast, students seem to have not progress well in speculative and evaluative dimensions.

RQ 4: What are the differences in the five set questions of test mean scores by students across of time spent in the 14 weeks?

Table 4: Descriptive statistics for five set questions of test scores with statistics test for time 1, time 2, time 3, time 4 and time 5

Time period	Mean	Std. Deviation	N
Time 1 (Pre-intervention)	12.48	4.44	30
Time 2 (Post-intervention)	31.38	5.60	30
Time 3 (Post-intervention)	51.25	5.42	30
Time 4 (Post-intervention)	68.75	5.38	30
Time 5 (4-month follow-up)	89.19	4.97	30

Multivariate Tests[a]							
Effect		**Value**	**F**	**Hypothesis df**	**Error df**	**Sig.**	**Partial Eta Squared**
Time	Pillai's Trace	.996	189.357[b]	4.000	28.000	.002	.905
	Wilks' Lambda	.004	189.357[b]	4.000	28.000	.002	.905
	Hotelling's Trace	269.908	189.357[b]	4.000	28.000	.002	.905
	Roy's Largest Root	269.908	189.357[b]	4.000	28.000	.002	.905

a. Design: Intercept
 Within Subjects Design: Time
b. Exact statistic

A one-way repeated measures ANOVA was conducted to compare the five set questions of the test mean scores across of time spent in the 14 weeks with statistics test at Time 1 (pre-intervention), Time 2 (post-intervention), Time 3 (post-intervention), Time 4 (post-intervention) and Time 5 (4-month follow-up). The means and standard deviations are presented in Table 4. There was a significant effect for time [Wilks' Lambda=.004, F (4, 28)=189.36, p<.0005, multivariate partial squared=.905]. The results suggest that five set questions of test mean scores of students significantly increased over time. A plot summarizes the results (Figure 4).
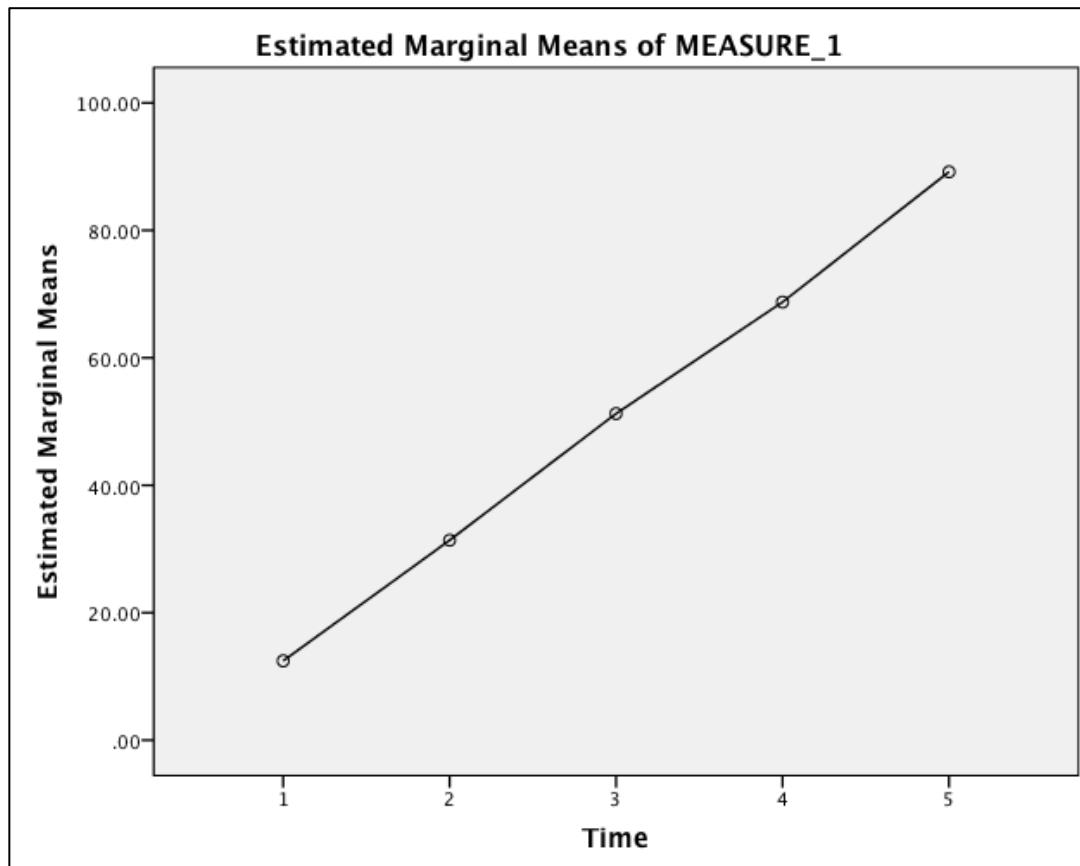
Figure 4: Plot differences in the five set questions of test mean scores by students across of time spent in the 14 weeks

RQ 5: What are the differences in the lesson (studio art productions) mean scores by students across of time spent in the 14 weeks?

Table 5: Descriptive statistics for lesson (studio art productions) mean scores with statistics test for time 1, time 2, time 3, time 4 and time 5

Time period	Mean	Std. Deviation	N
Time 1 (Pre-intervention)	13.41	3.40	30
Time 2 (Post-intervention)	30.97	4.21	30
Time 3 (Post-intervention)	51.00	5.00	30
Time 4 (Post-intervention)	68.56	5.34	30
Time 5 (4-month follow-up)	86.91	3.25	30

		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Time	Pillai's Trace	.997	210.419[b]	4.000	28.000	.002	.915
	Wilks' Lambda	.003	210.419[b]	4.000	28.000	.002	.915
	Hotelling's Trace	300.631	210.419[b]	4.000	28.000	.002	.915
	Roy's Largest Root	300.631	210.419[b]	4.000	28.000	.002	.915

Multivariate Tests[a]

a. Design: Intercept
 Within Subjects Design: Time
b. Exact statistic

A one-way repeated measures ANOVA was conducted to compare the lesson (studio art productions) mean scores across of time spent in the 14 weeks with statistics test at Time 1 (pre-intervention), Time 2 (post-intervention), Time 3 (post-intervention), Time 4 (post-intervention) and Time 5 (4-month follow-up). The means and standard deviations are presented in Table 5. There was a significant effect for time [Wilks' Lambda=.003, F (4, 28)=2104.42, p<.0005, multivariate partial squared=.915]. The results suggest that lesson mean scores of students significantly increased over time. A plot summarizes the results (Figure 5).
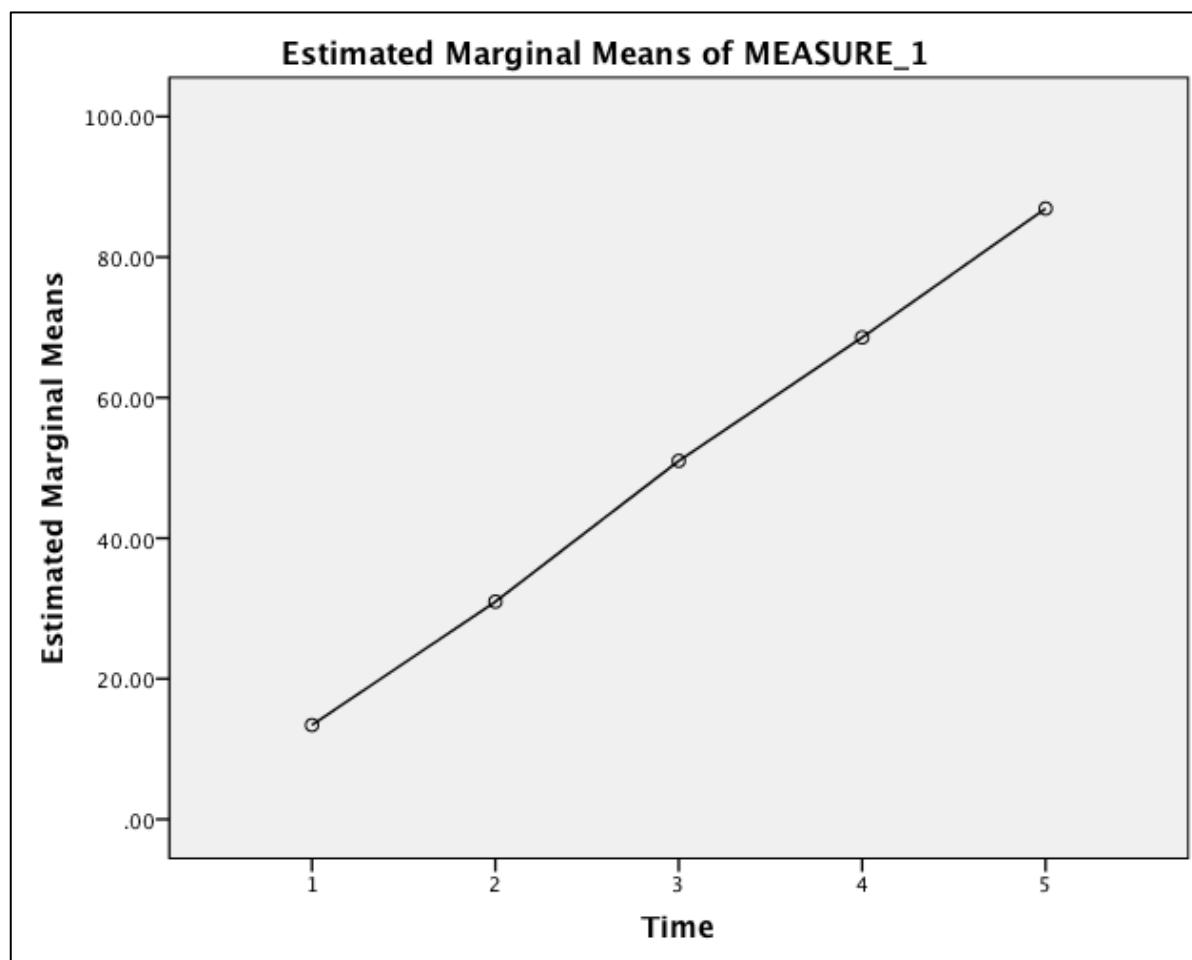
Figure 5: Plot differences in the lesson (studio art productions) mean scores across of time spent in the 14 weeks

Conclusion

This investigation has attempted to examine students' criticism questioning strategy for art criticism demonstrated by students in their tests and lessons (studio art production) scores. From the findings of this research, the investigators has drawn numerous conclusions from this investigation upon researching art criticism with the group of students which one of the future directon in art education programmes. There is an extensive growth of their critical thinking improvement in tests scores demonstrated by students progressively. Evidently, students' knowledge found to be better at the end of the semester in comparison with beginning of the semester. The increase of knowledge occoured because of the treatment that was given to students every week in the semester. This is clearly can be found from comparison of all students' pre-test and post-test mean scores, substantial improvement of knowledge were found from this study. In addition, students were able to make art criticism through their tests and lessons (studio art productions). Hence, Hamblen's art criticism model effected the students learning, skills development and enhanced their critical and aesthetic inquiry.

Students' total scores were used to make a comparison between their tests and lessons (studio art productions) alongside with Hamblen's art criticism model which consists of factual, analytical, speculative and evaluative dimensions. The investigators discovered that students were able to performed well in the first two dimensions, factual and analytical indeed met the standard of what would be expected. However, with the other two dimensions, speculative and evaluative students did not perform well or fail to make association when making criticism of an artwork. Based on this investigation, the classroom activities given to students only successfully covered the first two of the four dimensions of Hamblen's model. The findings of this research also showed that art criticism potential to be integrated in the teaching of design studio course by taking into account of critical thinking skill. This skill was seen to be very essential in which art criticism was introduced in design studio course.

At the conclusion of this study, students' critical thinking and their understandings of design studio should be expanded by classroom inquiry into aesthetic, critical and creative process. When the facilitators assist students with their studio art productions, they were able to discuss the artworks which allow them to make a self

expression of what they discovered and its meaning, and as well as learning from their peers by relating themselves to their life experiences. This process enables students to enhance their higher order thinking skills. Hence, these art activities increased students' aptitudes towards art and life, which they can relate to and able to deal with complex problems which has many possibilities that can be reflected upon and resolved.

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Current Reforms Of Kazakhstan's Educational System: Teaching Literature On The Basis Of New Content Of Education

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Introductory Part

Teaching that meets the requirements of modern era is one of the topical issues that always been at the top of agenda. Changes are happening in all of the spheres of our country in the period of active science and technology development. Information science is of primary importance, and human values are changing. Field of education, which is considered to be the most important field of society, is also being exposed to changes and innovations. In our rapidly changing world, the educational system has to predict possible changes, instead of falling behind them. For this very reason, national educational system requires reformation, implementation of international standards and preparation of modern, competitive citizens. An article at first describes the brief history of Kazakhstani schools and then will consider the issues of educational system's current reforms.

Key words: *Educational system in Kazakhstan, reforms, teaching in three languages, new educational program, literature teaching*

Introductory Part

Islamic schools (madrasah)

Kazakh children gained Islamic education in schools and madrasah till the middle of XIX century. They were mainly taught by mullahs. Education was fee-paying and was carried out at the expense of parents. The majority of students were male students in Islamic schools. The Islamic schools were highly regarded by Kazakh society. "A place where it is possible to conduct lectures" is the dictionary meaning of the word "madrasah." Thus, the dictionary meaning has broader sense as it indicates the place, where children can learn not only the field of Islamic rules, but also other subjects. The students of Islamic schools were taught philosophy, mathematics, medicine, history, linguistics and astronomy along with the acquisition of the basics of Islamic religion. Formation of proper manners and human values in younger generation was one of the main functions of Religious Educational Establishments. Later, imperial government tried to get a handle on Islamic schools. Islamic schools were obliged to teach the essentials of Russian language by the initiative of Russian Imperial government starting from 1870.

Initial schools in Kazakhstan

In the first half of XIX century, military schools were formed in the cities of Kazakhstan. These schools accepted children of Kazakh aristocrats and rich people. Military school of Siberian Cossacks was opened in 1813, and in 1927, Neplyuev Military School was established.

The initiative on the establishment of Kazakh schools was proposed not only by Russian Imperial Government, but also it was suggested by famous Kazakh figures.

For instance, Zhangir Khan, a Khan of **Bukey Horde**, who received Russian education can be a clear evidence of this fact. In 1841, primary school offering two years education was established with the direct participation of Zhangir Khan. This school functioned at the expense of Zhangir Khan's financial sources till 1848. The school was known as "Zhangir's school" among local population.

Kadim and Jadid schools

Scientist A. Konyratbaev mentions in his work named "Teaching methodology of Kazakh Literature" that three types of schools existed throughout the Kazakh steppes until 1917. There were schools such as: Kadim (old method) schools teaching Islamic religion; Jadit (new method) schools that became famous in beginning of XX century; I. Altynsarin schools that taught children on the basis of leading Russian Art and Education. [A. Konyratbaev, P. 12].

Current reforms and new content of education

We are going to consider separately the leading Kazakhstani educational reforms.

1. The transition of schoolchildren to five-day studying week system. Pupils studied for about six days in a week before the implementation of new content of education. Today, gradual transition of students to the five-day studying system is being undertaken. This year, 1st grade schoolchildren will study only five days a week, but in 2019, pupils of all of the grades of Kazakhstani schools will attend schools only five days a week.

2. Transition to twelve-year education system. The transition to twelve-year education system was a reason for long discussion however the implementation of new system has been constantly delayed. It was adopted that with the implementation of new content of education, the transition to 12-year education in schools will be carried out. The implementation of the system is, in fact, very simple. Children at the age of 5-6 will attend

preschool preparatory classes. 12-year education system's scheme will be introduced on the basis of 0 grade – 11th grade principle. This education scheme will be implemented starting from September 2019.

3. Trilingual education. According to new content of education, students will be taught at schools in three languages such as Kazakh, English and Russian. By the year 2020, Technical and Medical specialties of Higher Educational Establishments will be taught in English in accordance with the task given by President of the Republic of Kazakhstan. For this very reason, schools have to be ready for preparing children to HEEs. In 2019, the transition allowing teachers to teach schools subjects like biology, chemistry, physics, information science in English will be undertaken.

What is the peculiarity of new content of education?

Nowadays leading international practices have been chosen and selected, and even procedures implementing the practices are being fulfilled. One of the above-mentioned processes is the renovation of educational programs in public schools. There are the following peculiarities of new educational program:

- To teach students in accordance with world standards, to educate competitive citizens, to formulate abilities allowing people to reach success in their lives, to increase functional literacy, to sophisticate professional skills of teachers.

- The transmission of content on the basis of spiral system. It means that students will repeatedly study particular topics or subjects, in this case, topics will be repeated in varying degrees, the topics will be taught in some cases throughout the semester, or in each semester. Students will repeatedly study the topics or subjects, but every time the level of difficulty of both: subject or topic will be higher.

- Another feature of new content of education is the lesson conducting on the basis of taxonomy of Bloom. Students will undertake activities in learning, comprehending, understanding, applying, analyzing, collecting, evaluating procedures of education.

- According to the new program of education, content of education is formed on long-term, middle-term, short term plans.

- Development of student's ability of critical thinking. Student, who has critical thinking ability, can easily acquire the ability of deep comprehension of subject, and he/she will be able to make conclusions on his/her own. Student will be able to solve problems and conduct discussions.

Learning of Literature in accordance with new educational program

Content of Literature as the contents of any other disciplines was renovated, and new program was created. If to consider the history of Kazakh literature discipline, literature started to be learned as a discipline starting from 1930s. However, lack of practices in formation of programs and methodology, deficiency of specialists, who were well aware of theory of literature and teaching methodologies, caused many issues. According to scientists, formation of literature as a discipline tool place within 1939-1940.

Each discipline being taught in school has scientific basis and contribution to civilization. Despite of this, function of literature in our era of globalization should be quite different. The leading role of information science, withdrawal of human values to the second position, a small number of students having willingness and interest to read works of literature make us understand the current situation of literature. That is to say, modern era claims huge responsibility not only from discipline itself, but also from the teachers. This was the reason for the establishment of new educational program.

The main goal of Kazakh literature program is to direct students to creative thinking, to support students' free expression of thoughts both in written and oral forms, to create capabilities of presenting arguments, comparing and analyzing, evaluating. By conducting experiences to literature genres, students can acquire methods allowing the students to understand drama works with the help of prose, and to write the prose using the peculiarities of poetry. Theoretical materials allow to widen student's conceptions of Kazakh literature, to establish world-view about literature as well as to explore thoughts, dilemmas, characteristics common to mankind. Kazakh literature educates an intelligent and well adjusted generation that is capable of solving problems and expressing thoughts with literary language and literary forms.

Teachers use different learning strategies to build and develop these abilities. In particular:

- listening to students' opinions, stimulating to apply the previously obtained knowledge and ideas to further develop them;
- motivating and developing pupils through careful selection of tasks and activities;
- developing and illustrating clear step-by-step problem solving strategies;
- supporting education of students by "Evaluation for learning";
- adapting students to conducting researches and active learning based on research techniques;
- developing pupil's critical thinking skills;
- organizing individual, pair, team works of students.

Teaching methods in Kazakh literature classes:

- conducting a team research on notes, and discussing author's point of view on a particular matter;
- genre transformations (a drama into a story or vice versa) and assess its impact;

- interviewing an author through role games (If possible to organize meetings with authors and film directors);
- using debates, brain storming and other strategies that are aimed to developing students' speaking and critical thinking skills;
- оқушының бүгінгі қоғамға лайық жеке тұлғалық қасиеттерін, оның рухани жан дүниесін байытатын қазақ тілінің этно-мәдени лексикасын, даналық сөздерін меңгерту, ана тіліндегі қатысымдық сөз әдебіне баулу, жағдаяттық қарым-қатынас мәдениетін қалыптастыруда *ізгілендіру технологиясын* қолдану;
- creating conditions for monologue and dialogue, and discussions through various situations in the learning process, role plays, round tables, briefing, press conferences, "KTK" (club for cheerful and smart) and others;
- widely using various audio, video, media materials, video clips, Internet materials, electronic textbooks, computer and lingua-phone devices, active teaching methods and interdisciplinary communication in the learning process.

Conclusion

To sum up, all the innovative steps in Kazakhstan's education sector are aimed at the development of human capital and functional literacy. The student should be able to apply the knowledge gained at school. In traditional teaching, the teacher is the primary source of education, while today the teacher is the organizer, manager and consultant. Today's pupil is not just receiver but also seeker and user of knowledge. That is why this program is based on the notion of "Link with life".

In order cultivate habits that help students to become success in all aspects of life in the twenty-first century teachers have to work tirelessly. Within the renewed curriculum, only educated teacher who infinitely loves their subject and job, and devote themselves to students can work. According to the quote by al-Farabi "The word knowledge means to be able to discover something that is unknown", the future of the country can be measured only by educated generation.

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Design And Execute An Iraqi Academic Monitoring System For Iraqi Higher Education Ministry

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Abstract
Monitoring the academic research activity is an important work of the universities, and the ministry of higher education and scientific research for evaluate the national and international classifications and ranks of Iraqi academic researches. This paper proposes a management system and system requirements of a web based application for monitoring the Iraqi academic research activity, and put the Iraqi scientific research in one place and extract the required statistics to calculate the rank of researchers and the rank of universities. The aim of this work is created a database for the topic, whereas the basic information has been considered. The database and its structure are checked by inserted a number of qualifications of some Iraqi academics, also it will be inserted all Iraqi academics data and their publications in the database according to the international classification, so can define the role of them in international publishing and to publish the world and human activities for them especially there are more than 25000. Recently, a statistics has shown that more than 74000scientific papers had lost by 2013 till 2017, and this is a real indicator to show that is a real problem in this subject, which it is the aim of the research and its scientific background, so this problem should be solved.
Keywords: *Information system; analyses and requirements; monitoring academic research activity; web application*

Introduction

The administrative and institutional system in Iraq had changed from central totalitarian system to the management system of the institutions by virtue of instructions of the international bank to re-structure the Iraqi institutions.
 One of these institutions is the Iraqi higher education and scientific research which already has started the work in the principle of the independence of the universities. The Iraqi academics and professors have attended the world modern scientific societies, and they have the right to publish their productions and scientific researches in the scientific fields that have internationality classifications. But these scientific activities had not document and use in the face of their wealth, the only benefit of these activities was personal, as it is known there are classification standards in the world universities and scientific research publications, subsequently, the Iraqi universities had not use the researches and they are still in the same position of the world classification position. This research is an attempt to create main and complete database to discover the scientific and activities for the Iraqi academics in the world classifications according to their universities, subsequently, it is possible to measure the qualification of Iraqi universities, that they are more than thirty-five in scientific and research movement according to the international classification as it is participated to develop the Iraqi universities classification.

There exist some related work adopted such information management system with web application as follows:

[Kidwell, Linde, and Johnson 2000] Is stating that there is huge reason to advanced education formations that make activities to share information to achieve business purposes, this article maps the vital ideas of learning administration as it is linked in the communal area, thinks about plans, and examines how it may be connected in radical education and whether progressive education is prepared to hold it (Kidwell, Vander Linde et al. 2000).

[Farsi and Talebi 2009] presents a paper which goal is to talk about commercialization issues in colleges and propose a proper model of learning administration which allows the college to be powerful in waste commercialization intros. In view of the proposed display colleges must to build up their tactical volumes (Farsi and Talebi 2009).

[Oprea ,2011] is proposed a paper of a bland structure of a college information administration framework, and it is presented a dedicated context, ACDI_UPG, formed for scholarly research movement assessment, that can be operated as a choice help device by the college knowledge administration framework for ordering future research movements as indicated by the principle targets of the college and of the national/global scholastic research financing relations (Oprea 2011).

[Eludire 2011] presented a system to solve some of the recognized problems in managing student and course registration in tertiary academic organizations. The developed system can be wrapped and enhanced upon to become a basic one that can be deployed for viable use. To realize this however, there is a need to perform actions such as Data test, User acceptance testing, System Review and Deployment (Eludire 2011).

[Oprea 2012] proposed the engineering of a multi specialist framework formed for college examine movement testing as an information administration tool (Oprea 2012).

[Hingorani and Askari-Danesh 2014] introduced a work describes an Advisement System planned to ease the issues of an out-of- the-box operation at Alabama State University to help recover retaining and graduation. And attempt to closely involve ability with student advisement through a web-based advisement system. (Hingorani and Askari-Danesh 2014)

The section II discuss the system collect and analyses the requirements of the proposed system, section III discuss the design of the proposed system, the structure and the relations of database tables, section IV discuss the system design and the way the system web pages organized, section V introduce the user interface and how the it is user friendly and the ease of use, section VI introduce the description the way to handle the authentications of the proposed system. And finally section VII describes the result of implementing the proposed system.

System Analyses and Requirement

The requirements model describes the system functionality such as functional or non-functional requirements (Shen, Guizani et al. 2004). The user condition in analysis stage should be written by his standpoint and its focus on what the system will be, consequently, the requirements model is a method that used to document and record all requirements or a way to recognize them(Al-Shemarry 2010); on the other side, the importance of modeling requirements because everything and everyone grouped by the system requirements that related to the system (Barker 2000)—. So that, building a requirements model is important method to prepare the requirements of the system. The analysts or developers need to understand all requirements to develop academic monitoring system, although, the requirement model is significant to know if the developed system will meet the need of user and within budget. This research is made to analysis, design, and implementation a requirements model of academic monitoring system to help the ministry of higher education and the Iraqi universities to manage, record, document, and observe all academic researchers in easy way. It is necessary to ensure all system requirements should be achieve a complete system (Oprea 2012).

The requirement of this proposal system is all the academic's information should be inserted, for instance, the ID number in both SCOPUS and ORCID websites, whereas the academic and his production have been recognized easily. As well as, it should be possible to insert not only international research but also local magazines, and also the possibility to insert keywords, abstract, and attach the scientific paper file, the benefit of these ways is to simplify for other users to search the database to find and use the Iraqi sources easily. The suggested system is not only use in the research that published in magazines but also the researcher can insert a paper that published in a conference or a book of conference.

The system admin can count the local rank of academics by their insertion, each kind of insertion has a score, and the scores of each academic have been counted according to his scientific degree and the kind of his registered publication in the database of the system and its quality. Subsequently, it could be count the local rank of Iraqi academics. These scores have been defined previously by the Iraqi ministry of higher education and scientific research.

The application includes a plan for input screens, the structure of the database file and designing output reports. Microsoft SQL Server is a database system that automates as well as it totally suitable with Asp.NET web development platform and C# programming language, it simplify the creation of a complete relational database system (Eludire 2011):

- A complicated network of related files which will contain the data is made by a table definition module.
- Insert, update, and delete data in database by stored procedure.

The most important requirement of the proposed system is every academic has the right to insert scientific research as many as he need, at the same time, a research may written by more than one academics, in this case, the database structure should be many to many relationship.

Database Files And Structural Organization Of The Proposal System

Databases are a set of related data, they are not a single file, instead, they are list of files. These files, that used DBMS, might be integrated for both interrogation temporarily or a uni interrelated structure permanently, as known as a query (Garcia-Molina 2008). The files in database can be used as keys to get the related data. A structured query language SQL, created by IBM, depends on a relational database system (Martin 1986). The user can formulate queries by SQL. Database managers in microcomputer and personal computer systems used SQL, which depend on mini computers and mainframes. SQL offers selection of powerful, operating systems, flexible data and programs. The commands of SQL can be read from text files of the editor or write in the keyboard (Eludire 2016). The records are the items of data that related together primarily. The data can be retrieved by two ways, first, specifying the values of them and returning all or some of records that are similar to specified items. A DBMS related together by using one of the structuring techniques during storage, access and retrieval operations List structure, Hierarchical structure, Network structure, and Relational structure. A Relational structure is called that because it uses a mathematically construct called a relation. It is a table of columns (fields) and rows (records), so the relation is reference of one table to other one by a common column. Relational databases are a group of tables (Eludire 2011), and because their simplicity and adaptability, they are used widely. Relations might be related together in the basis of a common field. In *Fig.1*, a tblLogin table (contain authentication information) can be linked to tblInfo table.
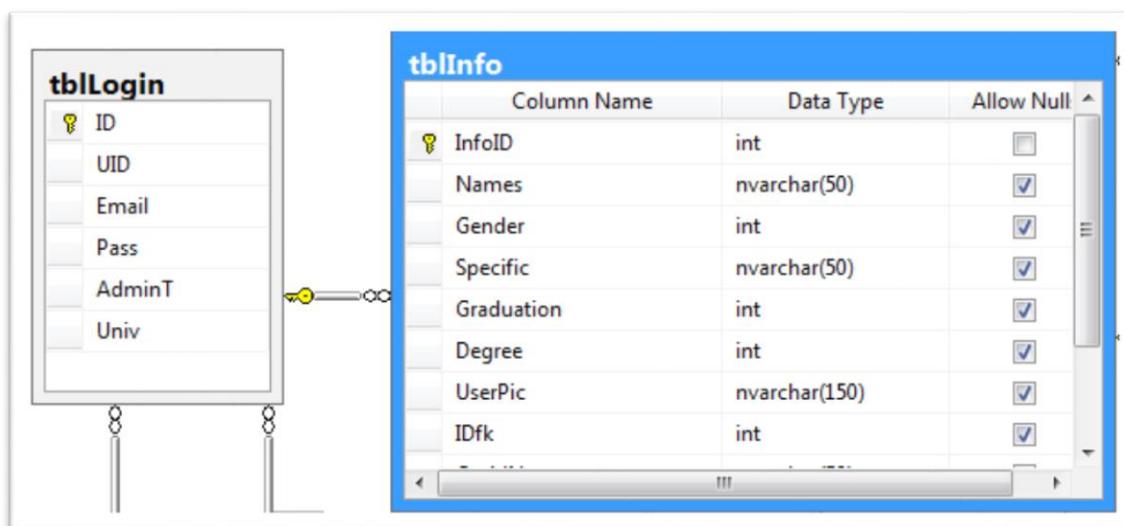
Figure 1 Link tables in relational database structure

This structure involves indexes for accessing quickly in any record that based on key values like supplier number. An index is used by indexing file might be:
- Divide from the file, like a book. Or
- Related together with the file, like a telephone directory.

This method is important when every query is posed not when the database is create (Eludire 2011). The relations in this technique are set by using keys, the field that shows uniquely a record so it is referred by a related table is a primary key, while the field which contains same values to relate records stored in other table is a foreign key. The one-to-one relation is a record in one table related to one record in other table, while the one-to-many relation is a record in a table related to other records in another table, however, many-to-many relation is numbers of records in only one table related to many records in another table.in *Fig.2*, can notice a table pertinence in this database. This structure is accepted widely because its run-time structuring can solve many queries unlike the older one.
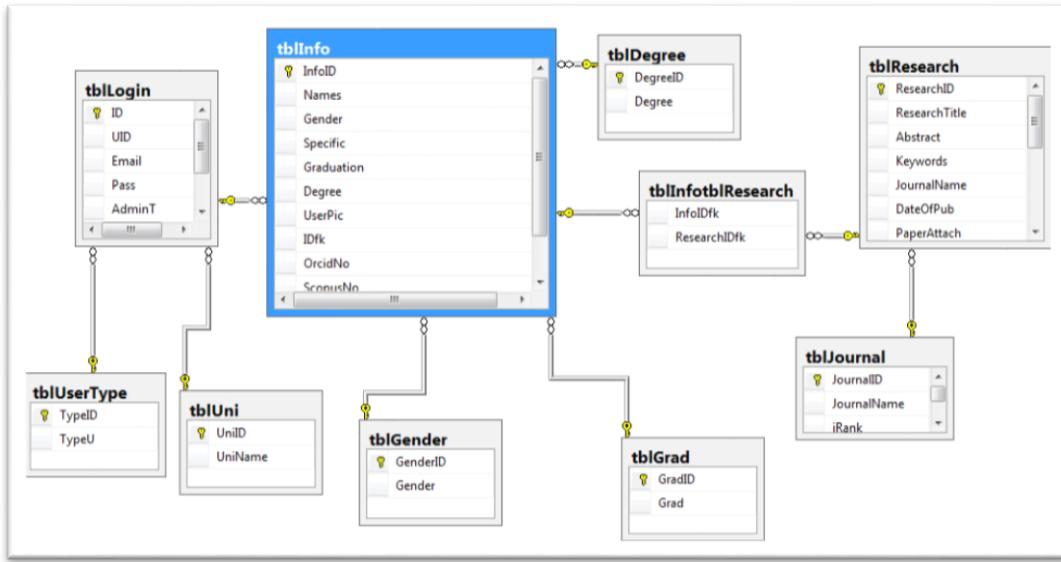
Figure 2 Relational database diagram in proposal system

The Proposal System Design

There are a number of steps can be achieved in database design: collect the data, discover some important data set, normalize the data, insert some important data and skip some data. To realize these main elements, should do the following in proposal database system:

- Making the structure of the database.
- Adding data.
- Recover data.

The design of the proposal system is a development of normal method. The analyzer of the particular application should define the requirements of the data and how they related together, after this analysis completed, get a suitable database model *Fig.3*.
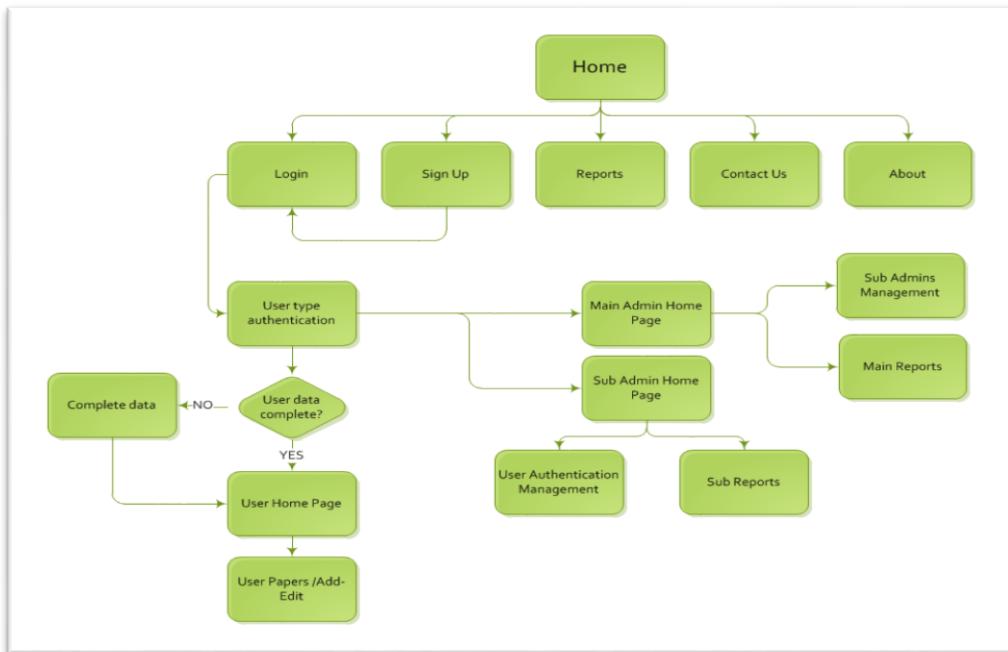
Figure 3 The system overall

As mentioned earlier, the database in this proposal system should designed to be many-to-many relationship, to meet all the requirements. As it is known, the many-to-many relational database needs special ways to deal with, for instance, when new research written by a number of authors need to be inserted it to the database, its need to use a stored procedure to insure both the speed and safe of the database, as well as, the research will not redundant in the database, whereas, the research saved one time under a number of writers, as it is shown in *Fig.4*.

```sql
ALTER PROCEDURE [dbo].[inserting](
@ResearchTitle nvarchar(150),
@Abstract nvarchar(1000),
@Keywords nvarchar(50),
@JournalName int,
@DateOfPub nvarchar(50),
@PaperAttach nvarchar(250),
@id int,
@rs1 int,
@rs2 int,
@rs3 int,
@rs4 int,
@rs5 int,
@PaperType nvarchar(50))
AS
BEGIN
    declare @id2 int
    INSERT INTO tblResearch(ResearchTitle, Abstract, Keywords, JournalName, DateOfPub, PaperAttach, PaperType)
    VALUES (@ResearchTitle, @Abstract, @Keywords, @JournalName, @DateOfPub, @PaperAttach, @PaperType)
    --select SCOPE_IDENTITY () as id2;
    set @id2 = SCOPE_IDENTITY ();

    insert into tblInfotblResearch (InfoIDfk, ResearchIDfk) values (@id, @id2)
    if @rs1 > 0   insert into tblInfotblResearch (InfoIDfk, ResearchIDfk) values (@rs1, @id2)
    if @rs2 > 0 insert into tblInfotblResearch (InfoIDfk, ResearchIDfk) values (@rs2, @id2)
    if @rs3 > 0 insert into tblInfotblResearch (InfoIDfk, ResearchIDfk) values (@rs3, @id2)
    if @rs4 > 0 insert into tblInfotblResearch (InfoIDfk, ResearchIDfk) values (@rs4, @id2)
    if @rs5 > 0 insert into tblInfotblResearch (InfoIDfk, ResearchIDfk) values (@rs5, @id2)
END
```

Figure 4 The stored procedure

There are two needs affect the design of the authentication for the system. First, it should be safe. Second, it should be suitable for the user. There is not a solution can achieve all the needs because there are many users and a huge different between user groups. This system covers three kinds of authentications, *Fig.5:*

1- Central authentication system (CAS).
2- E-mail authentication system.
3- Secure ID.
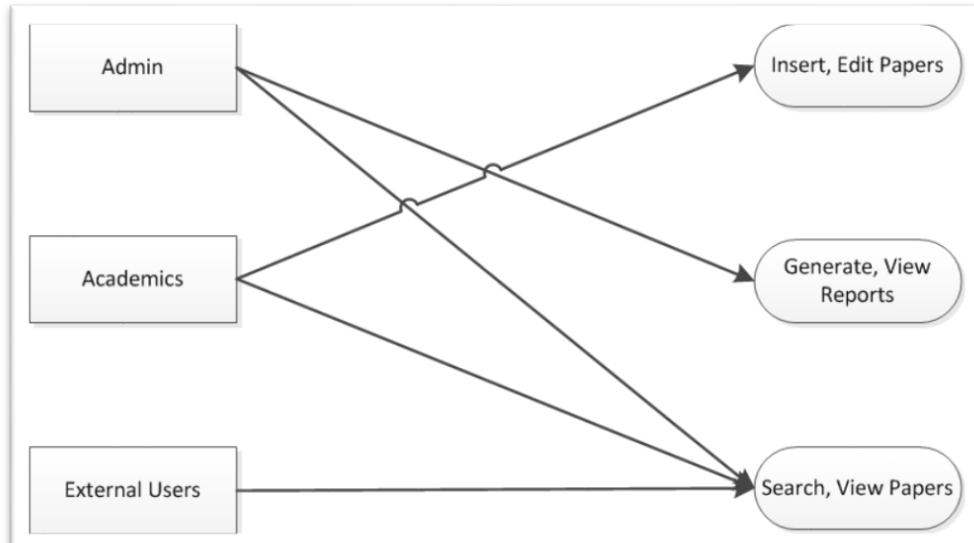
Figure 5 The system Case Diagram

User Interface, Experience, And Interaction Design

The proposal system should have an elementary plan for web designing methodology, and before using colors or fonts, it should contain the four major factors:

1- The aim of the website.
2- The way to pass over the website.
3- How to use the website.
4- Website streamline in site diagram.

These factors are the practice of : (Carr 2015)

- User experience (UX) design: to achieve that the user's experience in the site is acceptable with his requirements.
- User interaction (ID) design: the site will design to be more functional and easier for using.
- User interface (UI) design: to design the tools of the page that used by the user such as (links, menus, buttons … and so on).

The Proposed Design Of Authentication Model

This system is created to observe and register scientific papers of the academics, make a number of papers for every registered. So, can observe all the details and change them with the special access rights. The application includes three authentication related classes as mentioned earlier.

In the AMS, data must be encrypted for the objective of security; this is done to avert information hacking or forced intrusion. MD5 cryptography algorithm is applied to this purpose to encrypt user passwords. When a user's password is preserved to the database, it is encrypted so if an attack has truly happened the data saved in the database turn into worthless because it is encrypted.

The next is the stages of creating hash value employing MD5 figure (6):
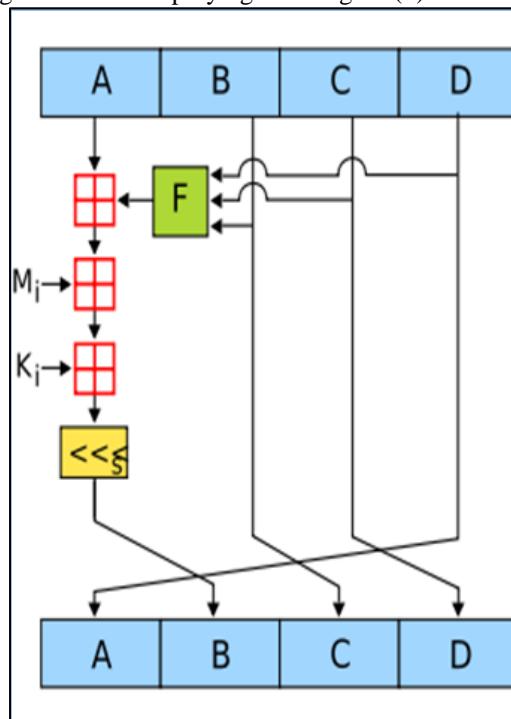
Figure 6 MD5 Algorithm

1) Data Padding: The message is padded in order to its length in bits is 64 bits short of being a multiple of 512 bits long.

2) Append length: A 64-bit impersonation of the real message length is appended to the consequence of the former step.

3) MD buffer Initialization: A four-word buffer, called MD buffer, is employed to compute the message digest. This buffer is started with fixed hexadecimal values.

4) Operation the message in 512-bit blocks.

The authentication mechanisms in the proposed system are divided to two phases, first phase contains several steps as in figure (7), and they are:
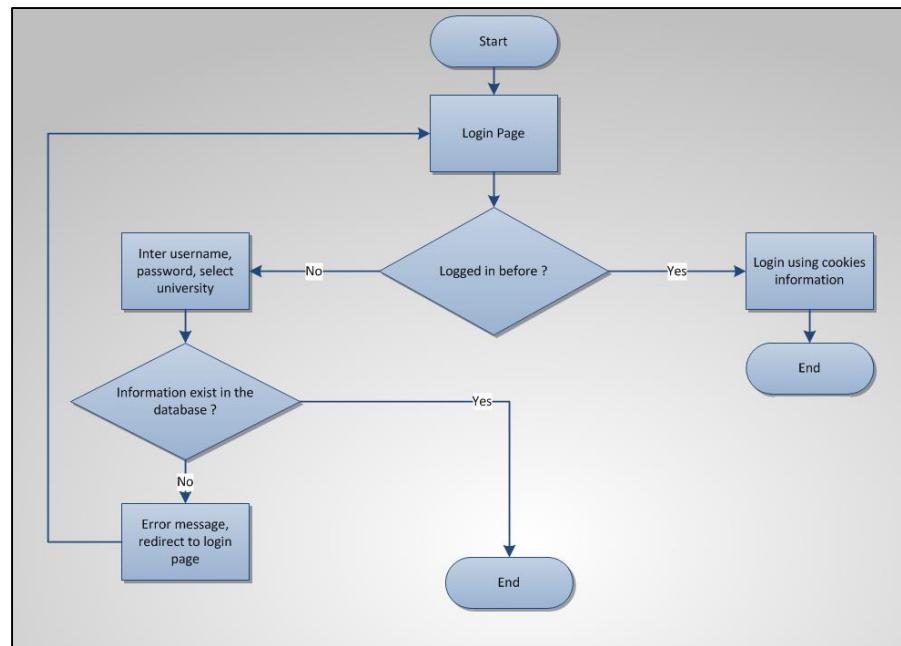
Figure 7 first phase in proposed authentication model

- Step one: check if the user have logged in before, then use the cookies to login.
- Step two: if the user is not logged in before, then force the user to insert (email address as a user name, password, and select university).
- Step three: determine if the database contains this username and password, if it return true then go to second level, else redirect the user to login page with error message as shown in figure (8).

Figure (8) error message in login web form

After check whether the user name and password are exist, the second phase also contain several steps which it shown in figure (9), it is:
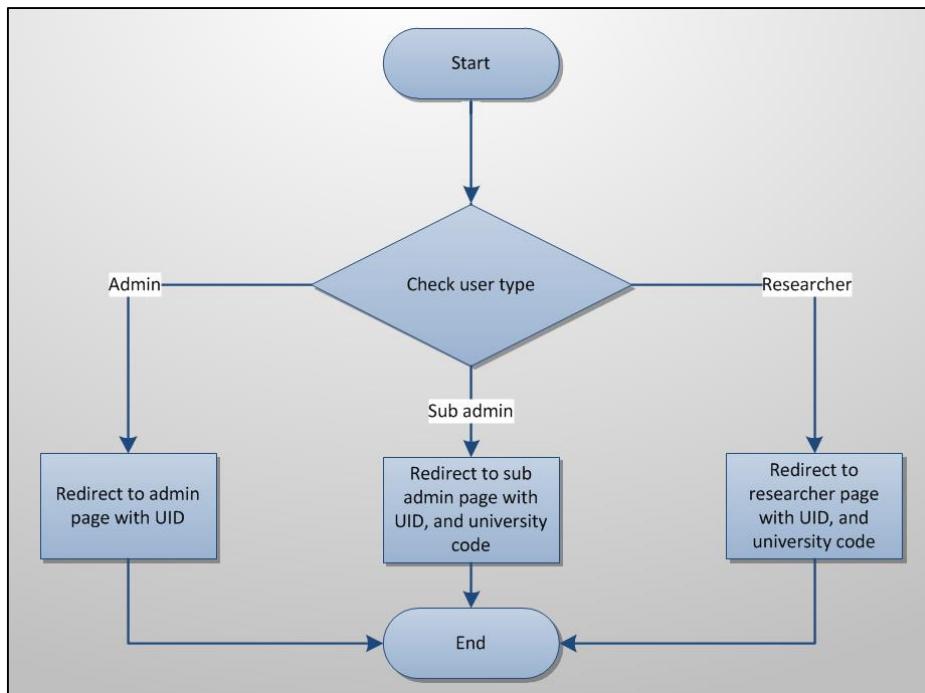
Figure 9 second phase in proposed authentication model

- Step one: in this step the system read the user type from the database.
- Step two-A: if the user type is a researcher, then create a session and a session ID between server and user, redirect user to (researcher home page) to view his profile, with a string that contains user's unique information, which contain UID (Unique Identification Number) and university code ID.
- Step two-B: if the user is a sub admin (university admin), then create a session and session ID between the user and the server, and redirect user to (university home page), with a string that contains university's unique information, which contain UID (Unique Identification Number) and university code ID.
- Step two-C: if the user is a main admin (MOHE admin), then create a session and session ID between the user and the server, and redirect user to (main admin home page), with a string that contains unique information, which contain UID (Unique Identification Number), this time there is no university code needed because the main admin has permission to access to all universities.

MD5 (message digest algorithm) is an essential algorithm of digital signature; detect authentication and data encryption of user account of its special ability of strong one-way encryption and irreversibility. Therefore, MD5 is commonly used in login and authentication part in which password is encoded by MD5 algorithm. The idea of login method is to match the scrambled password value with the password that stored in database which is no longer the original password match or not. This technique takes message of random length as input, and creates a 128- bit "fingerprint" or "message digest" as output. It is estimated that it is computationally impossible to create two messages having the same message digest, or to create any message having a given pre-specified target message digest. It is very resistant to collisions.

The proposed system is created to observe and register scientific papers of the academics, make a number of papers for every registered. So, can observe all the details and change them with the special access rights. The application includes three authentication related classes figure (10):

- Long term users: is the major user group for instance system. They are use the system a few years.
- Short term users: is the active user group for instance system. They are use the system a few months.
- One time users: this instance system is used largely, but rarely for one time or a few times.
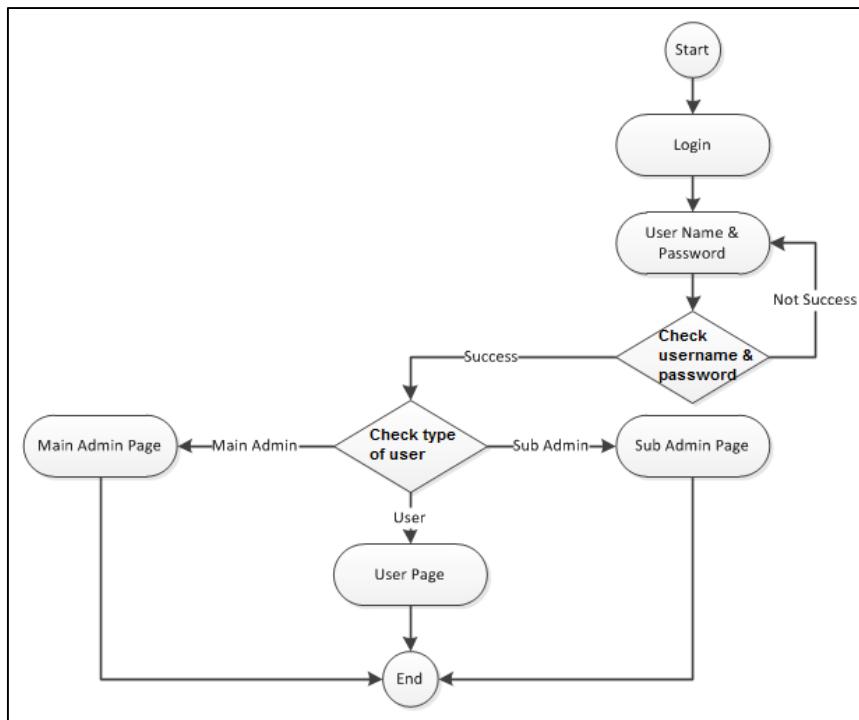
Figure10 the system Authentication Process

Discussion

This system is created to observe and register scientific papers of the academics, make a number of papers for every registered. So, can observe all the details and change them with the special access rights. The application includes three authentication related classes Fig.11:

- Long term users: is the major user group for instance system. They are use the system a few years.
- Short term users: is the active user group for instance system. They are use the system a few months.
- One time users: this instance system is used largely, but rarely for one time or a few times.
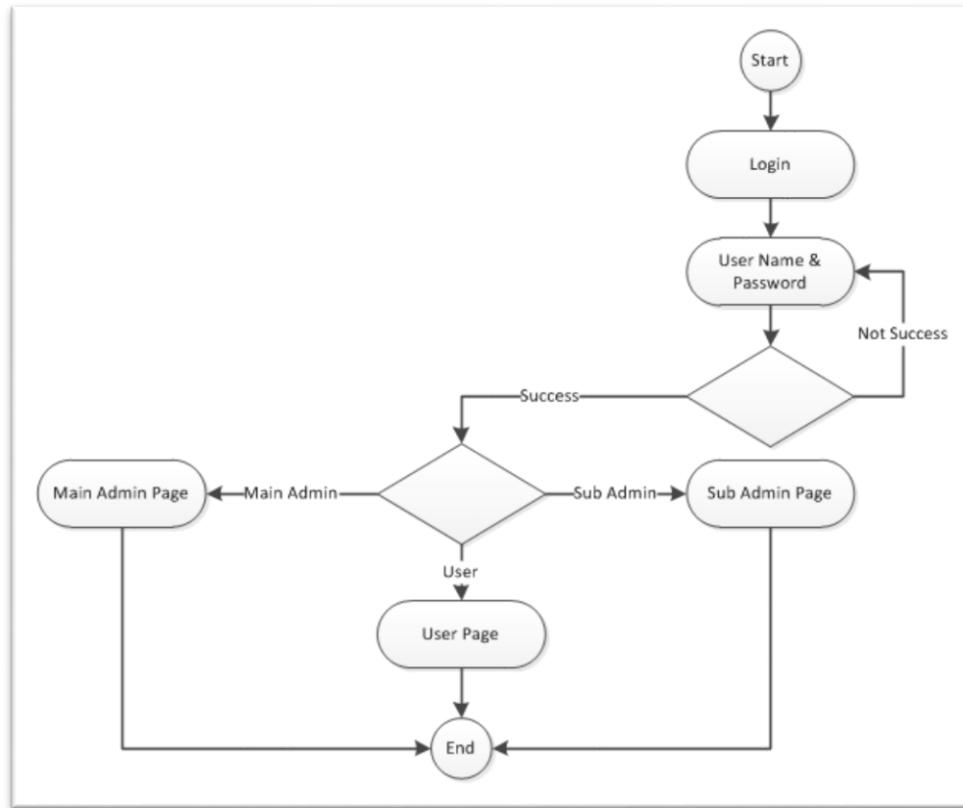
Figure 11 The system Authentication Process

Conclusion

The proposed system provides a framework for the Iraqi academics and their scientific productions; it offers a user friendly interfaces, well-designed web pages and high security to save user data. It calculates the academics rank depending on their productions, and it assists the Iraqi ministry of higher education and scientific research to review, monitor and calculate both the national rank of Iraqi universities and the international rank of universities.

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Designing Optical Spreadsheets-Technological Pedagogical Content Knowledge Simulation (S-Tpack): A Case Study Of Pre-Service Teachers Course

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Abstract

In the 21st century, the competence of instructional technological design is important for pre-service physics teachers. This case study described the pre-service physics teachers' design of optical spreadsheet simulation and evaluated teaching and learning the task in the classroom. The case study chose three of thirty pre-service teachers course in Yogyakarta State University. A bonded system explored basic knowledge and integration ability of the pre-service teacher. In addition, peers assessed the simulated performance of pre-service teachers by using Spreadsheet-Technological Pedagogical Content Knowledge (S-TPACK). Pre-service teachers transform the topic into a unique spreadsheet simulation. One of them designed with high complexity, but the others are not. However, they demonstrated different the intensity and integrity of teaching strategies, the depth of optical topics, and interactive spreadsheets. In the future, the design of instructional technology needs to pay attention to the basic knowledge of TPACK, problem-solving, and self-efficacy.

Developing A Blended Learning-Based Method For Problem-Solving in Capability Learning

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Abstract

The main objectives of the study were to develop and investigate the implementation of blended learning-based method for problem-solving. Three experts were involved in the study and all three had stated that the model were ready to be applied in the classroom. The implementation of the blended learning-based design for problem-solving was conducted between 2015 and 2016 where 60 (sixty) graduate students majoring in physical education became the participants. Furthermore, the model was implemented for the second time between 2016 and 2017 in different settings where 3 (three) students became the participants. Based on the observation during the development and the evaluation process, the implementation of the blended learning-based method for problem-solving had positive effect.

Development Of E-Module Based On Problem Based Learning (Pbl) On Heat And Temperature To Improve Student's Science Process Skill

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Abstract

This study aims to develop an electronic module based on Problem Based Learning (PBL) as an implementation of information and communication technology in learning media for students of class XI-Science which tested by the validity and feasibility test in order to improve student's science process skill. The method in this research used research and development (R & D) with ADDIE model (Analysis, Design, Development, Implementation and Evaluation). The e-module was developed with five stages according to PBL which are: organizing problems, learning task, investigation, result development, analysis and evaluation. The developed e-module was validated in material aspect about heat and temperature subject by the material experts and gained score of 82.20%, the validation in media aspects by the media experts gained score of 75.78%, and the average score of the whole aspects by the learning experts was 94.36%,while the results of experiments at school by educators and students obtained scores of 86.31% and 80.78%, these scores mean that the e-module was categorized as very good. Based on the pre-test and post-test of students' science process skill with this e-module, the calculation of n-gain test was 0.6 which means moderate category.

Effect of Principals' Instructional Leadership Behavior on Teachers Professional Development at Secondary Schools

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Abstract

The target study assesses the principals' instructional leadership behavior (ILB), evaluates professional teacher's advancement and throws the light on the outcomes expectations of ILB principals on unfolding of expertise teachers' in terms of performance at secondary schools. Descriptive and causal comparative research used as the method of study. Data was collected from secondary school teachers through structured questionnaire. All public schools were selected through multistage sampling techniques in which participants of the study were teachers. Data was scrutinized through descriptive and regression analysis techniques. The uncovered findings indicated practicing instructional leadership effective for the secondary school principals at the institutions in terms of institutions' goal, instructional supervision and evaluation. The regression analysis depicted that teacher's professional development significantly affected highly by principals ILB at secondary schools. The outcomes of the study will be supportive for teachers' instructional practices and student's learning enhancement, encouraging teamwork, supporting system of the schools aligned with curriculum and assessment.

Key words: *Principals' instructional Leadership behaviour, ILB, secondary schools of Lahore, teacher's professional development, teacher's performance*

Introduction

Principals are an autonomous body through their instructional authority. They grasp a command on teacher's schools success through their instructional leadership behavior (ILB). This can be possible through quality control of learning and teaching in school education. As instructional leaders principals' performance affected the instructional technology of teachers inside the classroom when they delivered their lectures.

Positive change in principals' instructional leadership behaviors is one of the major requirements in receiving the accepted outcomes of school education. As well as principals' expertise influence teachers' and students' performance positively through advancing their ILB. The more the time, being a leader, they give to the school organization, the more the improvement observed in learning and teaching of students and teachers. They are the backbone in enhancing the teachers' performance (crow, Hausman, & Scribner, 2002; Glodt, 2006). Moreover, the research has addressed instructional leadership (IL) one of the major underpinning by which teachers and schools performance is strongly affected. Through instructional leadership behavior, school principals encounter the specific challenges they deal with, which ultimately maximizes the academic achievement and asserts learning standards according to exceptional needs of students (Glodt, 2006). Sisman (2016) defines instructional leadership as for getting expected outcomes, the behavior adopted by principals which followed by others for institutional benefits. Furthermore, Sisman (2016) categories five factors of (ILB) inclusion (1) goal setting, (2) management; (3) evaluation procedures; (4) acknowledging teachers and 5) harmless teaching- learning environment. Academically, institution building is standing upon the five pillars of principals. Gumuseli (1996) expresses that developing goals and communicating to the concerned individuals is the foremost duty of principals in the school atmosphere. For this, they established vision and mission statement onwhich all academic activities are grounded. Moreover, vision and mission statement are the motivational stimulators for the individuals engaged in teaching and learning process (Sisman, 2012).This may improve the active participation of the students in the schools and providing positive feedback in the given period of time (Celik, 2013). For the application of the above mentioned factor, many tools and techniques have been used for the assessment and evaluation of students' performance.These exercises help regulate the changes required for improve the program (Sisman, 2012). Continuous professional and personal development is crucial for coping up the teachers with current needs of information technologies. Schools principals provided open doors for teachers' professional training, up to date teachers about changes. Preparethen for future challenges and providing chances for upgrading their skills is prime responsibility of the principals (Gumuseli, 1996; Sisman, 2012).

For this purpose,the principals have to show appreciating, encouraging, supportive, cooperative, and empathetic behavior for the efforts put by the teachers (Ozdemir&Sezgin, 2002). An effective school's climate covers two aspects of behavior: behave with in organization and their collaborative environment. If the school principals are cooperative, they are to shape up appropriate environment for education and learning of students. So, school

principals are responsible for engaging teachers, meeting the needs, boost up morale and performance to achieve the objectives, and privileged work environment. Additionally, it also can be possible through comfortable atmosphere to generate mutual trust and cooperation among the teachers and the others.

Instructions mean to guide and suggest something with proper way which is beneficial for the students to enhance their hidden qualities at grassroots level. Teachers' self-directed goals and commitment for their profession and organization is pre-requisite for effective teaching and learning. Consequently, teachers' commitment reaches the high level due to principal's instructional leadership behavior (Sisman 2012). It is blend of supervision, educational module and staffing (Smith & Andrew, 1989). A number of methodologies were sued to observe teachers performance (Adeyemi, 2010). The core features are planning, monitoring, and evaluating teacher's performance and organizational professional development (AligMielcarek& Hoy 2005). The main difference in the instructional leadership is to direct the leader's influence, since the focus is to improve learning and teaching with secondarily process. Instructional behavior comes from the arrangement of tremendous culture practice and student contentment. No matter how effectively a leader communicates thegoals; there will always be uncertainty in the goals set by them. This uncertainty keeps the staff from fully understanding their objectives because the objectives of an organization are not clear. In addition, if the objectives are not clear then leadership does not have adequate foundations to assess the actions and achievements of the school. In short, leadership needs to develop strategies to communicate the school vision effectively and then decide the ways to achieve the objectives in order to improve the effectiveness of the school. One way communication can move staff into action is by illustrating them to disorder and disequilibrium that exists and how it has reached a point where it cannot be ignored (Ramayah, Roy, Arokiasamy, Zbib, & Ahmed, 2007).

The private educational institutions have no any financial support from the government to fulfill their requirement for providing better teacher's instructional behavior to the students. The Leary model emphasizes on the mutual interaction between teacher and students. (Foa, 1961; Lonner, 1980). Instructional behavior of the teacher towards the students is a primary key to success. One of the basic act of a leader is to encourage people to be conscious and aware of what they feel, to feel strongly their true needs, to define their values so significantly that they can shaped into purposeful actions. Instruction improves effectivenessif administration and administrator are fully available during working hours. Administrators' interest towards improving instructional program instead of playing bureaucratic role, helps meeting future challenges and removing problems in learning. The above mentioned characteristics of principals can indulge teachers and students in teaching learning (Blase&Blase, 2003; Karakose, 2008). It depends on foremost priority of the principals' either to set instructional process by maintaining opportunity cost or playing bureaucratic roles like traditional school principals. Therefore, the instructional leadership approaches by using current trends of educational challenges are assumed suitable for leadership approach (Claik, Sezgin, kavgaci, &Kilinc, 2012; Sarikaya&Erdogan, 2016). In this regard, principal's role is to identify the teacher's needs and requirements to encourage and satisfy for more productive performance. Enueme&Egwunyenga (2008) supported the contention between the factors executed the teachers' performance including lesson planning, scheme of studies, instructing supervising and checking of understudies work. Qualities and discipline of instructor's support framework of the school. The enactment of educators could be assessed through yearly reports through their lessons. A definitive objective of schooling is maximum learning of the students upon the side of the students. For staff improvement and productive instructional leaders, the role of the principals including visiting and observing classroom regularly, arranging courses, workshops and meeting united with proficient affiliations. Furthermore, favorable and empowering condition could expand the work accomplishment based on successful communication of principal in organizing workshops, conducting seminars, all the paper work correspond in gathering and demonstration to display clear objectives assessment causes better instructors performance and its empowerment in goal accomplishment. Principals can exercise through action taken for sorting out social exercises by keeping in mind the end products of instructional efforts coordinated with goals, staff and students.

Additionally, with the act of ILB, principals can likewise procure considerations of students' parents together, partners to improve the instructors dedications with school and progression of school training. This new element of instructions take weightage of the instructional requirements so for including involvement in instructional program, wellbeing and prosperity of students; value added workforce; overseeing budgetary litigation; keeping records; joint efforts among partners ; and increasing students achievement. Those who are concerned with the meeting academic difficulties are said to be effective leaders (Cross and Rice, 2000). Hallinger presented the "Instructional Leadership Theory" keeping in mind the end goal to help the school principals in accentuating on imperative highlights of instructional initiatives constantly and empower them for driving their school efficiently (Hallinger, 2005; Murphy, Hallinger, &Heck 2013).

While investing their efforts in classroom, principals needed to deal with the instructional program by working on mission and setting up objectives according to the needs of institutions, viable school atmosphere, contributing effectively in learning procedure and caring for the instructors in their instructional circumstances. Besides, principals rely upon authority through investing energy in instructional practice at their schools (Hallinger, 2005).

Leader's participation according to set instructional leaders' effectiveness is necessary component of teachers and students'outcomes.Various research studies maintained that IL could be accomplishment with the both directive and non-directive approach. Performance quality of teachers focus through indirect instructional leadership. The studies are also argued that diversities of IL behavior highly predictable for assessing performance among teachers and students (Day, Gu& Sammons, 2016).Their direct or indirect effect on teacher's performance is the dynamic role of the principal as instructional leader of schools. Direct effects of IL are termed as leader own effort in school improvement. On the other hand, the indirect impacts can be measured through mediated efforts of other individuals, events, actions, organizational and cultural factors along the leaders (Witziers, Bosker, & Kruger, 2003).

Despite this, the principals who possess instructional leadership qualities frequently visit in classroom to monitor how teaching and learning processes are taking place and when there is something good happening, they will praise the teacher. Not for earning but increasing their generosity (Blase&Blase, 2003).

Primary functions of a school are teaching and learning only. The instructional leader plays a fundamental role in quality of teaching and instructions, extent of students' performance and school effectiveness. Another, study reported useful practice of instructional leadership by its principal perk up the quality control on education system of the school (Tshering&Saangmek, 2016).

Blase (2003) gathered data by means of open ended questionnaires amongst 800 American school teachers revealed roles of principals influenced instructional practices to a countless effort. The first role is to be taughtthe teachers for preparing themselves for their daily routine. Recognizing and generating opportunities for professional development is the subsequent role of the instructional leader. Likewise, Waters, Marzano&McNully (2004) done 70 research papers through data analysis carried out by researcher on instructional leadership abridged with teachers performance and student achievement. Harris, Jones, Cheah, Devadason, & Adams (2017) investigate the principals' instructional leadership (ILP) primary schools in Malaysia by using the factors of the model of Hallinger& Murphy (1985).

Previous studies

A study by Leithwood, Louis, Anderson, and Wahlstorm (2004) that there is a logical relationship between students and teachers supporting instructional practices of teachers according to students' needs, directly and frequently.

Gentilucci and Muto (2007) investigated the principal leadership behaviors that enhance students' accomplishment. Adeyemi's (2010) study depicted that the impact of principals' ILB on educator's execution in Nigerian optional schools and found that autocratic and democratic style of leadership are not only better for getting expected outcomes from students but also impact on job performance. Peariso (2011) additionally explored ILB of the principal administering secondary school (HS) in California utilizing PIMRS and PBS and TBS instruments among the principals and educators. The discoveries revealed that the principals of effective secondary school were tied up with ILBs. IL support principals developed instructional leaders within the institution (Robinson, 2015). Further this research study provided a provision of IL in high schools. Sarikaya&Erdogan (2016) tried continuously effort to find association between ILBs of principals and teachers' perception towards execution in organization.

Most of the principals show ILBs in setting and sharing of goals connected with teachers' organizational commitment. The effects of ILBs influences on IL on teachers' efficacy enhance through developing and devise education programs. Pakistan facing economic problems due to which human resource management (HRM) is not fully standardized. As a result here is only one person's involvement in decision making, to reduce the conflict due to which open communication team work and collaboration rectified (Advani&Gulzar, 2016).

A further study was conducted by Sarikaya and Erdogan (2016) in which they tried to find an association between Turkish HS principals and ILBs, the prediction of commitment by ILBs and perception towards organizational commitment. The study shows that principals were fond of sharing and setting goals in displaying ILBs but were least interested in developing and supporting teachers. A little interest was observed from teacher's side towards compliance and medium towards internationalization and identification dimensions in organizational commitment.Between ILBs of the principals and organizational commitment, a negative correlation was proved towards internationalization dimensions. On the other hand, a positive and significant correlation was found between teachers organizational commitment. Effects of ILB on efficiency of the teachers at elementary school level was determined by a researcher named Pearce (2017), in which open ended questions were used to assay the perception of the respondents through survey research method but the survey found no significant effects of IL on teachers efficacy.

In the same way, the principals were advised to develop educational programs for the purpose of enhancement of the perceptions towards teachers' efficacy. The performance of the teachers is used to be affected at very low rate regarding principals' behavior as teachers' performance has already been measured through student's achievement.

Theoretical framework

The principals were reportedly improving and forming the instructional practice of teachers' educational research carries a number of model and different kind of theories regarding instructional leadership. For example, Leithwood (1994) put forth an investigating theory on instructional leadership in which he holds that the process of sharing and analyzing of various instructions and different kind of approaches must properly be held by the principals to pay some positive role in improving the teaching and learning process. In the similar way, Lithwood, (1994) says that the learning is much more important than teaching. Furthermore, according to this theory, the principals need to improve the learning achievements by help both the teachers and students as well.

Hallinger and Kantamara (2000) conceptualized and introduced the IL model presented by Leithwood, Seashore, Anderson, and Wahstorm (2004) in an interesting way. There are three aspects or parts of Hallinger's model etc. a) defining the school's mission, b) managing the instructional program, c) and promoting a positive learning climate. These three dimension were further categorizing into ten more functions: 1-framing the school's goals, 2- supervising and evaluating instructions, 3-communicating the school's goals, 4- monitoring student's performance, 5-curricullar coordination, 6-protecting instructional time, 7-providing incentives for learning, 8-providing incentives for teachers, 9-maintaing high visibility and 10- promoting professional development.But Hallinger& Murphy's (2013) theory was proved quite suitable for high school setting only. On the other hand, the participants' development with respect to instructional leadership was explored by a famous researcher Robinson (2015). Further, he happened to detect the hurdles in the way of principals to be instructional leaders. He also assessed different perceptions in regard to the external support.

Rationale of the study

Instructional leadership needs to be improved between teachers and principals to such an extent as it would help enhance the level of effectiveness in teaching learning process. There is dire need to define the instructional leadership in Pakistan as it pays very important role in developing students learning through effective teaching because instructional leadership is considered a vital part of it.

The concept of instructional leadership has largely been spreading in Pakistan for last few years due to its worth and great importance. Therefore, to measure the impacts of the ILBs of the principals on teachers' performance, such kind of studies are badly needed to be conducted in educational institutes particularly in public schools sectors. The main objectives of the study achieved were to investigate the effects of principals' ILB on teachers' performance which arouse the following research question.

The study is an imperative initiative to throw into the knowledge on instructional leadership behavior in Pakistan. This study has looked into instructional leadership behavior of principals, regarding with the teachers and students perspectives and to endow with concrete findings and subjective to comprehend the observable facts in local circumstances. This substantiation may establish significant conclusions to situate the leaders of broader goals in school. The result may be helpful for school heads, teachers and policy makers to follow in producing and upholding the performance of schools and it gives power to all the stakeholders in education field. The findings put together for important decisions, which provide instructional guidance, flourish and implement strategic enhancement plans with the efficient instructional leadership of principals. In addition, this research would endow with insightful conclusions to the principals of school, head teachers, administrators, teachers and policy makers to comprehend the implications of leadership in instructional practices for endorsing cohesive, learning oriented and collaborative atmosphere in the school.

Methodology, instrument, data collection, data analysis

The study was descriptive in nature. Comparative analysis was furnished between two groups for the instructional leadership behavior.

Presently there were 179 government secondary schools for girls and 152 government secondary schools for boys in Lahore district. In this research study, from four districts, principals were selected for interview. It was explored that external support for example, monitoring, district support, coaching reading and team support were traced as important factors in developing instructional leadership in principals. People and time were two major hurdles found in this study. A support system was recommended for high school principals in their specific and peculiar areas of instructional leadership by the researcher.

For this study, multistage sampling technique was used; stratified random sampling technique was used at first stage. To ensure random representation of participations' strata were made of both female and male schools. At the second stage 16 boys and 18 girls public schools were randomly selected. At the third stage, seven teachers from each school were selected as a sample by using random sampling technique for this study and total sample size comprised in 238 teachers.

The survey questionnaire prepared by Dr. Philip Hallinger (Hallinger, 2008) was also adopted with the approval of the author. The structured questionnaire was developed to discover the instructional leadership behavior of principals' and teachers' performance in educational institutions.

The instrument was used for the survey consists of one assessment of principals' instructional leadership behavior and observation of teachers' performance. The first part of Survey questionnaire was divided into six segments including five statements per section and questionnaire second part consisted of five sections which contained five items for every section. The data collection instrument includes area, age group, job practice, time and education for teachers. Likert five-point scale was used in the questionnaire to know the reaction of the respondents.

The questionnaire was personally administered to the respondents. Instructions ensured the respondents that collected data will be remained confidential. Teachers' data shows their principal instructional leadership behavior in public schools of Lahore. To observe teachers' performance in class a teachers' observation scale was used.

To analyze the data regression analysis techniques were used. Means and standard deviations were calculated with the help of descriptive statistical analysis. These results will show the percentage of the subject according to their demographic representations. Cronbach'sAlpha was used to estimate the reliability of the instrument and the value 0.991 indicating that the scale was highly reliable. The results are presented in the following table.

Table 1

Multiple regressions in standard analysis of PILB: Model-1 on Teachers' Performance (TP)

lel	Model 1			
	Instruction Planning and Designing			
1odel	B	E(B)	β	P
f School				
sion & Evaluation Instruction				
ring Student Progress				
rs' Incentives				
ional Development				
ıg Incentives				

R^2 = 0.169, F= 7.808

Model 1. Progress of Students and Professional Development Promotion has significant and positive effect on Instructions' Planning and Designing at 10% and 1% respectively. Normally, the sum of this specific model is fit with F=7.808.

Table 2

Multiple regression in Standard analysis of PILB: Model-2 on Teachers' Performance (TP)

lel	Model 2			
	Instruction			
1odel	B	E(B)	β	P
ınication of the School Goals	02	067	91	27
sion and Evaluation Instruction	79	076	69	99
ring Student Progress	25	071	112	77
rs' Incentives	52	071	50	69
ional Development	78	079	62	01
ıg Incentives	71	071	54	00

R^2=0.379, F=23.543

Model 2. MonitoringProgress of Student had significant and negative effect on Teachers' Instruction Incentives and Provide Learning Incentives have significant and positive effect on Instruction. The sum of this specific model is fit with f=23.543.

Table 3
Multiple regression in Standard analysis of PILB: Model-3 on Teachers' Performance (TP)

...lel				Model 3	
				Management of Classroom	
...Model		*B*	*E(B)*	*β*	*P*
...nication of the School Goals		01	074	86	77
...sion and Evaluation of Instruction		68	084	40	48
...ring Student Progress		081	079	068	06
...rs' Incentives		091	079	84	52
...ional Development Promotion		14	088	02	99
...on of incentives for Learning		81	079	45	00

R^2=.306, F=16.948

Model 3. Supervision and Evaluation of Instruction and Provision of Incentives for Learning have significant and positive effect on Classroom Management at 5% and 1 % level of significance respectively. The β value Supervision and Evaluation Instruction was 0.14 which stated that 1% increase in Supervision and evaluation Instruction increased Classroom Management by0.14%. Similarly 1% increase in proving Incentives for Learning will increase Management ofClassroom by 0.845 %. The sum of this specific model is fit with f =16.948.

Table 4
Multiple regression in Standard analysis of PILB: Model-4 on Teachers' Performance (TP)

...lel				Model 4	
				Assessment	
...Model		*B*	*E(B)*	*β*	*P*
...nication of the School Goals		12	.075	097	37
...sion and Evaluation Instruction		92	.085	078	79
...ring the Student Progress		54	.079	046	97
...Teachers' Incentives		62	.080	058	40
...ion of Professional Development		92	.089	265	01
...Learning incentives		17	.080	199	07

R^2=.273, F=14.453

Model 4. Promotion of Professional Development and Provision of Incentives for Learning has significant and positive effect on Assessment at 1% level. The β value shows that 1% increase in Promotion of Professional Development was increased Assessment by 0.26% and 1% increase in Provision of Incentives for Learning was increased Assessment by 0.199%. The sum of this specific model is fit with f = 14.45.

Table 5
Multiple regression inStandard analysis of PILB: Model-1 on Teachers' Performance (TP)

lel				
				Model 5
				Professional Responsibility
Model	β	Ξ(B)	β	P
nication of the School Goals	53	)69	)47	.45
sion and Evaluation of Instruction	53	)78	.32	)51
ring Students' Progress	23	)73	)20	'50
Teachers' Incentives	23	)74	!14	)03
ion of Professional Development	38	)82	!21	)04
Learning incentives	06	)73	.94	)05

R^2=.340, F=21.39

Model 5. Supervision and Evaluation of Instruction, Provision and the improvement in pedagogical skills and the professional development of teachers at 10%, 1%, 1% and 1% level respectively. The sum of this specific model is fit with f=21.39.

It was concluded through the regression analysis that a highly significant effect of principals' ILB was found on performance of teachers at secondary schools.

Major Findings

1. Most of the Teachers agreed Progress of Students and Professional Development Promotion has significant and positive effect on Instructions' Planning and Designing
2. Monitoring depicted negative affect on teacher's incentives and positive effect on teacher's instruction.
3. There is a direct positive influence of "principal Supervision" on teacher's classroom management
4. "Assessment" was deeply affected by the Principals in schools.
5. "Professional Responsibilities" of the principals at schools also influenced teacher's Classroom management. Regression analysis showed the influenceof principal on teachers and their teaching learning activities especially in planning, method of teaching, class control, classroom management and assessment techniques.

Conclusion and Discussions

Instructional leadership is one of the major phenomena in schools which affected teaching and learning process. If the principal concerned is to work for the welfare of institution instead of profit making. He/ She improve teaching and learning in effective manner. The current study tried to measure the principals' instructional leadership which deeply affects the teaching learning activities of teachers and their performance at secondary school level. The results of this specific research study would be beneficial for teaching learning activities and in the instructional leadership behavior of principals of schools. While on the other hand, it would be helpful in assessment and curriculum development.

Planning is foremost priority of running any session. If themission statement is clear principal efforts with teachers done an outstanding effect on students' performance which can be measure in term of assessment of students. Planning is awful if the instructor who plan actively playing role for running it in effective manner. As results from the above study shows teachers were taking an active part in planning and designing of instructional material.For the confirmation of results descriptive statistics also presents that the teachers were found in managing and controlling the class properly.

Instructions are actions taken by principal to improve teacher instruction. A proper instruction boosts directing inside the institution which ultimately improves teacher's methodology of instructions. Direct instructions from principal to the staff members regarding the teaching strategy for assessing students inspire teacher instructor to doeffort for its implementation. Appropriateness ofinstructional methodologyinitiate with steadycheckingon student's performance but instructional feedback effect the quality of instructions. It may enhance students learning process but it slow down teacher instructional compulsion. Teachers who are found to deliver instruction without any interference stimulated productive outcomes in term of completion of lesson. As findings depicted monitoring have negative effect on instructions incentives and positive effect on Instruction delivery in classroom. Principal took actions to supervise the teacher performance and learning outcome. Direct observation and frequent suggestion improves instructions in classroom and also helps teacher in managing the class. If supervision is

strong class management is strong and vice versa. Instruction and Incentives are the tactics used by teacher for managing classroom. Results from findings depicted supervision strongly influence in class management by the assistance of instructions and incentives

Good assessment based on visibility of teachers and students thinking. Assessment of learning process unlocks the barrier of learning and makes students able to learn their own. If instructors are professionally developed then assessment is value loaded. It is important for getting feedback from students about what to include and what to exclude from content. Above discussion concluded that assessment provides the outcome of all the effort the whole community of educational institution done for achieving their desired goal.

An expert individual always value-added for organization. An experience principal takes all initiative on time. An expert principal have ability toface the rise and fall situation with in organization.So, he/she able to overcome any conflict as early as possible .Above fact highlighted that Teacher performance highly affected with instructional leader'sbehaviour.

If methodology of teaching is appropriate class control, class management and assessment techniques are effective. In short these five factorsserveas building block in instructional leadership. In ILB the principals of schools had influence on teachers and their teaching learning activities especially in   planning, method of teaching, class control, classroom management and assessment techniques. These results of regression analysis showed that a highly significant relationship exist in it.

The results were supported with the studies (Gentilucci& Muto, 2007); (Adeyemi's , 2010) ; (Peariso, 2011) and (Robinson, 2015)

Recommendations

According to the above mentioned study and its outcomes, the researcher chose the followings suggestions for future researchers:

1. The current study shows improving programs for school principals can be helpful to promote instructional leadership.
2. Favorable and accelerating education atmosphere can be attained with cooperation of both teachers and principals.
3. While on the other hand this current study also suggests that such kind of research can be conducted at secondary school level located in both rural and urban areas etc.
4. The current study also investigated that mixed mode research is more reliable that describes all factors more in depth.
5. Upcoming researcherscansee differences in teachers' and principals' perception towards demographic factors, such as race, gender, and years of experience.
6. In future researchermay discover the perceptions of students towards their principals' leadership behavior by the usageof survey instrument.

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Effect of Reflective Teaching Practices on the Performance of Prospective Teachers

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Abstract

The present research aims to examine the effect of reflective teaching practices on prospective teachers' performance. Reflective teaching practice helps teachers to plan, implement and improve their performance by rethinking about their strengths and weaknesses. An experimental study within an action research was conducted by the researchers. All prospective teachers of sixth semester in a women university's teacher education program were the population of the study. From total 40 students, 20 students were taken as experimental group and the rest of 20 students were taken as the control group. During the action research, a cyclic process of producing a module, training teachers for the reflective practices and then observing them during their class for replication of reflective practice was done by the researchers. The researchers used a set of tests and a rubric for assessing prospective teachers' performance before, during and after their training as well as teaching practice. Finally, the module was modified with the help of findings. It was found that the training has improved the performance of teachers as they revised and modified their teaching strategies through reflective practice. However, they were not able to train their students for reflective practice as per expectation. The study has implications for teacher training programs to include reflective practice modules as part of their course work for making them better teachers.

Keywords: *Reflective practices, performance, prospective teachers, teaching practice*

Effects Of A Computer-Programmed Instructional Strategy On Basic Science Students' Learning Outcome In Two Instructional Settings In Ondo State, Nigeria

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Abstract
This study investigated the effects of computer-based learning on students' academic performance and the learning setting that yields better when students are exposed to Computer- programmed Instructional Package .This research study tends to find out the efficacy of CAIP on students' performance in Basic Science. In actualising these, Quasi-experimental pre-test- post-test research design was adopted and used. Two secondary schools were purposively selected and assigned to Experimental groups 1 and 2 in equal numbers. Students in Experimental group 1 were exposed to CAIP individually; Experimental group II in Cooperative groups. An equivalent school was selected as control. 40 students in JSS 3 were randomly selected from each of the schools .Test-retest method was used in finding the reliability of BSAT which was used for collecting data. Result was 0.78 at 0.5 level of significance. Data collected was analysed using descriptive and inferential statistics of percentages and Analysis of Covariance (ANCOVA). The result of the analysis of co-variance and the Scheffé post hoc revealed that students taught with the developed package performed significantly better than their counterparts taught with conventional method of instruction. This paper also discovered that the cooperative group, where a class of forty students are grouped into ten enhanced better and faster learning than individualised learning. Results from the instructional settings show that knowledge acquisition was enhanced in all with the cooperative instructional setting performing better than their counterparts in individualised instructional setting and conventional group(individualized=X=66.53, cooperative=X=76.75, conventional=X=59.40). Consequently, the paper recommends that computer programmed instructional strategy should be encouraged for learning Basic science and corporative instructional setting should be encouraged for learning Basic Science.
Keywords: *Knowledge acquisition, individualised setting, cooperative setting, basic science , CAIP, Computer-Programmed Instructional Strategy.*

Introduction

Technology has reduced the whole world to what is called a global village. The advancement of technology affects every aspect of human endeavour. Every country desires and aspires to be among those that have been rated as advanced. Information and Communication Technology (ICT) is therefore indispensable for any country that wants to belong to the global village. Muir (2000) believed strongly in the push for change in educational learning through technology. Integration of ICT into teaching-learning process is adopted through the use of computers and other technological materials in delivering curriculum contents. Research indicate that ICT can change the teaching and it is especially useful in supporting student centred approaches to instruction, developing the higher order skills and promoting collaborative activities (Haddad, 2003). Teaching and learning strategies can be strengthened by the use of computers (Laleye, 2016). She stressed further that computer technology can be used to complete school work more efficiently, either through the use of dedicated educational software or by simplifying basic tasks such as written assignment, checking of results, registration etc. According to Chado and Okwori (2014) computers ease instructional problems and can be exploited to enhance teaching and learning in all schools. Effective teaching and learning of science requires that science teachers use different methods and pedagogical skills to meet the demands of the science students, the challenge to science technologies and the demands of an ever changing educational environment. The teacher needs to discover new ways of motivating and stimulating the diverse abilities of the science students, many of whom have different learning styles and different orientations to life. Learning is a function of experience and a combination of cognitive, affective, psychomotor and physiological responses that characterized how each student learns (Ogunleye 2005). Also Barron et al (2015) define learning as the process by which a relatively lasting change in potential behavior occurs that brought about by experience. Part of the drive towards greater use of modern technology in education is aimed at modernizing schools and equipping the pupils of today with skills that will enable them to use such technology in the workplace once they leave school. According to Abba (2003), to benefit from the opportunities accrued to the use of technology in learning, effective strategies should be provided for acquiring and using knowledge. He explained further that science education in general and Basic Science in particular today, demand for teachers capable of handling the new technology and helping students interpret, re-package information and provide information - rich environment for communication.

Integration of ICT into the teaching-learning process is adopted through the use of computers and other technological gadgets for curriculum content delivery. The computer could be accessed individually or as a group unlike what we have in a conventional classroom where students are lumped together irrespective of their individual differences and class size. This study intends to find out the effect of a developed and validated package-Computer Assisted Instructional package (CAIP) on students' performance in Basic Science. Due to individual differences, some students learn well as individuals while some amidst their peers in form of group work. The research went further to find out the instructional setting that will yield better performance with CAIP.

Computer Assisted Instruction (CAI) is a new teaching- learning strategy in which the topics to be taught is carefully planned, written and programmed in a computer which could be run at the same time in several computer units and allows each student a computer terminal (Kumar and Chaturvedi, 2014). Computer-Assisted Instruction (CAI) was defined by Sanni and Osungbemiro (2003) as programmed instructional material presented by means of computer or computer systems. They stressed further that what makes CAI most interesting is the degree of information between the users and the machine as facilitated by colourful and attractive machine interphase. They are of the opinion that the problem of lack of interest shown in serious scientific studies could be minimized by the adoption of a more innovative approach based on information technology. They argued further that it is only this that is capable of evoking the exclusion of all other established teaching methods. The innovative approach mentioned by these researchers is the use of Computer-Assisted Instructional Packages or Computer-Aided Learning or Electronic- Learning. Traynor (2003) is of the opinion that CAI programs increase student learning by increasing motivation. To facilitate the use of computer and packages in teaching and learning, acquisition of basic ICT skills and capabilities have recently been made mandatory as part of the national minimum standard for teacher education and first degree in education levels. Also, all universities in Nigeria have made ICT skills a requirement for all students in form of general studies that must be passed before graduation. Thus, the teacher education colleges have also been impacted by the current ICT revolution.

Science is an indispensible phenomenon, which has ramification in all aspects of human endeavour. Science is the rational and systematic study of the environment through experimentation and observation with a view to understanding the environment in order to manipulate and control it for the betterment of human conditions (Njoku 2007). Nwagbo (2006) sees science as the bedrock of technological careers. He explained further that scientific and technological development is dependent on the level of scientific knowledge a nation has; claiming that high level of scientific and technological attainment is dependent on the science education of the citizenry.

Science, as a subject, was introduced into the school curriculum in order to inculcate scientific ideas in learners and to provide solution to problems, which appear to them (children) as taboos (the taboos in our society are not testable and verifiable). It was introduced to the school curriculum as rudimentary science which was nature study. Before 1999,Basic science was taught as Integrated Science but in 1999 , Universal Basic Education (UBE) Programme was initiated which changed integrated science to Basic science in the first 9 years of the education system i.e. primary school and the junior secondary school. According to the designed curriculum for Basic Science (2008), the curricular are designed to allow curriculum planners and implementers to adequately target pupils' needs and interests in a rapidly changing society like Nigeria. Presently, primary schools have adopted the new name of Basic Science but some junior secondary schools in Ondo State still use the old name (integrated science) with the new curriculum.

Since science is an indispensable phenomenon, it is imperative to look for better ways of teaching it. According to Agusiobo (2000), Basic Science curriculum planners stressed three basic strategies in teaching the subject. They are:

1. Use of discovery teaching tactics;
2. The inclusion of problem solving activities; and
3. The involvement of students in open ended laboratory exercise.

The problem facing the teaching and learning of Basic Science emanated from the curriculum planners. The syllabus drawn for the three years is too voluminous that teachers can hardly cover them within the duration given i.e. three periods per week of 40 minutes per period. As a result of this, teachers rush to finish the syllabus but not to achieve the set goals and objectives (Afolabi, 2006). Difficult concepts, especially those that are abstract in nature could not be taught with ease using conventional method as it will consume more time and teachers will need time to gather materials for demonstration at different intervals.

Odetoyinbo (2004) recommended that Basic Science teachers should be exposed to various teaching techniques, such as inquiry, problem solving, co-operative learning and concept mapping among others to carry out hand–on tasks and activities in order to maximize the gains of Science.

Instructional settings where learning takes place can assist the rate at which students' learn. This developed package (CAIP) was tested in two different instructional settings. That is, individualized and cooperative instructional settings. Various scholars have worked on the use of computer for learning and achievement in individualized classroom setting and co-operative learning environments.

Oloruntegbe and Odutuyi (2003) in their research work on innovative ICT-based approach to the teaching and learning of chemistry recommended that there must be micro-computers, at least one system to four students in

cooperative instructional setting and minimum of 10 sets of computer for a class of 40 students for the ICT-based mode of instruction to be successful and effective. They went further to say that the classroom must be well ventilated and the sitting facilities must be very conducive. They also observed that a regular supply of electric power to operate and maintain the system is very essential. With the epileptic supply of electricity in Nigeria, there is always a need to have a stand-by generator that could be switched on when there is power outage. Their recommendation was followed in carrying out this research.

Dauda, Mwanse and Dung (2003) in their research discovered that the computer-Assisted group was not better than the control group (Conventional group) and their F-test revealed no significant difference in the achievement of students in individual, co-operative and control groups of students. From their mean tables, it was realized that the co-operative group students recorded the highest mean scores of all. From their findings, it was indicated that the co-operative use of the computer in learning generated more positive feelings, excitement and discussion than individualized computer instruction. Sherman (1989) and Okebukola (1995) in their studies supported this assertion. They made mention of the facilitative nature of co-operative learning on students' attitude. This research work intended to verify the learning environment that will generate more positive feelings and enhance better performance. Basic science is meant to encourage students rekindle their interest and to enhance their enrolment for science related courses at the senior secondary school level. The margin of enrolment between science and non-science students is very wide (Oyediran, Agoro and Fabiyi, 2004). The margin is in favour of the latter, either at the senior secondary level or at the tertiary level of education. This is a problem because the teaching and learning of Basic science, which is the foundation for sciences as observed by the researcher is at the lowest ebb. When the foundation is good, the build-up will be strong.

Problem Of The Study

From statistical records of performance of students in science at the junior secondary school final examination, the performance of students could be rated as average and not improving (Exams and Records, 2010). Monk and Osborne (2000) opined that the deplorable level of achievement by students in later years of the 20th century had necessitated the call by government and several researchers for more positive action to be initiated to put science achievement back on track. Also, in this age, technology has been integrated into every facets of the economy, education is not left out. Integration of ICT into the teaching –learning process is adopted through the use of and other technological gadgets for curriculum content delivery .The computer could be accessed individually or in groups unlike what we have in conventional classroom where students are lumped together irrespective of their individual differences and class size.

Purpose Of The Study

This work found out the effects of a developed package (Computer-Assisted Instructional Package) on the learning outcome of students in Basic Science and the influence of instructional setting on their performance in Ondo State secondary schools in Nigeria.

Methodology

Research design

The study adopted the quasi-experimental pre-test-post-test design in checking the effect of CAIP on student's academic performance in the two instructional settings. The independent variable was study conditions. The study condition had three levels of treatments: the Computer-Assisted Instruction in individualized classroom setting (Experimental group 1), Computer-Assisted Instruction in co-operative classroom setting (Experimental group 2) and the Conventional classroom setting (Control group).

The research design is depicted as follows:

Table 1: Pretest Posttest Research Design Layout

Groups	Pre-test	Treatment	Post-test
Experimental group 1	0_1	X_1	0_2
Experimental Group 2	0_3	X_2	0_4
Control group	0_5	X_o	0_6

- **Key to the table**

X_1 = Treatment of the Individualized CAI Group.

X_2 = Treatment of the Cooperative CAI Group.

0_1= Pre-test scores of the individualized CAI Instructional group.

0_2 = Post-test scores of the individualized CAI Group.

0_3 = Pre-test scores of the cooperative CAI Group.

0_4= Post-test scores of the cooperative CAI Group.

0_5 = Pre-test scores of the control Group.

0_6 = Post-test scores of the control Group.

X_o = No treatment

Research Hypothesis

Hypothesis raised to guide the study was:

There was no significant difference in the performance of students exposed to Computer-Assisted Instructional Package (CAIP) in individualized instructional setting and cooperative instructional setting; and those taught with conventional method of instruction.

Population, Sample and Sampling Technique

All the junior secondary school students from JSS1-3 make up the total population of the study. Therefore, the target population for evaluation of the developed package was all JSS 3 students in Ondo State. The criteria set for this study required that research samples are selected from schools where students and their teachers are computer literate and there are enough set of computers that will serve the study groups. This implies that the sampled school for individualized instructional setting must have a minimum of 40 sets of computer while 10 sets of computer must be available in the selected school for co-operative instructional setting. Purposive sampling method was used to select the junior secondary schools that satisfied the set criteria. Stratified random sampling was used to select 3 junior secondary schools from the schools that met up with the set criteria.

The schools were selected because they have:

Well-equipped computer laboratories with more than required number of set of computers and good stand-by generators that were needed for the study;

The students and their teachers are computer literate to work on the developed package CAIP with little or no assistance. The schools are connected to the internet to download browsers for the developed CAIP if need be. In each of the schools, 60 students were selected from the JSS 3 class out of which 40 were purposively selected. In order words, result of 120 students was used for final analysis of data.

Research Instruments

The instruments for this research were (1) Treatment instrument which is the Computer-Assisted Instructional Package (CAIP) and (2) Test instrument which is Basic Science Achievement Test (BSAT).

Test Instrument

Basic Science Achievement Test (BSAT) was developed by the researcher and is based on the content of CAIP. It is a diagnostic test that is made up of 25 item multiple-choice objective tests with four options. BSAT was given to all the participants at the pretest and posttest levels.

The pretest and posttest were graded and scored. Four (4) marks are awarded to each item, giving a total mark of one hundred (100) i.e. 4x25=100. The score therefore formed the basic data for testing hypothesis. The result obtained from the test was used to determine the Effect of Computer-Assisted Instructional Package on Junior Secondary Students' Performance in Basic Science.

Reliability of the test instrument

Test-retest method was used to find the reliability of the test instrument. An equivalent fourth school was selected to establish the reliability of the test instrument. BSAT was administered to the group of 30 students in JSS3 in the school. After a period of two weeks, the same test BSAT was re-administered to the same group of students that sat for the previous test. The individual's score from the two tests were correlated and analyzed using Pearson Product Moment Correlation (PPMC). The result was 0.78 at 0.05 levels of significance.

Treatment and Administration of instrument

For the Experimental group 1, 40 desktop computers with 18cm monitors were used while experimental group 2 used 10 desktop computers. Experimental group 2 came to the studio in groups, each group consisting of four students stayed with each of the computers. In the control group school, their teacher taught the topics on the CAIP using the necessary instructional materials. Lessons were conducted after school hours in order not to disturb their

normal school work. BSAT for the pre-test was rearranged and administered to the students as post-test after treatment.

Procedure for data analysis

The scores of students in BSAT were statistically analysed using Analysis of Co-variance (ANCOVA) to test the hypotheses raised for the research. Since there was significant difference, the post-hoc analysis was done using scheffe-post hoc test and Multiple Classification Analysis (MCA). Hypothesis was tested at 0.05 level of significance.

RESULTS

Table 1: Academic performance of subjects exposed to Individualized, Cooperative and Conventional Instructional strategies using ANCOVA.

Source	SS	Df	MS	F_{cal}	F_{table}
Corrected Model	36298.67	3	12099.56	106.82	2.68
Covariate (Pretest)	30214.15	1	30214.15	2	3.92
Group	3120.29	2	1560.15	13.77	3.07
Error	13138.92	116	113.27		
Corrected Total	49437.59	119			
Total	597133.00	120			

$P < 0.05$

Table 1 presents the academic performance of students exposed to different treatments in Basic Science. The result shows that F-calculated (13.77) is greater than F-tabulated (3.07) at 0.05 level of significance. The null hypothesis was rejected. Therefore, there is significant difference in the performance of students exposed to computer-Assisted Instructional Package in individualized instructional setting and cooperative instructional setting; and those taught with conventional method of instruction. To determine the pair of treatment groups that are significantly different in means at 0.05 levels, Scheffé Post Hoc Test was used. The result is shown in Table 2

Table 2: Scheffé Analysis of Students' Academic Performance among the Treatment Groups

Group	Individualized	Cooperative	Conventional	X	N
Individualized				66.53	40
Co-operative			*	76.75	40
Conventional				59.40	40

* Mean difference is significant at the 0.05 level.

The result shows that there is significant difference between the academic performance of students exposed to cooperative and conventional learning strategies at 0.05 level of significance. However, the mean difference between individualized and conventional, individualized and cooperative is not statistically significant at 0.05 levels in each case. In order to test the effect of treatment on the adjusted posttest mean scores of subjects, Multiple Classification Analysis (MCA) was used. The result is presented in Table 3.

Table 3: Multiple Classification Analysis of Treatment and students' Academic Performance in Basic Science

Variable Category +	N	U adjusted ∆ evn	Eta	Adjusted for Independent + Covariate	Beta
		Grand Mean = 67.56			
Individualized	40	-1.03		-2.77	
Cooperative	40	9.19	1.34	7.11	.82
Conventional	40	-8.16		-4.34	
MultipleR^2			.67		
MultipleR			.82		

Table 3 presents the Multiple Classification Analysis of treatment and adjusted posttest mean scores of students in Basic Science. The result shows that students exposed to cooperative learning environment had the highest adjusted posttest mean score of 74.67 (67.56 + 7.11). This is loosely followed by those in the individualized

learning environment with an adjusted posttest mean score of 66.53 (67.56 + (- 1.03) while those in the conventional group recorded the least adjusted posttest mean score of 59.40 (67.56 + (-8.16). This implies that cooperative and individualized learning strategies constitute potent instructional strategies for enhancing better academic performance of students in Basic Science. There was significant difference in the performance of students exposed to Computer–Assisted Instructional Package in the individualized and cooperative learning setting as performed better than their counterparts in the conventional group with the best performance from the cooperative group (individualized=X=66.53, cooperative=X=76.75, conventional=X=59.40)

Investigating the effect of CAIP on students' performance in Basic Science, the result of the analysis of co-variance and the Scheffé post hoc using the developed CAIP revealed that students taught with the developed package performed significantly better than their counterparts taught with conventional method of instruction. Result of the analysis of co-variance and the Scheffé post hoc on the effect of CAIP on students' performance in Basic Science revealed that students taught with the developed package performed significantly better than their counterparts taught with conventional method of instruction. This findings is in line with the findings of Sasser (1990-1991) on mathematics, Odunbunmi and Balogun (1991), Kulik and Kulik (1991), Adeniyi (1997) on physics, Fletcher-flin and Gravatt (1995), Christmann, Badgett and Lucking (1997), Eegunjobi (2002) on geography, Jenks and Springer (2002), Philip and Moss (2003) on biology, Bassey, (2006), Afolabi, (2006), Oyelekan and Olorundare (2009) on chemistry, Chado and Okwori (2014) on metalwork technology and Mahmud et al (2009). They all worked on efficacy of CAI at the secondary and post-secondary levels and discovered that students performed better when taught with Computer Assisted Instructional Packages than their counterparts taught the same topics using conventional method of teaching. Students in the experimental groups were exposed to the developed package in two instructional settings; these are the individualized and cooperative. Two different schools were used for each of the settings and four students made a group in cooperative settings (quad group). On performance in Basic Science Achievement Test, student in the cooperative group performed significantly better than their colleagues in the individualized learning settings. This is in line with the findings of Dauda, Nwanse and Dung (2003), Daramola (2007), and Imhanlahimi and Imhanlahimi (2008) that students taught through cooperative or interactive Computer Assisted learning strategy achieved significantly higher than those taught in individualized learning setting. This may be as a result of the interaction with one another by the students in the cooperative group Also, shy students and introverts can feel free in their own student-centred environment.

Conclusion

This research work has shown that there has been deterioration in the performance of students in Basic Science. Many factors are responsible for this. The fault may be from the teacher or the learner. The curriculum planned could not be spared. In order to find corrective measures to the dwindling performance in Basic Science, CAIP was tested for efficacy and the findings of the study revealed that students exposed to the use of CAIP in the two instructional settings (individual and cooperative) significantly performed better than their colleagues taught using conventional method of teaching. This implies that CAIP could be effectively utilized to teach the students Basic Science since learning is enhanced also students assigned to cooperative instructional strategy performed significantly better than there counterpart in individuals instructionally settings. This may be due to many factors outside instructional settings. Based on the findings of this research, it was deduce that when students work in small groups to acquire the conceptual knowledge and procedural skill in Basic Science using computer-programme instructional strategy, learning is enhanced.

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Establishment An Iraqi E-University System Using Object Oriented Analysis And Design Based On The Uml

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Abstract

The revolution of knowledge, communications and the consequent increase in information, have made traditional teaching methods incapable of being in line with scientific and technical changes. Therefore, there is a need to establish an interactive environment rich in computer and Internet based applications aim to enables students to access learning resources in any Time and from any place by using of information technology and computer networks to support and expand the educational process through a variety of means, including computers, the Internet and electronic programs prepared by academics specialized in the domain of education, which in turn leads to an increase in the numbers of learners who cannot be absorbed by traditional universities. This paper examines whether the e-university will be applied in Iraq and how it will be implemented. This view will be illustrated using UML language diagrams as component diagrams, use case diagrams, and class diagrams. The e-university, if properly implemented, will be sufficient to support higher education in Iraq.

Introduction

Today, there is a need to contribute to globalization. The IT revolution is one of the challenges faced by higher education institutions in Iraq. It should be transformed from the traditional mode of education into effective institutions. Many educational institutions in the world have begun to use e-learning, so there is a need to create learning environment with best practices the educational innovations through the Internet with the contribution of Iraqi academics in the preparation of electronic courses using advanced ICT programs such as web technology and design (Mishra, A., & Mishra, D. (2011).

E-University is a model that allows students to learn at any time and from anywhere by providing better services than traditional universities in terms of the efficiency of educational content, The UML Modeling Tool will be used as a model language for the development of systems and for the planning to create the University by giving a clear visualization of how the system components interact and the relationships between them, which will make the application of the system clearer and fast (Anter, S. A., Abualkishik, A. M., & Al Mashhadany, Y. I. ,2014)

In general, web page design consists of two categories: dynamic design and static design. The dynamic design of the web means that the web page can be changed in contrast to the static design that cannot be changed. This can be applied to small websites, but if a large site is designed as an E-University platform, the design is dynamically.

 The dynamic of the E-University is the possibility of keeping the educational courses in an electronic form accessed through the web page. This is a form of data retrieval from the database and is usually managed in a way that is easily accessible by the student (Ali, N. ,2005).

Now we will go to our analysis of Dynamic E-university platform, by using UML graphical notations to plan the system design and to know the system design mechanism and what important issues need to be done for completing the design process

Aims Of The Study

The aims of the study are:

- The establishment of a university related to the Ministry of Higher Education and Scientific Research of Iraq to cope with the huge technological development through the adoption of technological solutions in the educational process and reduce the adoption of paper documents in their administration.
- Transformation from a traditional university to an E-University

- Use the UML model in the planning process to create the university

Methodology

The idea of research is to investigate the possibility of establishing an electronic university in Iraq. The researchers used researches, textbooks, journals on websites in the process of data collection as they provide accurate information. The methodology used in research is the Object Oriented analysis and design based on the UML.

E-University's Definition

An educational environment in which web and internet technology is adopted in education and student assessment (Barjis,2003) through the use of interactive video and images in addition to providing all university services electronically, where the provision of administrative and educational services as in the traditional universities in terms of libraries and access to other resources (Aoki & Pogroszewski,1998).

E-University's History

The idea of an e-university is based on relieving the burden of traditional education away from learners. In the past, virtual education was based on identifying and sending courses to students and then re-collecting the tasks entrusted to them and obtaining assessments. This means that the communication between the university and the student was based on exchange of letters so universities were then called correspondence universities. Which was spread until the twelfth century and then began learning distance with the advent of video and audio devices (Dolence, M., & Norris, D., 2008) and Bacsich, P. ,2004).

Some studies also indicate that the emergence of e-universities in New York was in 1999 at a university college and after the success was encouraged by the rest of the university faculties to apply this experience and then was adopted in most institutions of higher education (Hamdan M. S., 2011).

In early 2000, reports showed that more than 300 training institutions in the United States were dedicated to the Internet and a state-run electronic university in 33 states offering courses and by 2002 85 percent of private colleges rely on distance learning (Olsen, J. ,2000).

The spread of e-universities in Malaysia increased when Malaysia's first university, the University of Tun Abdul Razzaq, spread to neighboring Asian countries. In 2002, there were 15 e-universities in Korea, of which 14,550 were awarded a bachelor's degree in arts (Salmi, J. ,2003).

In addition to the increasing demand for educational institutions and the inability of traditional universities to absorb large numbers of graduates of the temporary study, in addition to the need for students to the means of knowledge that traditional universities can not provide, came the need to go to the electronic university to solve these dilemmas and to save expenses in addition to the quality of education provided by e-universities (Duderstadt, J. J. ,2009).

With the significant increase in the number of electronic universities, it will be seen that these universities will have an important role in the educational process during the following years (Hamdan M. S., 2011). As one of the scholars of the future studies showed that by 2025, the traditional universities may become the past and be replaced by institutions that offer their educational programs away from the stands of traditional universities (Nelson R., 1996).

In later years to this day it was observed that not only e-universities are limited to these countries but there are many universities in the Arab countries such as Egypt, Syria, Jordan and the Gulf countries. This is the result of the follow-up studies, research and global perceptions to transfer this experience to their countries.

Traditional University Vs E-University

The difference between the method of learning in traditional universities and learning in e-universities is one of the tools used in the educational process, and since there is a clear and significant difference, there are many differences between the two methods. The differences between e-university and traditional university can be presented by comparing them (Amado-Salvatierra, H. R., Hilera, J. R., Tortosa, S. O., Rizzardini, R. H., & Piedra, N. ,2016 , Ehlers, U. D., Hildebrandt, B., Görtz, L., & Pawlowski, J. M. ,2005)

Traditional University	E-University
a primary source of learning is the teacher	a facilitator of educational resources is The teacher.
The teacher guides the student	The student learns self
Learning independently and not groups	Learning collectively through student interaction
The same thing is taught to all students	Every student learns what he wants according to his circumstances
The teacher training takes place before the education process begins and is trained later if necessary	The teacher training continues to conform to modern teaching methods

The teacher training takes place before the education process begins and is trained later if necessary	The teacher training continues to conform to modern teaching methods

The Benefits Of E- University

The limited number of universities to accommodate a large number of students forced universities to limit the admission of a large number of students in the traditional universities, which led them to be deprived of continuing their education so there is a need for an educational system that allows them to join the universities and here highlights the importance of electronic universities as follows (Clark, R. C., & Mayer, R. E. (2016):

- The possibility of disabled people to continue their education
- Seniors who missed the opportunity to complete their studies can benefit from this experience
- To allow married women who can not attend the university daily to complete their studies
- Providing the latest educational methods

A N Approach To Model Based E-University

The E-University model consists of a set of functional elements that meet to perform their tasks through specific relationships (Rudas & Horvath,2000). The system administrator performs a set of procedures such as creation, modification and other computer procedures, while the manager of the educational courses controls the teaching program, while the communication manager manages communication between the faculty members and students, there are several other managers (de Schrevel, M., & Jost, T. , 2013). as it can be seen on the (Figure 1.)
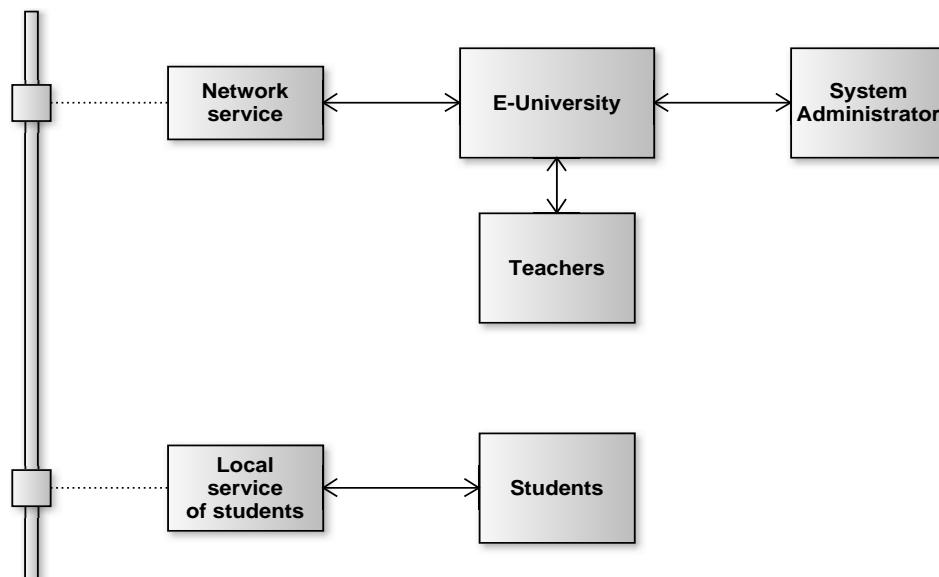
Figure 1: Basic communications.

The main structural elements of the courses consist of modules that include the subjects, which are divided into materials, activities of instructor, models and examples each of them can be applied individually as that the main resources of the electronic university are lectures, study materials and communication between students and teachers, or among them through live chat, they are published so that they can be browsed in addition to the laboratories that allow access to them through the university's electronic pages through computers. In addition, Use this modeling procedure and download tutorials as shown in (figure 2.) (Dusen,1997).
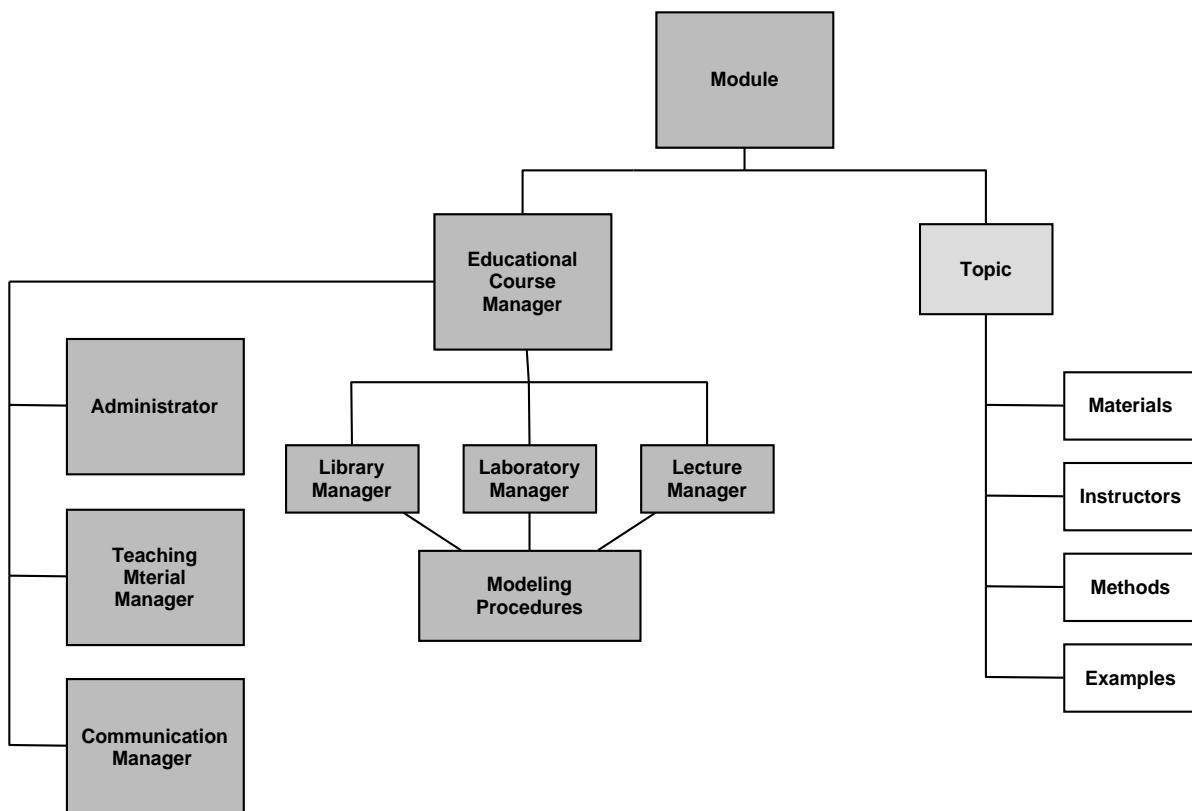
Figure 2: Functional structure of E-University

Proposal Form For E-University

Iraqi society needs the electronic university as an ambitious project that best practices and educational innovations through which the bachelor's degree is awarded in specific disciplines so we will start with a simple organizational structure as a new institution but high quality as a first step to shift from traditional universities to e-universities.

When starting the design process, the organizational structure of the university can be divided into three elements:

1. Administration area: In this area the admin will be used the tools by the to help the users (students and instructors) to carry out their duties online as they are dealing with them and meet their needs without seeing them (Kuhlthau, C. C., Maniotes, L. K., & Caspari, A. K. (2015)

2. Instructor area: In this area the instructor will be used the necessary tools to teach online and communicate with students through e-mail or interactive boards in addition to that he prepares the exams and correct answers of students online (Keengwe, J., & Kidd, T. T. ,2010).

3. Students area: In this area, an interactive environment will be provided to the students so that they can access the rest of their system elements such as access to the rotors for learning materials, in addition to access to the electronic exam environment and library (Lomas, C., & Oblinger, D. G. ,2006).
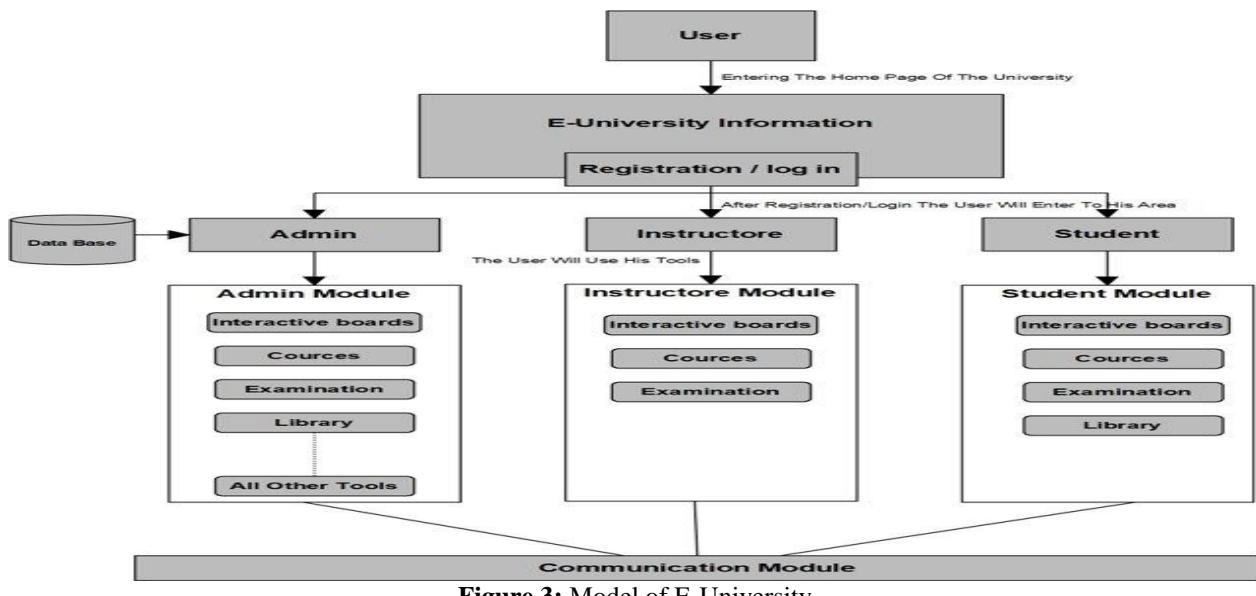
Figure 3: Model of E-University

Uml Digram

Unified Modeling Language is a standard language that is used graphical notations to plan large system designs at start-up from scratch providing multiple system visualization at the analysis or development stage (Object Management Group, 2007), The design planning process has been favored UML because it is important in object oriented software development (Sun Weixuan, Zhang Hong, Fu Yangzhen & Feng chao, 2016).

UML tools are used to prepare the code generation in various programming languages through prepared digrams that are related to the analysis of the design and give graphical notation used to create a pilot model makes the system easy to understand and use by developers (S alah, R. M., Alves, G. R., Guerreiro, P., & Gustavsson, I. ,2016).

Object-oriented technology is applied in a set of diagrams to describe system development at all stages of the development and in this paper we will apply Component diagram, Use case diagrams, Class diagram.

E- University System Flowchart

Before the design of any system it is necessary to represent the process of the system by a flowchart that is called Algorithm which identify the problems and made a solutions during the design, and here are covered components of the system by planning the roles of the system administrator, instructor and students and learn about how to deal with the system each according to his role in e-University (Dennis, A., Wixom, B. H., & Tegarden, D. ,2015). as shown in (Figures 4,5,6).
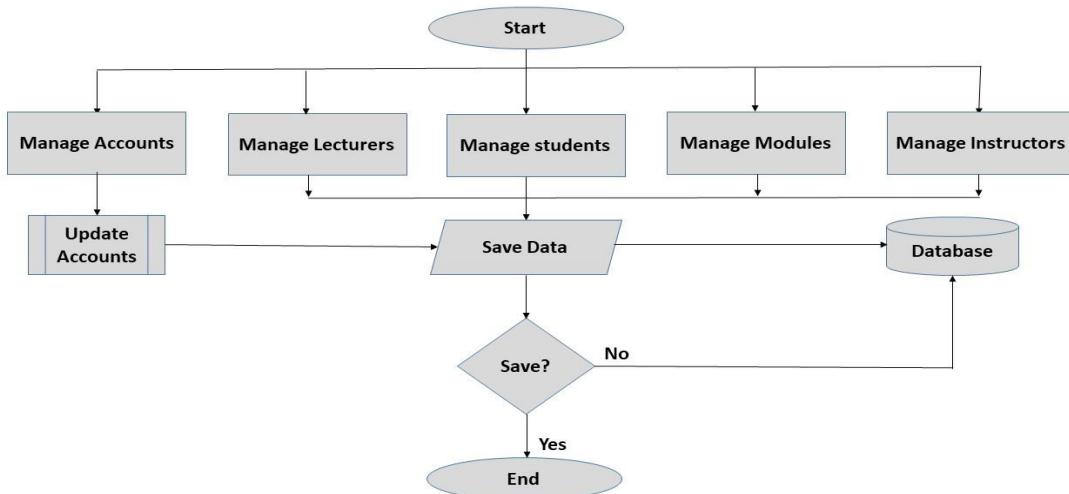
Figure 4: Admin Role in E-University

Figure 4 shows the most important tasks that fall on the manager in the process of managing the entire university system in addition to the possibility of updating the data and dealing directly with the database and these processes are summarized by the management of lectures and user accounts as a whole.
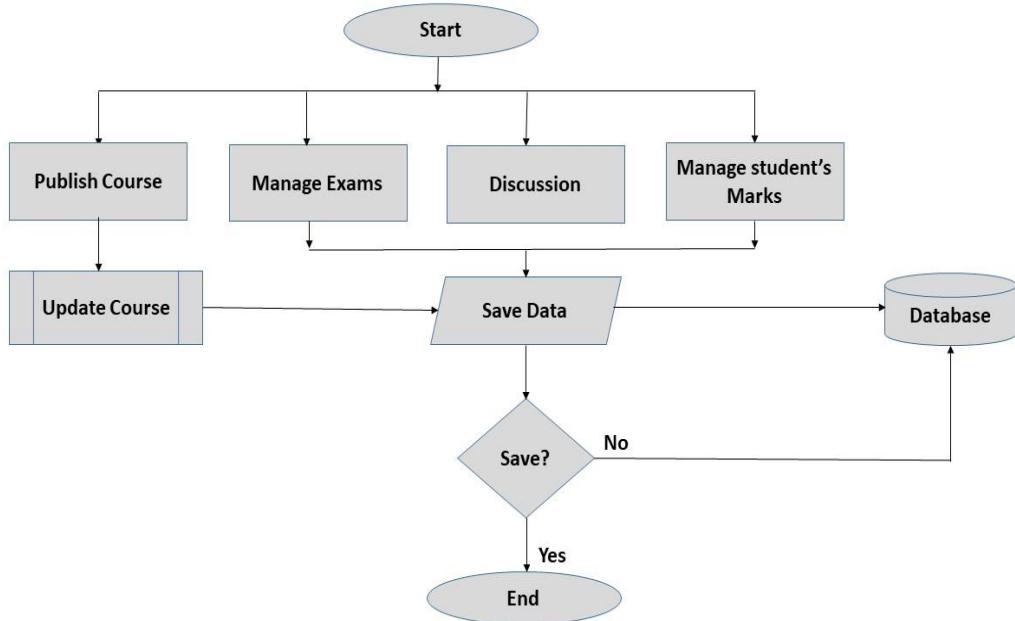
Figure 5: Instructor Role in E-University

In Figure 5, we note that the instructor is responsible for the process of publishing the lectures on the university site and the possibility of updating them in addition to preparing the exams electronically, managing the grades of students and dialogue with students through the embedded chat pages of the university system.
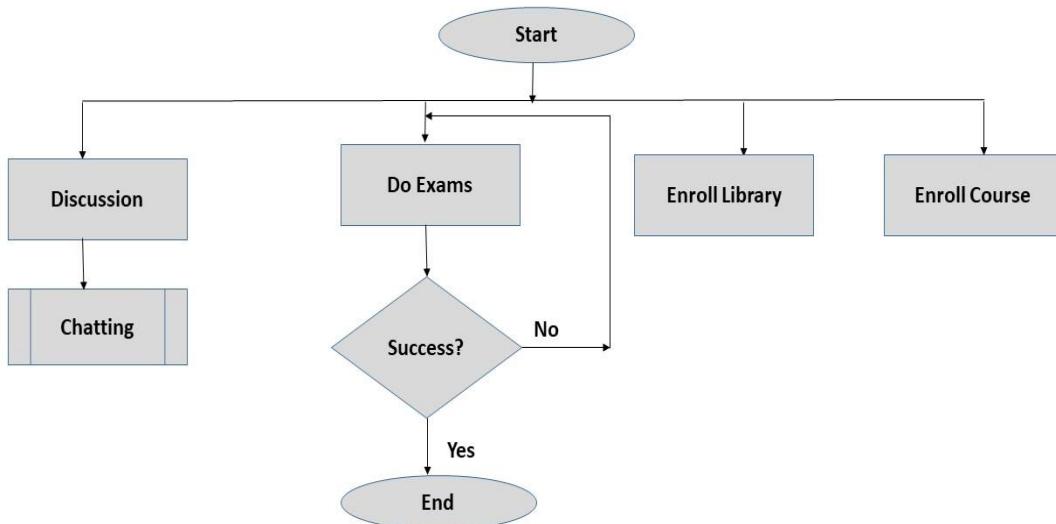
Figure 6: Instructor Role in E-University

From Figure 6 we note that the student can receive lectures and performance of exams and return in case of failure in

addition to the possibility of interaction with colleagues and trainers through the pages of chat and use of electronic books in the electronic library at the University

E-University Component Digram
A diagram showing how to connect the components of the system together to configure the interface required for the software system, in the e-university the system consists of five basic levels are: a portal for the instructor, a portal for the student, a portal to the library in and the portal management and database as shown in (figure 7.) (Sukhpal & Harinder,2013).
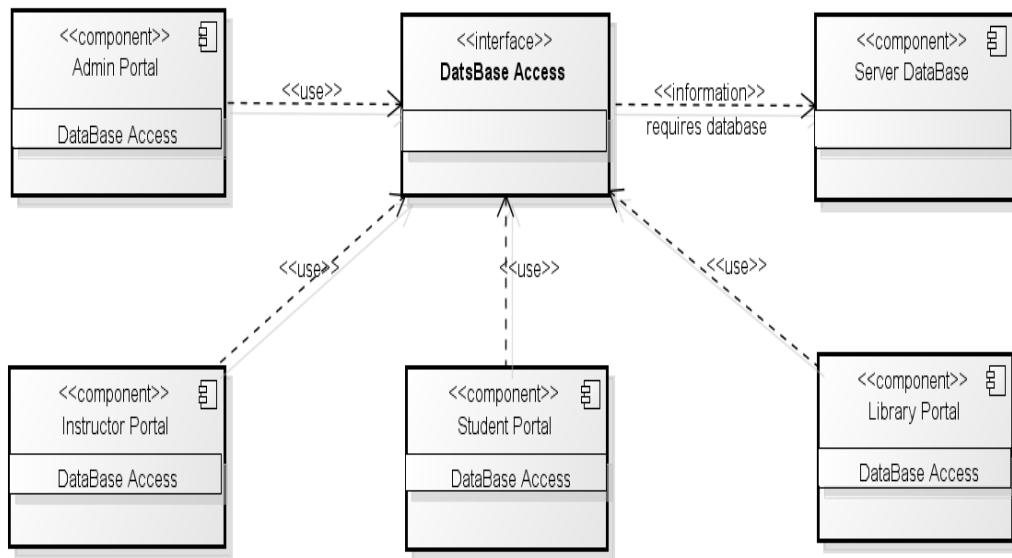
Figure 7: Component Diagrams of E-University

The database component is responsible for storing and managing the data of all users such as managers, instructors and students. The interface plays a role in providing data to users as a tool for interaction between the components of the system and the database. While the management portal is used by the administrator of the system, which provides administrative services to all users, through the interaction of the management portal with the interface after the database response to the request. In terms of the gate coaches, through which the instructor can interact with the system interface for the purpose of adding certain tasks to the Database such as downloading study materials, documents and other tasks, the students can also interact with in the library as in other portals (Graham, C. R., Woodfield, W., & Harrison, J. B. ,2013).

Use Case Digrams
It is used to determine the behavior of the e-university system and to know the typical path that the system interacts with. It is therefore relatively influenced by the details of how the internal behavior of the system and how it interacts with the external environment (Use case diagram (2),2015), In this paper events will be set using the use case diagram to help us know the system requirements during the design phase and check their handling automatically as shown in (figure 8.)
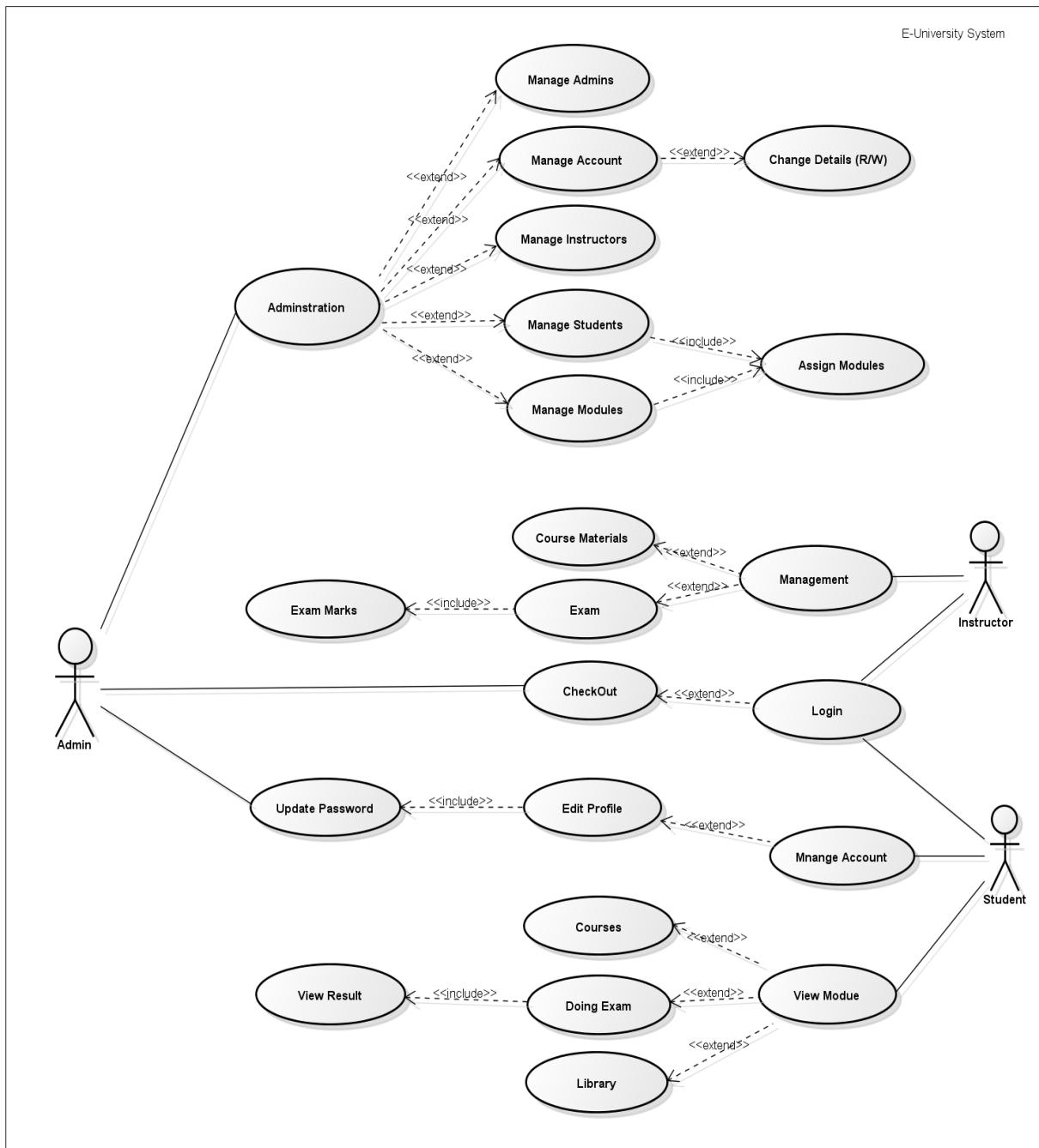
Figure 8: Use Case Diagram of E-University

Figure 8 illustrates the functions of administrator, instructors and students as follows:

- Admin: manage and define user's Permissions (reading / writing), managing accounts, managing instructor, managing students, updating user passwords and, managing modules.
- Instructors: Their function is limited to the administration of parts of the system such as managing the subjects of the courses and the administration of exams, they can also download the subjects and the question of the exam questions and correct the student answers.
- Students: They are the main users of the system if they interact with it by performing several functions such as reading the subjects, performing the exam prepared by the instructor and checking their results in addition they can entering the library to see what they need of books during their studies and they can update their own information such as password modification.

Class Digram

The class diagram is used to describe the structure of the system so that the structure has layers that have properties and are connected to each other by relationships and not necessarily be identical to the semantic entity of the system, these layers may be abbreviated to system concepts (Unified Modeling Language Specification,2014, Sharma, Srivastava & Biswas,2015) as shown in (figure 9.)
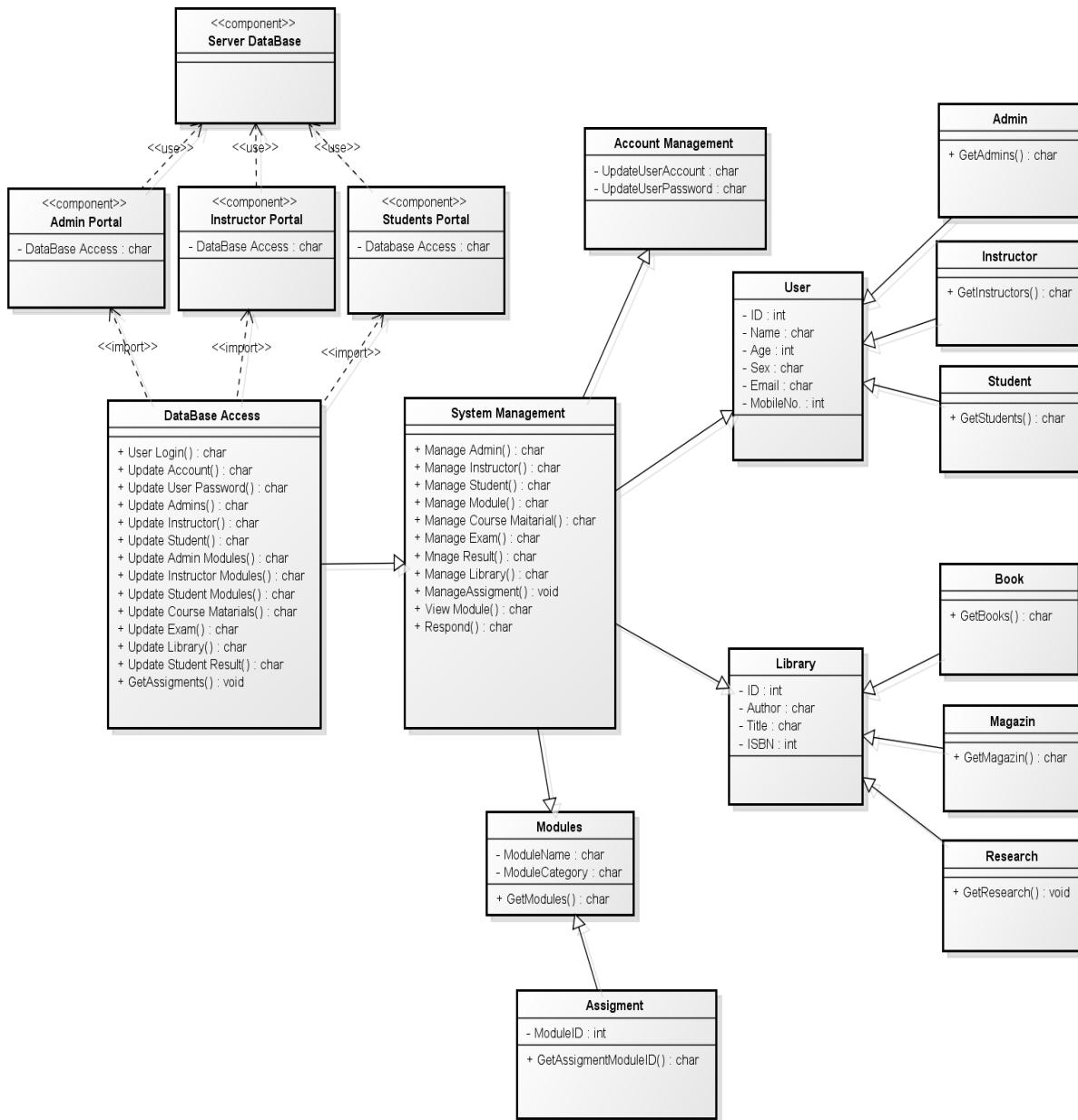
Figure 9: Class Diagram of E-University

Conclusions

After the preparation of the proposed models for the design of the e-university system in Iraq, we can say that the methodology that is developed is the basis for the application and this has been the development of many goals for the purpose of obtaining a comprehensive understanding of the application of the system and comprehension of all

aspects of the purpose of achieving the main objective which prepared this paper for it is the establishment of an e-university in Iraq, UML has been accredited to discover all possible designs and validate their design in order to reach a model that can make higher education in Iraq keep pace with technology and allow a large class of people to learn, especially those who did not have the opportunity to learn in traditional universities In the opinion of the researcher, the establishment of an educational environment that provides online learning for all at any time and from any place and in the e-university we can say that the time for higher education to keep pace with modern technology and the application of a new type of education, that is, the e- university.

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Evidence-Based Courses Of Study To Improve Post-School Outcomes For Students With Autism

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Abstract

The purpose of this study was to conduct a secondary data analysis in order to examine the relationship of three evidence-based high school course of study predictors: (a) inclusion, (b) career and technical education, and (c) work-study experience, on the post-school outcomes for post-secondary education and employment, for a population of students with autism. Participants were selected from a sample of 10,026 students with disabilities in the state of Ohio. All students identified in the disability category of autism were included ($n = 363$).

Results established three predictor variables for improving outcomes for post-secondary education and employment for students with autism. First, inclusion in the general education classes for at least 80% of the time was highly associated with post-school outcomes for post-secondary education. Second, academic proficiency, defined as passing all five of the Ohio graduation tests, was highly associated with post-school outcomes for post-secondary education. Finally, a career and technical education program was associated with positive employment outcomes for full time employment. Implications for transition planning include: (a) use of evidence-based predictors to improve post-school goals, (b) and post-school goals should reflect a course of study that improves the odds of meeting that goal.

Introduction

Autism spectrum disorder (ASD) is a developmental disability characterized by impairment in communication, social skills, and patterns of behavior, that are restricted and repetitive (American Psychiatric Association, 2004). Due to growing awareness, and changes in diagnostic practices, the number of students diagnosed with autism has increased considerably over the past 15 years (Wing & Potter, 2002), and the number of individuals identified with autism and those who receive special education and related services under IDEIA increased steadily as well (National Center for Educational Statistics, 2014). Presently, the large bubble of students identified with ASD places more importance on transition services. In order for students with ASD to benefit from federally mandated special education services, and to transition successfully, the design of high school transition planning services and the use of evidence based practices requires intensive study. With little time in high school to prepare for adult life, sound transition decisions for students with ASD are more likely to improve outcomes for life after high school.

The reauthorized Higher Education Act (2008) has increased postsecondary education opportunities for students with disabilities, and colleges are starting to provide access for enrollment (Hart, Grigal, & Weir, 2010). Likewise, employment opportunities have also improved (Howlin, Goode, Hutton, & Rutter, 2004; Newman, 2007; Taylor & Seltzer, 2001). Although employment and post-secondary education opportunities have expanded overall for students with disabilities, individuals with autism are still less likely to find and obtain steady employment and/or attend college (Billstedt, Gillberg, & Gillberg, 2005; Eaves & Ho, 2008). Barriers to employment continue to contribute to low employment rates and for individuals with ASD who do find work, they are often underemployed – working at jobs below their education and/or ability levels and at lower wages then nondisabled peers (Müller, Schuler, Burton, & Yates, 2003; Taylor & Seltzer, 2011).

Despite federal mandates to improve the post-school outcomes for all students with disabilities, recent outcome studies still indicate a discrepancy for employment, earnings, and post-secondary education as compared to typical peers (Murray & Doren, 2013). When students with autism are compared to typical peers, a large gap exists between post-school outcomes in both employment and postsecondary education (La Plante, Kennedy, Kaye, & Wenger, 1996; Newman, Wagner, Cameto, Knokey, & Shaver, 2010). There is a need for improving the quality of transition planning and programming and the use of evidence-based predictors that positively impact the post-school outcomes for students with autism (Simpson, Mundschenk, & Heflin, 2011; Test, Mazzotti, Mustian, Fowler, Kortering, & Kohler, 2009).

IDIEA 2004 and the alignment to the No Child Left Behind Act 9NCLB, (2001) holds schools accountable for how well students with disabilities perform on standards-based assessments and post-school outcomes. Therefore, transition services must consider and implement specific evidence-based practices and instructional programs that are substantiated with scientifically based research (U.S. Department of Education, 2008).

Currently, each state is required to collect the post-school outcomes of all students who have Individual Education Plans (IEPs) and are graduating or leaving high school. Post-school outcomes must be reported to the U.S. Department of Education's Office of Special Educatino Programs (OSEP). This requirement is referred to as Indicator 14. The purpose of Indicator 14 is to find out if special education students are pursuing postsecondary education or if they are competitively employed within one year of exiting high school. Data collected from post-school outcomes provides important information for evaluating transition planning and for implemention of evidence-based transition practices that can promote post-school outcomes for students with autism (Flexer, Simmons, Luft, & Baer, 2013).

The Individuals with Disabilities Education Improvement Act (IDIEA) of 2004 requires that all schools conduct follow-up of IEP students at least once very six years. In response to the state requirement for reporting outcomes for students with disabilities, the Ohio Longitudinal Transition Survey (OLTS) was developed to collect yearly outcome data for students with IEPs. Analysis of OLTS data examines and identifies evidence and predictors related to positive post-school outcomes for students with a variety of disabilities (Flexer, Daviso, Baer, McMahan Queen, Meindl, 2011). However, there is a need to determine whether these predictors have a positive effect on outcomes for students with autism.

Although there is no agreement on a full continuum of transition services for students with ASD, there are evidence-based transition practices that may be helpful. Some of these include (a) paid or unpaid work experience, (b) employment preparation and program participation, (c) general education inclusion, (d) family involvement, (e) social skills training, (f) daily living skills training, (g) self-determination training, and (h) community or agency collaboration (Landmark, Ju, & Zhang, 2010; Odom, Brantlinger, Gersten, Horner, Thompson, Harris, 2005; Simpson et al., 2011; Test, Mazzotti, et al., 2009). Few studies have examined the impact of these predictors on the post-school outcomes for students with autism. Furthermore, Test, Mazzotti, et al. (2009) suggested that future research should examine the outcomes of these predictors for specific disability categories. In this study, inclusion, career and technical education, and work-study experience, were selected and examined for their impact on post-secondary education and employment while controlling for academic proficiency, for a population of students with autism.

Method

A secondary data analysis was conducted using a logistic regression in order to examine the relationship of the evidence-base predictors: (a) inclusion, (b) career and technical education, and (c) work-study experience, on the post-school outcomes for a population of students with autism. Data for this study were selected from the OLTS database. Coded student information ensured anonymity and selected variables provided information on descriptive statistics. The IBM Statistical Package for the Social Sciences (SPSS) was used to conduct the analysis.

Prior studies of OLTS data examined the effect of gender and ethnicity as moderator variables and found some significant covariate relationships (Flexer et al., 2011; Baer, Daviso, Flexer, McMahan Queen, & Meindl, 2011). However, insufficient numbers of females and minority students precluded testing the impact on outcomes for students with autism in this study. An alpha was set at .05 due to the exploratory nature of this investigation. Because academic proficiency was significantly correlated with outcomes, it was added as a covariate in each of the six logistic regressions. Data from the OLTS database was used to address the following research questions:

1. What is the effect of inclusion on postsecondary education for students with autism after controlling for academic proficiency?
2. What is the effect of inclusion on employment for students with autism after controlling for academic proficiency?
3. What is the effect of career and technical education on postsecondary education for students with autism after controlling for academic proficiency?
4. What is the effect of career and technical education on employment for students with autism after controlling for academic proficiency?
5. What is the effect of work-study programs on postsecondary education for students with autism after controlling for academic proficiency?
6. What is the effect of work-study programs on employment for students with autism after controlling for academic proficiency?

Data Source and Sample

The OLTS collects data on school and transition variables when students exit high school and post-school outcomes one year after graduation. At the time of this study, data were gathered from more than 10,000 participants over a ten-year period (2006 – 2016). The study sample was a subset of 363 students with autism selected from a larger sample of 10,026 students with disabilities in the state of Ohio who had graduated, or aged out of special education in the

school year ending in May 2016. The OLTS database contains student demographic information, which includes disability categories. Due to the small number of participants (n= 433), all students identified in the category of autism were included in the study. Descriptive statistics in Table 1 illustrate the demographic distribution of the study sample. For the subsample of students with autism, demographic distribution was comprised of 360 male, and 378 Caucasian. This was similar to the demographic distribution reported by Shattuck, Narendorf, Cooper, Sterzing, Wagner, & Taylor, (2012) in the National Longitudinal Transition Study-2.

Table 1
Descriptive Statistics for Participants

Demographic Characteristics	Study Sample	
Total	*N* (363)	%
Gender		
Male	309	71.4%
Female	54	12.5%
Ethnicity		
Hispanic	5	1.2%
African American	25	5.8%
Caucasian	378	87.3%
Asian American	2	0.5%
Other	12	2.8%

*Source: OLTS data 2006-2017

The instrument used for the data in this study was the Ohio Longitudinal Transition Survey (OLTS). The OLTS survey uses a longitudinal design and provides information about students across Ohio who received special education services, both when they exit high school and one year after graduation. There are three parts to the OLTS survey: (a) a student record review that includes Educational Management Information System (EMIS) data, (b) an exit survey, and (c) a follow up survey. The OLTS exit survey is completed using an interview format. The student is interviewed just before leaving high school. A follow up survey is conducted one year later to provide information on post-school outcomes and to identify activities and programs that were effective in preparing students for employment, education, and independent living goals. These surveys provide student data that is collected and recorded in the OLTS database that is housed and maintained by the Center for Innovation in Transition and Employment (CITE) at Kent State University.

Outcome Variables
The dependent variables used for this study were the student outcomes, as recorded from the 2006-2016 OLTS post-school data collection surveys for (a) postsecondary education and (b) employment. For this investigation, postsecondary education and employment were defined using previously published definitions (Baer et al., 2011; Carter, Austin, & Trainor, 2012).
1. Postsecondary education: enrollment in any 2- or 4-year college, full or part time, within one year of exiting high school.
2. Employment: competitive employment, full or part time, within one year of exiting high school.

Predictor Variables
Three evidence-based predictor variables (a) inclusion in general education, (b) career and technical education, and (c) work study served as independent study variables in this investigation (Test, Mazzotti, et al., 2009). Definitions for each predictor variable are as follows:
1. Inclusion in general education defined as: participation in general education classes at least 80% of the time.
2. Career and technical education defined as: participation in three or more semesters of career and technical classes according to student records.

3. Work-study defined as: participation in a work-study program. Work-study programs focus on job skills training that leads to employment after graduation.

Data Analysis

The relationships among the evidence-based predictors (a) inclusion, (b) career and technical education, and (c) work-study experience and the post-school outcomes for post-secondary education and employment while controlling for academic proficiency were examined for a sample of students with autism. Table 2 provides information on the number and percentage of participants for each category among the predictor, outcome, and demographic variables. Bivariate correlations were used to examine the strength and direction of the relationships between variables. Table 3 shows that 10 of 28 correlations were statistically significant.

Table 2

Number and Percentage of Participants for Each Variable

Variable	$N = 433$	%
Outcome Variables		
Enrolled in four year college	82	18.9%
Enrolled in two year college	91	21.0%
Employed full time	44	10.2%
Employed part time	81	18.7%
Predictor Variables		
Inclusion	215	49.7%
Career/Tech Ed	87	20.1%
Work-study	81	18.7%
Covariates		
Female	54	12.5%
African American	25	5.8%
Proficiency scores total 5/5 passed	206	47.6%

*Source: OLTS data 2006-2017

Table 3

Bivariate Correlation Table of Covariates in the Logistic Regression Equation

	Any College	Any Work	Inclusion	CTE	WkStdy	Female	AA	OGTpass
College	-	-0.198*	0.448*	-0.089	-0.173*	-0.098	0.060	0.420*
Work		-	-0.157	-0.022	0.070	0.043	0.009	-0.155*
Inclusion			-	0.074	-0.173*	-0.155*	-0.172*	0.570*
CTE				-	-0.037	-0.014	0.026	0.058
WkStdy					-	-0.038	-0.041	-0.155*
Female						-	0.070	-0.152
AA							-	-0.136
OGTpass								-

Note. *Denotes significant correlation between variables at the $p < 0.05$ level.

To examine the effect of each predictor variable on the post-school outcome variables, an epidemiological approach was applied to the development of the final model. This approach was used to focus on the predictor variables while first removing nonsignificant interaction variables (Kleinbaum, Sullivan, & Barker, 2007). The final regression model showed whether the predictor variables were significant, after controlling for other co-variates (Baer et al., 2011). The logistic model started with one predictor variable, co-variates (i.e., gender, ethnicity) and variables representing all possible interactions among these.

Six different logistic regressions were run in order to determine if the three predictor variables were significant for the two outcome variables: postsecondary education and employment. Non-significant interaction variables were removed first, followed by co-variates (unless the co-variate was part of a significant interaction variable). The final model included "odds ratios" that indicated the likelihood of a predictor variable, after controlling for co-variate and interactions, for improving outcomes in education or employment. A significance level of .05 was used due to the relatively small sample size and all significant relationships were retained for use in the analyses.

Results
Inclusion

Table 4 shows the final prediction model for inclusion and postsecondary education for students with autism. Both inclusion and academic proficiency were significant predictors for college with contributions to the prediction (p = .000) and (p=.000), respectively. The odds ratio for Inclusion was 4.16. After controlling for all other factors, students who are in an inclusive course of study have about 4 times the odds to enroll in college as compared to students who are not in an inclusive course of study.

Table 4
Summary of Logistic Regression Analysis for Variables Predicting the Effect of Inclusion on Post-Secondary Education for Students With Autism

Predictor	B	SE B	Sig	Odds Ratio	Lower	Upper
Mainstream classes	1.425	.281	.000*	4.159	2.399	7.209
Total Tests Passed	.290	.068	.000*	1.337	1.170	1.528
Constant	-2.037	.280	.000	.130		

*$p < .05$

Table 5 shows the final prediction model for inclusion and competitive employment for students with autism. The logistic regression showed that inclusion was not a significant predictor for employment (p =.799).

Table 5
Summary of Logistic Regression Analysis for Variables Predicting the Effect of Inclusion on Competitive Employment for Students With Autism

Predictor	B	SE B	Sig	Odds ratio	Lower	Upper
Mainstream Classes	.058	.227	.799	1.059	.679	1.654
Constant	-.744	.175	.000	.475		

*$p < .05$

Career and Technical Education

Table 6 shows the final prediction model for CTE and postsecondary education for students with autism. CTE was a negative significant predictor for college (p=.019). The odds ratio was .527 indicating that students who are in careertech courses are half as likely to enroll in college as compared to students who are not in CTE.

Table 6

Summary of Logistic Regression Analysis for Variables Predicting the Effect of Career Tech on Post-Secondary Education for Students With Autism

Predictor	B	SE B	Sig	Odds ratio	Lower	Upper
CareerTech3	-.641	.274	.019*	.527	.308	.901
Total Tests Passed	.460	.061	.000*	1.585	1.406	1.787
Constant	1.590	.261	.000	.204		

*p < .05

       Table 7 shows the final prediction model for CTE and competitive employment. Career and Technical education was not a significant predictor for employment (p=.218). However, further analysis (Table 8) showed that CTE was a significant predictor for full time employment for students with autism. The Exp(B) value showed that for students who participated in career and technical education for at least three semesters, the odds ratio was 2.82. After controlling for all other factors, students who were in careertech classes for at least three semesters were about two and a half times more likely to be employed full time as compared to students with ASD who are not in CTE classes.

Table 7
Summary of Logistic Regression Analysis for Variables Predicting the Effect of Career Tech on Competitive Employment for Students With Autism

Predictor	B	SE B	Sig	Odds ratio	Lower	Upper
CareerTech3	.089	.259	.730	1.094	.658	1.819
Constant	-.579	.205	.005	.561		

*p < .05

Table 8
Summary of Logistic Regression Analysis for Variables Predicting the Effect of Career Tech on Full Time Employment for Students With Autism

Predictor	B	SE B	Sig	Odds ratio	Lower	Upper
CareerTech3	1.035	.334	.002*	2.816	1.465	5.416
Constant	-2.31	.210	.000	.099		

*p < .05

WorkStudy
Table 9 shows the final prediction model for workstudy and postsecondary education for students with autism. Work-study was a significant negative predictor of college (p=.021). The odds ratio was .419 for post-secondary education. After controlling for all other factors, students who are in a work-study program have decreased odds of attending college as compared to students who are not in a work-study program. Work-study was negatively significant for post-secondary education and these results indicate that students with autism are about half as likely to go to college if they are in a work-study program.

Table 9

Summary of Logistic Regression Analysis for Variables Predicting the Effect of Work-Study on Post-Secondary Education for Students With Autism

Predictor	B	SE B	Sig	Odds ratio	Lower	Upper
Work-study	-.676	.293	.021*	.509	.287	.903
Total Test Passed	.435	.061	.000*	1.545	1.371	1.740
Constant	-.932	.294	.002	.394		

*$p < .05$

Table 10 shows the final prediction model for inclusion and employment for students with autism. The logistic regression showed that workstudy was not a significant predictor for employment (p =.728).

Table 10
Summary of Logistic Regression Analysis for Variables Predicting the Effect of Work-Study on Competitive Employment for Students With Autism

Predictor	B	SE B	Sig	Odds ratio	Lower	Upper
Work-study	.092	.266	.728	1.097	.651	1.847
Constant	-.730	.127	.000	.482		

*$p < .05$

Discussion
This study supports previous research indicating that inclusion was an evidence-based predictor for post-secondary education (Baer et al., 2011; Test, Mazzotti, et al., 2009), and more specifically, a significant predictor for post-secondary education for students with autism. Academic proficiency, defined as passage of all five of the Ohio Graduation tests, was also significant across each regression model for inclusion, career and technical education, and work-study programs (p=.000). For the outcome of competitive employment, defined as 20 or more hours of work per week, there were no significant predictors. However, for full time employment, participation in a career and technical education program was significant and results showed that students who participated for at least three semesters were more likely to be employed full time.

Findings indicated that inclusion is a strong predictor that is highly associated with postsecondary education attendance. Recent research has shown that attending some type of postsecondary education can improve career opportunities and obtaining a college degree has a positive impact on adult outcomes (Hart et al., 2010; Madaus & Shaw, 2006). Additionally, postsecondary education is associated with increased job opportunities and higher earnings (Prince & Jenkins, 2005; Marcotte, Bailey, Borkoski, & Kienzl, 2005). Furthermore, studies have shown that post-secondary education correlates with successful career outcomes and individuals who have had any post-secondary education are employed at double the rate of those with just a high school diploma (Wehman & Yasuda, 2005; Bose & Hart, 2001).

Academic proficiency was also found to be a strong predictor for postsecondary education outcomes. This is important because students with autism who pass all five of the graduation tests have about 1.5 times the odds of going to college as compared to those who do not pass all five portions of the graduation test. An analysis of NLTS2 data by Chiang, Cheung, Hickson, Xiang, and Tsai (2012) found that academic performance was a significant predictor for post-secondary education. Additionally, higher expectations for academic success have been associated with higher rates of postsecondary school attendance (Wagner, Newman, Cameto, Levine, & Garza, 2006). Therefore, students who are in an inclusive course of study deserve a challenging and rigorous curriculum that will adequately prepare them for passing the state graduation tests and adequately prepare them for an academic future in a postsecondary setting.

Overall, 49% of all the participants in this sample enrolled in postsecondary education within one year after leaving high school. This result is similar to the NLTS2 data reported by Grigal, Hart, and Migliore (2011), indicating that 48% of youth with autism expected to attend post-secondary school. Likewise, the Digest of Educational Statistics (IES: U.S. Department of Education, 2013) reported that 46.6% of students with autism attended some type of postsecondary education. Taylor and Seltzer (2011) also found that nearly 50% of youth with autism were pursuing a postsecondary educational degree.

Within this study, 215 of the participants or 59% were in an inclusive course of study during high school and 141 or 66% of these students participated in at least one semester of postsecondary education one year after leaving high school. A 66% outcome of college enrollment provides practical implications for students with ASD lending further support for inclusion as an evidence-based predictor for improving postsecondary outcomes for students with autism. Substantiating this finding are open-ended student responses that were recorded on the OLTS follow up survey. Student comments:

- "taking a typical course load that challenged me, helped to prepare for college courses."
- taking "regular" classes was helpful to prepare for attending community college.
- having accommodation for a laptop in high school helped prepare for college because he could practice typing notes while focusing on the teacher

These comments convey the practical importance of participating in general education classes and because inclusion was an option, students were better prepared for attending college.

The second evidence-based course of study predictor examined was the effect of career and technical education on postsecondary education and employment outcomes for students with autism. Career and technical education programs provide students with a broad learning focus on high-level skills. This includes learning about living as well as learning about how to earn a living. Results showed that for students with ASD, career and technical education is not a good predictor for a postschool outcome of postsecondary education, but it is a significant predictor for full time employment. Although a career and technical course of study is considered an evidence-based predictor for improving employment outcomes for students with learning disabilities (NSTTAC, 2013) our analyses suggest that career and technical education has comparable importance for students with autism.

Within this study, 87 of the participants, or 24% were in a career and technical course of study during high school. Of the 87 students, 22% were employed full time one year after leaving high school. Although a career and technical course of study is considered an evidence-based predictor for improving employment outcomes for students with learning disabilities (NSTTAC, 2013) our analyses suggest that career and technical education has comparable importance for students with autism.

The third evidence-based course of study predictor examined was the effect of a work-study program on postsecondary education and employment outcomes for students with autism. Findings indicated that a work-study program was significantly but negatively associated with the postschool outcomes of postsecondary education and work study did not predict positive outcomes for competitive employment. This result was surprising because previous studies have shown that having a paid, community-based job while still in high school is strongly associated with postschool employment success and a key element for employment is prior job training (Baer et al., 2003; Carter et al., 2012: Mawhood & Howlin, 1999).

Within this study, 81 of the participants or 19% were in a work-study program during high school. Of these participants, 25 individuals, or 31% were enrolled in a least one semester of postsecondary education and 28 individuals, or 35% were employed one year after leaving high school. This finding is similar to the NLTS2 report of students who worked for pay (32.5%) and the Digest of Educational Statistics 2012 report of students who were competitively employed (32.7%). Although employment rates for individuals with autism are typically lower than employment rates compared to other disability categories, results from this study indicate that students who participated in a work-study program during high school had nearly two times the odds of being employed one year after exiting high school. The OLTS has identified authentic work experience while in high school as one of the strongest predictors of successful post-school employment for students with disabilities. Our results of this study provide practical implications in support for work-study programs for improving employment outcomes for students with autism.

Support for this finding is complemented by student responses from the OLTS survey. For example, one student commented that meeting with a work-study coordinator made her aware of many job opportunities. Another student commented that his high school job training program helped him find a job he enjoyed. A different student said that his intervention specialist, work supervisor, and transition to work coordinator helped him find, and keep a job. One student stated that his work-study program helped prepare him for a job. Another student commented that his work-study program showed him that he has a lot of potential, and with some training, he believes he can be competitively employed. These comments convey the importance of participating in a work-study program. Because work-study was an option for these students, they were better prepared for employment.

While transition planning for appropriate curriculum can improve the post-school goals of students with autism, gender and ethnicity can also impact post-school goals for college and employment. According to Carter et al., (2012), being male increases the odds of employment after exiting high school. Additionally other researchers (Baer et al., 2003; Boeltzig, Timmons, & Butterworth, 2009; Newman et al., 2010) have determined that demographic variables

such as gender and race/ethnicity may be associated with different post-secondary and employment outcomes. Due to the limited sample size in this study, gender and ethnicity were not able to be analyzed.

Implications And Recommendations

This study indicated that inclusion is a strong predictor of postsecondary education for students with autism. Results show that 70% of the students engaged in an inclusive course of study were enrolled in post-secondary education one year after exiting high school. However just because a student is placed in an inclusive course of study, does not mean they are in the best academic environment for learning. Rather, students who are in an inclusive course of study deserve a challenging and rigorous curriculum that will adequately prepare them for passing state graduation tests and for an academic future in a post-secondary setting. It is important for transition team member, students, and parents to incorporate effective instructional strategies and supports to promote inclusion as well as academic performance if post-secondary education is a goal. This requires access to high-quality academic programs, participation in general education classes, as well as learning supports to promote academic proficiency.

For a post-school goal of employment, it is important that students are provided with the opportunity to participate in a program that offers job training as well as work experiences. Employment is a primary transition goal of the majority of high school students with disabilities however job training programs need to include "a specific sequence of work skills instruction and experiences designed to develop students' work attitudes and general work behaviors by providing students with a mutually supportive and integrated academic and vocational instruction (Rowe et al., 2014). Previous findings about employment outcomes for students with autism suggest that they are more likely to have needs in transition planning and job training because employment goals are often directed toward sheltered workshops or noncompetitive employment (Hagner, Kurtz, Cloutier, Arakelian, Brucker, & May, 2012; NLTS2). In order to meet the employment goals for students with autism, an initial starting point is with authentic work experience in order to provide a natural environment for learning work skills as well as employment related social skills.

Limitations

This study focused on transition-aged students with autism using previously defined variables within a database. Results from this study cannot be generalized to different populations of students with disabilities. Another limitation is this study was a secondary analysis of the OLTS data. Only the variables already included in the existing database were used. Because the OLTS is a survey, it is limited by the survey questions and the nature of self-reporting. Additionally, the analysis was restricted to post-school outcomes one year after exiting high school. It is possible that student outcomes will improve over time. Another limitation was the participants were drawn from a specific geographic location. Consequently, results cannot be generalized to other geographic regions due to differences in gender and ethnic distributions. Finally, the small sample size made it difficult to determine the interaction effects of some of the independent variables (e.g., female, African American) due to the fact that most of the participants were Caucasian and male. This limits the generalizability of these findings; therefore, application of these results should be made cautiously and with the understanding that correlation between variables does not imply that one causes the other.

Future Research

This study supports inclusion as an evidence-based predictor for improving the outcomes of post-secondary education students with autism. Further research is needed to substantiate the implementation of evidence-based course of study predictors to expected post-school outcomes across a larger sample of participants. A larger sample of participants could demonstrate the effect of evidence-based predictors on the outcomes of post-secondary education and employment by gender and ethnicity. Additionally, future research should examine support services that improve academic performance and proficiency. Furthermore, analysis of outcomes several years after graduation would provide valuable information on the effectiveness of transition planning and support services necessary for sustained employment and completion of a post-secondary program. Although this analysis did not support career and technical education as a positive factor for improving outcomes for post-secondary education and part-time employment, the impact of a career and technical course of study for students with autism should be further explored.

Conclusion

Educational programming is important. According to the National Center for Educational Statistics (2014), students with autism are the fourth largest population of students receiving special education and related services. Whether students express an interest in working or attending some type of post-secondary education or training, transition planning should use evidence-based course of study predictors (e.g., inclusion, career and technical education) for promoting positive outcomes. In order for students with ASD to benefit from federally mandated special education

services, the delivery of services must be carefully designed. Post-school outcomes related to post-secondary education and employment must be reflected in students' IEPs. Planning for transition services in the IEP should begin as early as possible – starting no later than age 16 and include appropriate and measureable postsecondary goals related to post-secondary education and employment.

Previous studies suggested that inclusion, vocational education, and paid job experiences led to better post-school outcomes for students with disabilities (Landmark et al., 2010; Test, Mazzotti, et al., 2009). This study lends support to previously established evidence-based course of study predictors for transition planning. Transition planning that incorporates evidence-based programs and practices make it more likely that students will achieve their goals for college and employment. The use of evidence-based predictors provides a pathway of transition planning that can positively impact employment opportunities as well as admittance into college or a post-school training program for students with autism.

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Examining Computational Thinking Through Logic Tasks

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Abstract
Digital culture embraces all fields of modern life in such a way that the idea that besides the three basic skills – reading, writing and counting – the fourth one will be the computational thinking by the mid of the 21st century becomes more pronounced. More and more people are arguing that the understanding of computer processes should be part of the interpretation of general literacy. The data of our research conducted among university students in the academic year 2015-16 show that well-established reading comprehension helps computational thinking (Harangus, 2016). Our present survey examines the impact of reading comprehension on the efficiency of problem solving among the two lower classes of high school students. Our report is about the results that the 9th and 10th class students achieved in solving complex tasks requiring computational thinking (N = 505). The tasks were not directly related to the school curriculum, but were fun, thought-provoking puzzles the solving of which required structured and logical thinking. The results show that the impact of reading comprehension is significant in problem solving. It is meaningful to know in case of each type of task the percentage of those students who experimented with problem solving and of those who didn't even try to solve the tasks. These proportions indicate how students perceive the level of difficulty of the tasks. If they considered the task too difficult they didn't even try to solve it. It is also important to examine how far those who tried to solve the problem got in the process of problem solving. The proportions between those high school students who experimented with solving the tasks and those who didn't assume any intellectual effort indicate not only the level of difficulty of the tasks but they also highlight the rejection of adaptation to the new context. School exercises socialize students to mechanical problem solving. The practice of new knowledge is achieved by giving the students the tasks to be solved and the information needed for the solution, and then they apply the operations associated with the types of tasks.
Keywords: *Computational thinking, digital skills, logic tasks, high school students*

Introduction

In the dynamically developing and digitizing world of recent decades it has become increasingly clear to professionals that more emphasis should be placed on developing students' problem-solving thinking (Binkley et al. 2012). The training of students who can be successful in real-life, complex problem facing situations is indispensable not only for the labor market but it is also necessary to develop this ability to understand the operation of the digital world and what happens behind the surface of information society.

Developing problem-solving thinking is now a key in a well-functioning school system. It must be an integral part of the educational program as the development of the competence in the training of students with the right skills is possible through the processing of a specific curriculum. However, the school education has to provide the appropriate framework where competent teachers play a decisive role (Harangus, 2017). The education systems therefore must meet new challenges and perhaps the most important objective should be to give proper emphasis to the teaching of problem-solving and logic thinking in addition to the prescribed curriculum.

Measuring problem-solving thinking is one of the most researched skills of the last two decades. Its development has been part of a number of educational programs and is included in the most significant measurement and assessment researches (eg. OECD PISA measurement, NAEP researches, ATCS21 projects). The PISA series of measurements did not only lead to a significant development in educational measurement and assessment but also in the research of problem-solving skills. The importance of problem-solving skills in school measurement is shown by the fact that it was included in the second cycle (complex problem-solving – OECD, 2003; OECD, 2004), in the fifth cycle (creative problem-solving – 2012; OECD, 2010) and also in the sixth cycle (collaborative problem-solving – 2015; OECD, 2017). The structure of the tasks elaborated in 2003 was based on the widely accepted four-stage problem-solving model developed by Pólya György according to which in task solving the text of the task has to be interpreted first. We need to recognize what we know and what we are looking for, that is, the task has to be translated into the language of mathematics. After that the task should be solved using the mathematical knowledge acquired, the correct solution should be interpreted and should be verified that the solution is valid. As a last step it is important to communicate the result in a comprehensible way (Pólya, 1945,

1969). In Pólya's (2010) approach "...the most typical human activity is problem-solving, purposeful thinking, searching for tools to achieve the objectives."

The examination of problem-solving skills were based on the structure of the theoretical basis of PISA research as a large-scale measurement of the level of the development of problem-solving skills was initially carried out at international level within the framework of PISA research. Romania did not participate in the 2003 PISA survey measuring problem-solving thinking, so there are no data from this year. However it was already present in the 2012 and 2015 measurements and the results achieved here proved that the knowledge acquired in school education is not the most effective, students do not have enough information to complete the tasks successfully. The results achieved were significantly behind the average scores of OECD countries' (MECS, 2014, MEN, 2017).

Starting with the 2006 PISA examination Hungarian students were also included in the sample, but it was not representative for the Hungarian public education in Romania neither in proportion nor in distribution (Kádár, 2016). The analysis of the results according to the language didn't took place or it was done only partially (Papp, 2012), so while we can get information on the national results of the competency tests we don't have any credible picture of the level of knowledge of Hungarian students studying in the Romanian school network (Harangus, 2012). In order to get a real picture of the situation of Hungarian mother tongue education, we have conducted several empirical researches (Pletl, 2016, 2017) that covered the fields of secondary education and engineer teacher training.

Presentation Of Survey
With our current empirical examination we would like to join the international and Hungarian practice, which has proved by a series of measurements that the examination of cross curricular competencies provides information on the development of students, on the factors determining development and on the educational system that can not be shown by traditional knowledge measurements (Csapó, 2001). The examination is the opening phase of the empirical research *A study of problem solving skills regarding different subject areas (reading comprehension, content creation, mathematical and computational thinking)* planned for two years, which as a preliminary measurement is the precursor of the nationwide examination.

The aim of our research was to investigate the problem-solving skills of Hungarian high school students in Romania. Our intent was to get preliminary feedback on the problem-solving skills students have in computational thinking. The tasks of the examination did not measure the fulfillment of the criteria of curricular requirements, but primarily the ability of students to use their problem-solving skills for problems where they need to analyze real, lifelike problems and situations.

The research entitled *The situation and issues of mother-tongue vocational training in a bilingual education system regarding the circumstances and the actors of education* (2015-2016) can be considered a direct antecedent of the planned research. We analyzed the level of reading comprehension skills and algorithmic thinking skills through problem-solving tasks on literacy among engineering students enrolled in the teacher training program. The data showed that there is a close correlation between the level of development of the two skills. The detailed analysis of the results highlighted correlations (relationship between algorithmic and computational thinking and the development of inductive thinking and problem-solving skills) that required the continuation and extension of the investigations (Harangus – Kátai, 2018).

The main aspect of the sample compilation was that the examination was a preliminary measurement. High schools were drawn from the counties representing the regions (diaspora region, buffer region, block region) so that the stratification of the sample was given by the type of the settlement (county seat, small town), the nature of the educational institution (apprenticeship schools, vocational and theoretical high schools) and the specialization of the classes. As a result of the cross-sectional approach we measured two classes of the lower section of the high school (classes 9 and 10). The measurements were carried out in these classes because this is the last compulsory class in public education. A total of 505 high school students participated in the investigation (diaspora region: 167, buffer region: 35, block region: 303 students). The data collection took place in the second half of the 2016-2017 school year.

In elaborating the content framework of measuring instruments it was taken into consideration the experiences of international and Hungarian measurements to be consistent with the particular circumstances of minority education. As a tool of the experiment we created two tasks and we used a task sheet to measure the ability. The tasks were not directly related to the school curriculum, but were fun, thought-provoking puzzles the solving of which required structured and logical thinking. Each task outlined a new problem for students, but their solutions did not require a more complex mathematical modeling. When compiling the tasks, we tried to measure

computational thinking within problem-solving and to be independent of professional knowledge and applications. When planning the tasks we used the conclusions of the PISA examinations and the Hungarian measurements which were based on PISA methods. (Balázsi et al., 2017, Molnár, 2002, 2006a, 2006b, 2013).

Results

To solve Problem 1, an algorithm had to be identified, the successive steps of which led to the correct result:

A bored whimsical jailer is walking back and forth in front of 10 consecutive cells. During each walk he counts on his fingers the cells: 1,2,3…; 1,2,3…; etc. He counts on his toes the number of walks. And something else: during every walk he changes the state of the doors (open/close) which numbers can be divided with the number of the walks. Illustrate the state of the cells by walks. If at first all doors are closed, how many doors will be opened after ten walks?

As a first step the state of the doors had to be illustrated (opened/closed). The text specified: "Illustrate the state of the cells …" The open and closed positioning of the door of the cells was entrusted to the students' imagination, they could mark with a line, number, symbol, diagram, etc. They got 1 point for any kind of illustration and if the state of the open and closed doors was distinguished they received another point. The next step had to be found and interpreted from the context: the jailer "is walking back and forth" and "…during every walk he changes the state of the doors (open/close) which numbers can be divided with the number of the walk." To do this the initial state of the doors of the ten cells had to be depicted with the corresponding marking knowing that "If at first all doors are closed …" then the state of the door corresponding to the number of the given line had to be changed line by line. The correct illustration of every line meant 0.75 points, the incorrect illustration 0.25 points. The answer to the question "how many doors will be opened after ten walks?" is 5 doors (0.50 point).

Just over half of the students (56.2%) tried to solve the first task, 43.8% of the students didn't even try to solve it [Table 1]. There is a significant difference in gender analysis among experimenters. Relevant researches has reported for decades that girls are lagging behind in problem-solving from boys' performance, but have significantly improved competence in reading comprehension. At the same time researches also showed that although girls are less interested in tasks requiring computational thinking, they do not have inferior skills to boys (Spelke, 2005). However, the researches over the past decade show that the difference between the average results of girls and boys has been reduced (Marks, 2008), and in the 2015 PISA examination girls have achieved much better results than boys. The results of our research also support this as the proportion of the girls who tried to solve the task (65.3%) is significantly higher than the boys (46.1%).

Table 1. Students who tried to solve the first task (%).

Tried to solve the task		56.2
- By gender	- boys	46.1
	- girls	65.3
- By region	- block region	65.7
	- buffer region	34.3
	- diaspora region	43.3
- By type of training	- theoretical training	65.3
	- vocational training	26.5
	- professional training	45.6
Illustrated		76.4
- By gender	- boys	68.2
	- girls	81.4
- By type of training	- theoretical training	82.7
	- vocational training	68.2
	- professional training	35.5
Illustrated through figure		70.8
- By gender	- boys	61.7
	- girls	76.3
- By type of training	- theoretical training	77.9
	- vocational training	63.6
	- professional training	22.6

There is also a significant difference in the analysis within regions and by type of training among those students who experimented with problem-solving. If the sample is analyzed on the basis of the regions, it can be observed that students who tried the most to solve the problem were from the block (65.7%), followed by the diaspora

(43.3%) and those in the buffer region tried the least to solve the task (34.3%). The explanation is the fact that only vocational school students were included in the sample from the buffer region, while only theoretical students from the diaspora region. There is a high probability that there would be a difference in the further steps of the problem solving so we do not include any further analysis of the results. The analysis by the type of training reveals a high proportion (45.6%) of attempts of students who receive professional training in an apprenticeship school, while the results of vocational school students' are far behind (26.5%).

All in all, 76.4% of high school students tried to mark somehow the doors of the cells, but significantly fewer students (70.8%) managed to show the open/closed state of the doors. According to gender analysis there is also a difference between boys and girls. Girls realized the initial steps needed to solve the problem (illustrated: 81.4%, illustrated through figure: 76.3%) while boys' performance was far behind (illustrated: 68.2%, illustrated through figure: 61.7%).

There is a significant difference in performance in the analysis by the type of training. The results of vocational school students are considerably weaker (illustrated: 68.2%, illustrated through figure: 41.7%) than those of theoretical school students (illustrated: 82.7%, illustrated through figure: 65.2%). Furthermore, the results of apprenticeship school students are twice as weak as those of vocational school students and almost three times weaker than theoretical school students. Although they tried to solve the task according to what they have learned in school, they could not find and interpret the information needed for the solution (illustrated: 35.5%, illustrated through figure: 22.6%).

Although more than two-third of the high school students (70.8%) distinguished somehow the open/closed state of the doors, much less students could mark correctly the first line item which meant the state of the cells changed after the initial state during the first walk (51.1%) [Table 2]. Starting from the second line, the performance of the high school students is exponentially declining, only 6.7% could trace the state of the cells correctly in the last walk. It is worth mentioning that after having reached the penultimate step in solving the task, having consistently run through the state of the doors opening and closing during the walks, 1.4% of the students didn't pay attention to give the answer. 5.3% of the students could give the correct answer.

Table 2. Students who solved the first task (%).

Illustrating the lines	0.25 point	0.75 point
Line 1	14.4	51.1
Line 2	30.6	32.0
Line 3	44.4	18.0
Line 4	47.2	12.0
Line 5	46.8	11.6
Line 6	46.1	10.9
Line 7	45.1	10.9
Line 8	45.8	9.5
Line 9	47.2	8.1
Line 10	47.9	6.7
Correct answer	**5.3**	

The second task was a mathematical word problem. The problem could be understood by extracting some information from the text and the solution could be reached by carrying out successive thinking operations.

> Billy Beaver has opened a new laundry. He has three machines: one for washing one for drying and one for ironing. It takes 30 minutes for a program of all three machines. If a beaver mom uses the three machines alone she needs 90 minutes to do all three operations (washing, drying, ironing) and the order of the operations cannot be altered. Three beaver moms arrive to the laundry at once and they want to finish the washing as soon as possible. They can use the machines either letting the first beaver to finish all the three operations and only after that the second beaver starts the washing but they can do it faster as the machines can be operated at the same time. What is the minimum time needed for the three moms to complete all the three phases of the work? (e- HÓD, 2011)

Just like in Billy Beaver's laundry a certain order was needed in computational thinking to perform the tasks: "…washing, drying, ironing and the order of the operations cannot be altered". The beaver moms can do the washing in a way that the second beaver mom starts the first operation only after the first mom finishes all the three operations [Figure 1]. But they can do the operations at the same time as the machines can operate simultaneously. The first beaver mom needs 90 minutes to finish all the three operations but when she starts the

second operation, the drying, the next beaver can start the washing. When the second beaver finishes the washing (60 minutes passed) the third beaver can start using the washing machine. She needs once more 90 minutes to do all the three operations, so she finishes her job 150 minutes after the start [Figure 2].
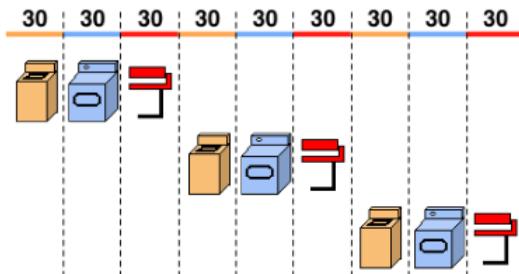
Figure 1. When the machines operate successively.
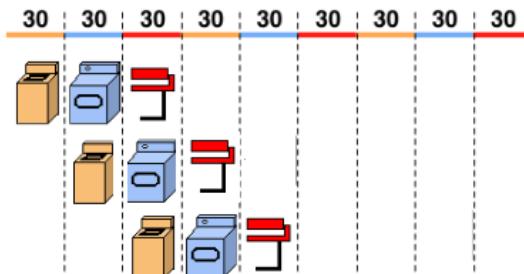
Figure 2. When the machines operate simultaneously

Almost as many students tried to solve the second task as the first one. 55.6% of the students attempted to solve the task. One-tenth (11%) didn't solve at all, almost one third (30%) solved it wrongly and 59% solved the task correctly [Table 3]. The proportion of those who calculated the correct result shows that some of the students managed to identify relevant information and recognize the algorithm that led to the solution. 10% of those who failed to solve the task correctly could identify and understand the problem, but they didn't understand the text. Furthermore, 7.8% were able to identify the problem only at the level of information but they couldn't interpret the text correctly.

Table 3. Results of the second task (%)

| Possible cases | Solved it | Gender | | Type of training | | |
		Boys	Girls	Theoretical training	Vocational training	Professional training
No minutes	11.0	7.9	12.8	9.7	31.8	4.8
Result = 90 minutes	7.8	10.9	6.1	6.3	9.1	23.8
Result = 120 minutes	0.4	1.0	0	0.4	0	0
Result = 150 minutes	59.0	55.4	61.1	66.0	36.4	4.8
Result = 180 or 210 or 240 minutes	4.3	7.9	2.2	4.2	4.5	4.8
Result = 270 minutes	10.0	6.9	11.7	8.8	13.6	19.0
Result < 90	3.2	5.9	1.7	0.8	0	33.3
Result > 270 minutes	1.1	0	1.7	1.3	0	0
Any other minutes	3.2	4.0	2.8	2.5	4.5	9.5

The proportion of the girls among those who perceived and understood the problem is higher (61.1%) than the boys (55.4%). There are only a few students who have not interpreted correctly the key information from the text. In a higher proportion (11.7%) girls haven't observed that the three beaver moms had to finish the washing as soon as possible while in higher proportion (10.9%) boys haven't observed that the three operations could be performed only in a given order.

Examining the results by type of training similar proportions can be seen among the students of theoretical school. The proportion of the correct respondents is above average (66%). In the case of vocational school students this proportion is reduced by half (36.4%) while the proportion of those who started to solve the task but did not achieve any results was high (31.8%). The proportion of apprenticeship school students suggests that they were trying to solve the problem as well as at the first task, but even the interpretation of the text was causing them a problem. They couldn't recognize the information contained in the text and couldn't properly implement the sequence of steps leading to the solution.

Acknowledgements

Conclusions
Problem-solving skills must be a determining measure of the effectiveness of the successful education systems (Somfai, 2006). The development of this competency helps students to be able to use their knowledge of different

fields of science in real life situations. For this it is necessary for students to have the appropriate knowledge to find the solution and to be open to solve new, unusual types of problems.

Our current education system requires students in various school evaluations to solve tasks which can be solved on the basis of well-trained and well-practiced schemes. As a result, when students encounter tasks that are not to be solved by routine procedures but require problem-solving they or do not try to solve them or if they try to solve the task they will not reach the final result. The aim of the preliminary measurement was to test tasks not directly related to the curriculum, which were used to measure the level of the development of problem-solving skills among high school students.

The first result data correlates between the level of reading comprehension skill and the development of problem-solving skills. For both of these tasks the impact of reading comprehension in problem-solving is significant. The more difficult (in fact the more different from school tasks) the task seemed to the students the more weaker the performance of finding, interpreting and evaluating information was. The data provided suggest that high school students want nothing to do with different, unpracticed tasks, they don't even start to solve them. It is also important to note how far those who tried to solve the problem got in the process of problem solving. A little more than half of the students attempted to solve both of these tasks (Task 1 56.2%, Task 2 55.6%). In Task 1, where a ten step algorithm had to be run, only one-tenth (5.3%) reached the final result. In Task 2, where the solving strategy was based on consecutive thinking operations, relative to the former task a large proportion (59%) of the students reached the correct solution.

There is a significant difference in gender analysis between the level of problem-solving skills. In both tasks girls achieved significantly better results than boys. According to research results boys and girls follow different learning pathways at this age, which can significantly influence their motivation in learning, so, further studies are needed to find the reasons behind gender differences. Significant differences in performance according to type of training have already been reported by our previous studies (Pletl, 2016, 2017). The results of high school students who received theoretical training were far better than students with professional training. Data show that the negative process, the gradual deterioration of the performance of students who receive professional training continues. Since in the implemented sample only theoretical training was involved from the diaspora region in the measurement and professional training from the buffer region the analysis by region does not reflect the real state. Further examinations will be possible with the nationwide measurement where theoretical, vocational and apprenticeship school students will be implied.

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Experience Of Kazakhstan Modernization In Turkic World

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Abstract

The development and rapprochement of Kazakhstan to the Turkic peoples and their interrelations in the field of culture and literature have historical roots and unique traditions.

There are quite many common pages in the history, culture and literature of Turkic-speaking peoples.

The Turkic peoples constitute the main population of such sovereign states as Kazakhstan, Azerbaijan, Turkey, Uzbekistan, Turkmenistan, Kyrgyzstan, Northern Cyprus; republics that are part of Russia such as Tatarstan, Bashkiria, Tyva, Chuvashia, Yakutia, Kabardino-Balkaria, Dagestan, and Altai Territory, Crimea, Khakassia, Karachay-Cherkess, etc.

Nowadays, the Turkic world is a vast space united by such common historical heritage as language, cultural traditions and a significant contribution to the world cultural heritage.

The active mutual enrichment of the cultures of the Turkic world and neighboring peoples such as the Arabs, Persians, Chinese, Slavs, and Kurds gave the world the pleiads of Turkic scientists, poets, writers, and world-level artists. The origins of Kazakh culture can be found in the folklore of the Saka and Hunnic peoples, in the works of the masters of the pen of the Islamic era and the times of the Golden Horde. Thus, the unity of the Turkic world is in the continuity of literary traditions.

Some populations of Russia, Iran, Iraq, Syria, Afghanistan, China, India, Pakistan, Georgia, Moldova, Ukraine and some Balkan republics are of Turkic origin.

Due to this circumstance, researches in the field of history, culture, literature and language of each Turkic-speaking peoples, as well as other neighboring and distant peoples of the world are of exceptional importance both ideologically, politically and scientifically.

Today, the Turkic peoples live in almost all countries of the globe. In some countries, the Turkic peoples predominate, and some others they do not.

One of the main tasks of social scientists and scholars of humanities in Kazakhstan is to study the history, culture and literature of all Turkic-speaking peoples of the world. It is important to disclose their historical and cultural interrelations as well as mutual enrichment at the present stage. The Turkic studies are a significant layer of modern science. The Turkic studies directly explore the historical and cultural relationships between the peoples of the Turkic world.

Introduction

The development and rapprochement of Kazakhstan with the countries of the East and the Turkic-speaking world have their deep historical roots in the established traditions and diverse trends in the modern era.

In the conditions of globalization, the interrelation and mutual influence of world cultures and literatures remains. The Turkic world today is a vast space, united by a common historical heritage - language, cultural traditions and a significant contribution of the Turkic peoples to the world cultural heritage.

Active enrichment of the cultures of the Turkic world and neighboring peoples, Arabs, Persians, Chinese, Slavs, Kurds gave the world a pleiad of outstanding Turkic scientists, poets, writers, artists and culture. The origins of Kazakh culture and literature - in the folklore of the Saks and Huns, in the works of masters of the word of the Islamic era and the times of the golden horde. The unity of the Turkic world is based on the continuity of literary traditions, on the life-giving folklore source, the richest cultural heritage.

The Turkic peoples constitute the main population of such sovereign states as Kazakhstan, Azerbaijan, Turkey, Uzbekistan, Turkmenistan, Kyrgyzstan, Northern Cyprus; republics that are part of Russia - Tatarstan, Bashkiria, Tuva, Chuvashia, Yakutia, Kabardino-Balkaria, Dagestan and the Altai Territory, Crimea, Khakassia, Karachay-Cherkessia, etc. A certain composition of the population of Russia, Iran, Iraq, Syria, Afghanistan, China, India, Pakistan, Georgia, Moldova, Ukraine and the republics of the Balkan Peninsula - the Turks.

This explains the scientific interest of the author of this article to research in the field of history, culture, literature and language of the Turkic-speaking peoples of the world. The study at the current stage of the development of Turkic-speaking countries of literary connections, linguistic contacts between peoples has exceptional significance in terms of ideology, politics and science, primarily the humanitarian one. Expanding economic and cultural ties of Kazakhstan with the countries of the foreign East highlight the need for active study of their languages and cultures in academic and applied aspects.

The growing interest of Kazakhstan in the East, the suffering of the Turkic world as a whole, raises the need for scientific research of issues related to the development of these cultures, their actual state, accumulated experience

and prospects for further development. Problems have been studied of the historian and cultural ties of an independent state with the countries of the world, including with the countries of the East, these days is one of the topical problems of the social and human sciences of Kazakhstan.

The Study

The development and rapprochement of Kazakhstan with the Turkic peoples and their interrelations in the field of culture and literature have historical roots and unique traditions.

In the history, culture and literature of the Turkic-speaking peoples there are quite a few common pages.

The Turkic peoples constitute the main population of such sovereign states as Kazakhstan, Azerbaijan, Turkey, Uzbekistan, Turkmenistan, Kirghizia, Northern Cyprus; republics that are part of Russia - Tatarstan, Bashkir, Tuva, Chuvashia, Yakutia, Kabardino-Balkaria, Dagestan and the Altai Territory, Crimea, Khakassia, Karachaevo-Cherkessia and T.D.

The Turkic world today is a vast space, united by a common historical heritage - language, cultural traditions and a significant contribution to the world cultural heritage.

Active enrichment of cultures of the Turkic world and neighboring peoples - Arabs, Persians, Chinese, Slavs, Kurds gave the world a pleiad of Turkic scientists, poets, writers, world-class artists. The origins of Kazakh culture can be found in the folklore of the Saka and Hunnic peoples, in the works of the masters of the pen of the Islamic era and the times of the Golden Horde. Thus, it is in the continuity of the literary traditions that the unity of the Turkic world lies.

A certain composition of the population of Russia, Iran, Iraq, Syria, Afghanistan, China, India, Pakistan, Georgia, Moldova, Ukraine and some Balkan republics - of Turkic origin.

Due to this circumstance, researches in the field of history, culture, literature and language of each of the Turkic-speaking peoples, as well as other neighboring and distant peoples of the world, are of exceptional importance both ideologically, politically and scientifically.

Now the Turkic peoples live in almost all countries of our planet. In some countries, the Turkic peoples predominate, but, somewhere there are fewer.

One of the main tasks of social scientists and scholars of humanities in Kazakhstan is to study the history, culture and literature of all Turkic-speaking peoples of the world. It is important to disclose their historical and cultural interrelations and mutual enrichment at the present stage. Tyurkologicheskie issledovaniya is a significant layer of modern science, it is turcology itself that directly studies the historical and cultural ties of the peoples of the Turkic world.

In scientific research and pedagogical institutes and universities, at historical, culturological, and also in all educational institutions of Kazakhstan many scientists - turkologists who study the current issues of social and human sciences in the field of Turkic studies work fruitfully.

Repeatedly these issues were discussed and discussed in different years at Turkic conferences in Baku, Ankara, Almaty, Tashkent, Ashgabat, Bishkek, Kazan and other centers of Turkic studies. Along with Kazakh scientists, historians, culturologists, literary critics, linguists of some Turkic peoples studied and studied the problems of history, culture, literature and linguistics of all Turkic peoples. These are, in the main, comparative historical, areal, type of logical problems of the Turkic world. Before considering some issues of historical and cultural relations with the Turkic world, we consider it expedient to dwell on some aspects of the historical and cultural relations of Kazakhstan with the countries of the foreign East.

Modern Kazakhstan is a dynamically developing country with a rich heritage. The Kazakh people, while preserving and perfecting age-old cultural traditions, are simultaneously developing investments in their energy future.

The problems of studying the historical and cultural ties of Kazakhstan with the countries of the foreign East and these days are among the topical issues of the social and human sciences of Kazakhstan.

The roots of the origin of Kazakh literature go back to antiquity. Proof of this fundamental and fundamental thesis is devoted to monographs, scientific research, articles and teaching aids of the outstanding scientist-Turkologist, Honored Scientist of Kazakhstan, Doctor of Philology, Professor, Writer, Translator of the Gold Medal of the European Society of Kafka and Kultegin N. Kelimbetov Prize. They are addressed to the young generation of Independent Kazakhstan: "Studying and mastering the historical experience of the people, the treasures of his spiritual culture, literary heritage, carried through the centuries and millennia, are of paramount importance for the modern young generation. Only with a comprehensive study of the interrelations and contacts of peoples inhabiting the world space, it becomes possible to obtain the most reliable and objective representation of their contribution to the common treasury of world culture ... Kazakhs, as well as other peoples of the world, have a unique, distinct material and spiritual culture, having the oldest sources of development. Our people, "N.Kelimbetov underlines in the Introduction to the book" The Ancient Period of the History of Kazakh Literature "," contributed to the world science, art and literature, brought to the historical arena scholars, writers and poets of world importance ".

We aim to reveal and summarize some pages of historical and cultural interrelations of Kazakhstan with Turkey, Azerbaijan, Uzbekistan and Turkmenistan in the Middle Ages and in the 20th century. Our attention, as

medievalists, is directed primarily at the fact that the periods mentioned in the history of these countries were marked by a particularly intense political and ideological interaction, and also by the fact that the historical and cultural processes in these countries proceeded in a situation of close contact with the cultural life East in general. Especially we are interested in the aspects connected with the Renaissance and with the periods of new and modern literature of the peoples of the East.

Confirmation of our opinion we find in the book of N. Kelitsbetov. In the Introduction, N. Kelimbetov writes that "as is known, each people has its own distribution area, its own habitat, a native speech fulfilling the function of social relations, the art of an artistic word, peculiar customs and traditions, religion and mentality. It is also true that there is no people without history. And historical science considers all large and small peoples as objects of the historical process. Only as a result of a comprehensive study of the mutual relations of these peoples, their contribution to the world treasury of culture, can a complete understanding of the history of all mankind be achieved ".

For the first time the textbook of N.Kelimbetov (translated by G.Tolegululy) "Ancient Literary Monuments of the Turkic Nations" was first published in Russian, as its author convincingly reveals the richness of the literature of the Turkic-speaking peoples and the significant contribution of the Kazakh people to the development of world science, literature and art, people, who brought to the historical arena of scientists, poets and writers, world-class artists. "Undoubtedly one thing," the well-known scholar further writes, "the centuries-old history of Kazakh literature originates from ancient times, from time immemorial, although we believe that the Kazakhs as a people were formed only in the XV-XVI centuries. But does this mean that all the material and spiritual heritage created prior to the XУ century -hazhdo Kazakh people and he has nothing to do with it? Of course no".

N.Kelimbetov writes further about the unity of the Turkic world: "As you know ... the families and tribes that formed the Kazakh nationality lived in close contact with each other, as well as with the clans and tribes that later entered the ethnic composition of the Uzbek, Kyrgyz, Azerbaijani , Turkmen, Uighur, Karakalpak, Khakass, Bashkir, Tatar and other Turkic-speaking peoples. Consequently, the economic, social, cultural life of modern Turkic-speaking peoples has long been common roots. Therefore, the history of the literature of Turkic-speaking peoples should be recognized in the whole integrity, in the mutual connection of all phenomena of social, political and cultural life. "

Modern literary connections of Kazakhstan have in their history glorious traditions. We will proceed from traditions and continuity. In this sense, N.Kelimbetov's reasoning about the continuity of artistic traditions is very important, which he considers to be "one of the most difficult problems in the Kazakh literary science, all the facets of which have not yet been fully investigated, comprehensively from historical and theoretical positions. A scientific mastering of this problem will make it possible to determine the aesthetic power and philosophical significance of the national art of the word, the causes of each literary monument ".

Consideration of the problem of artistic traditions should be approached in a comprehensive manner. This is the work of academicians Z.A. Akhmetova, Z.K. Kabdolov, prominent scholar-literary scholars I.Kh. Gabdirova, M.B. Bazarbaeva, Sh.K. Satpayevoy, E.V. Lizunova and many others.

The most important features of the latest literature and artistic culture of the peoples of the East (Kazakhstan, Turkey, Azerbaijan, Uzbekistan, Turkmenistan, Iran, Iraq, Tajikistan, Pakistan, India, Kurdistan, etc.) are its eastern character, diversity and richness of forms, individual style, types and genres of literature and art. In recent decades, the need for the peoples of the East to address the treasures of the cultures of neighboring countries has sharply increased the need to improve the old and create new forms of cultural ties.

Each national culture of the peoples of the East, interacting with others. perceiving and transforming their experience, comparing it with their own traditions, acquires new achievements to move forward. The problems of historical and cultural ties of Kazakhstan with Turkey, Azerbaijan, Uzbekistan, Turkmenistan, Pakistan, Iran, Iraq, Tatarstan, Bashkiria, Yakutia, Kurdistan and other countries of the East in different years were considered in the scientific works "Azerbaijan-Kazakh Literary Links" (Baku, 1990), "Uzbek-Kazakh literary relations" (Tailscent, 1979), "Pages of Azerbaijani-Uzbek literary interrelations" (Baku, 1985), "Problems of creative interaction of modern literatures" (Moscow, 1963), "On international unity e and national identity literatures of the peoples of Central Asia and Kazakhstan "(Almaty, 1962)," Inter-ethnic relations of the Kazakh literature "(Almaty, 1970) and the monograph" Literature of the people of Kazakhstan "(Almaty, 2004).

Aspects of historical and cultural interrelations have been studied in the monographs of I.G. "The Interrelationships and Interactions of National Literatures" (Moscow, 1961), Shermukhamedov S. and Mirzaeva S. "Interrelations of Literatures are a Requirement of Life" (Tashkent, 1975), Nemata Kelimbetova "Eastern Classical Poetry and Kazakh Literature" (Alma-Ata 1989 , in Kazakh), Prince Mirzoyev "Problems of Continuity of Interliterary Relations" (Alma-Ata, 1998). Important and relevant is the international scientific and practical conference "Historical and Cultural Relations of Kazakhstan with the Countries of the Foreign East" held in October 2013 at the Kazakh National Pedagogical University named after Abay.

Deep comprehension of the Kazakh national historical, literary and artistic experience in close connection with historical experience and with the artistic theory and practice of literatures of the peoples of the East is one of the most important conditions for the successful development of many social and human sciences of the Turkic

peoples. Numerous dissertations are devoted to these problems, including M. Joldasbekov's "Ancient Turkic literary monuments and their relation to Kazakh literature" (Alma-Ata, 1969), "On International Unity and National Origin of Literatures of the Peoples of Central Asia and Kazakhstan (Alma-Ata, and 1962), "Interethnic Relations of Kazakh Literature" (Alma-Ata, 1970), etc.

Literary interrelations of Kazakhstan with the countries of Central Asia and the Middle East, in particular, with the Turkic-speaking countries, grew quite noticeably in the middle and in the second half of the 20th century.

Interacting with each other Kazakh, Azerbaijani Uzbek, Kyrgyz, Kurdish, Tatar, Bashkir, Turkmen and Tajik literature developed in the mainstream of world literature. It undoubtedly influenced the formation of Kazakh poets and writers Dzhdzhabaev, S.Seifullin, B.Maylin, I.Jansugurov, M, Auezov, S.Mukanov, Azerbaijani - M.Ibragimov, M.S. Ordubadi, J. Jabbarly, S.Vurryn, M.Huseyn, S.Ragimova; Uzbek - H.H. Niyazi, A. Kadyri, G. Guliyama, Sh. Rashidov, K. Yashen, Myrtemir, M. Sheikh-zade, A. Mukhtar; Kirghiz - T.Moldo, T.Sydygbaev, C.Aitmatov, N.Baitemirova; Turkmen - D. Kylyga, Y. Nasyrov, B. Kerbabaev, N. Sarykhanov, A. Kakykov; Tajik - S. Aini, A. Lahuti, M. Tursunzade, M. Mirshakir; Kurdish - V.Nadiri, A.Abdiramakhman, H.Hadjisulaiman, B.Bal, A.Nadirov and some famous scientists, writers and poets of Iran, Iraq, Pakistan, Tatarstan, Bashkortostan and other countries of the Middle East.

Historical and literary science in Kazakhstan has significant achievements, they have accumulated considerable experience. The interests of the further development of historical science and literary studies require the study and generalization of this experience, the summarizing of the development of nodal problems in order to outline the ways of their further study. Of particular relevance is the study of general trends and prospects for the development of science, as well as the formation of its methodological principles.

As the well-known literary critic, Professor I.G. Neupokoeva in the book "Some issues of studying the interrelations and interactions of national literatures", in the study of literatures "developing in similar historical conditions, close in their historical destinies, in language (such as Kazakh and Uzbek literature), the regional aspect of the consideration of literary connections can be very fruitful, because, due to a number of conditions, literary connections here are manifested with particular intensity. "

Interrelations of Kazakh literature with the Near and Middle East literature of various forms and conditions. In this case, especially should be noted forms such as influence, translation, borrowing, imitation, etc.

Findings

Global integration processes are taking place all over the world. increasingly modern society is faced with the need to address the problems of mutual influence of different cultures and the preservation of the cultural diversity of the planet. An indicative example of such processes is the relations of Kazakhstan with the countries of the foreign East, which have entered today into a new phase of the progressive development of economic, scientific, technical and cultural cooperation. The intensification of these relations caused the need for the formation of specialists who proficient in oriental languages for professional purposes.

The present situation puts before the theory of teaching Eastern languages new, responsible tasks. At the level of language universities. faculties and departments, this task is the training of specialists in the field of intercultural communication, which makes it necessary to improve the quality of the educational process, in which the language is assimilated as a phenomenon of culture. It is from these positions that today it is necessary to rethink the approaches to teaching students, undergraduates and doctoral students to various aspects of the Chinese language. One of the most important of them is, in our opinion, the motivation for training and the degree of demand for graduates by various state structures, scientific institutions, small and medium-sized businesses.

Conclusions

It is known that every language reflects the culture of the people who speak it. Consequently, mastery of the eastern languages is inseparable from acquaintance of students with facts of history, culture, social phenomena, social conditions in the country of the studied language. Accounting for these factors is supplemented by the fact that the development of the language and the motives for its study are largely determined by the economic and social development of society.

In the process of studying oriental languages, motivation is particularly important, i.e. sociocultural prerequisites and factors. Oriental languages in Kazakhstan are very promising, because due to the strengthening of business relations to them, over the past decade there has been an increased interest. And the interest is not just to the spoken Eastern language, but to professional communication. At the same time, it is still necessary to create new or improve existing educational programs that take into account both linguistic and cultural characteristics of students in order to obtain the fastest and most effective results.

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Explaining Destination Choices Based Upon Recreational Opportunities Through Intrinsic and Extrinsic Travel Motivations

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Recreation implies all kinds of physical, mental, social and cultural activities that we engage ourselves in so as to relax, rest, have fun and improve individually. Leisure is the basic element of social life and undoubtedly, the most special activities that we engage in to be ourselves during this period of time are holiday and tourism activities. When needs for a recreational life reach their peak, people most of the time feel the urge to get away from the place they live in and participate in activities. This driving force is explained, in its basic sense, as intrinsic travel motivations. The recreational opportunities and facilities of the setting where people prefer running off to represent the attracting forces, in other words, extrinsic travel motivations. Journeys that include various activities and are of holiday nature are defined as recreational tourism or holiday recreation. This study aimed to explain the journey of people's recreation-oriented holiday by means of activities and motivations.

The relationship between tourism and recreation have been analysed in world literature since the 1970s. Especially some research regarding motivations have caught attention. For instance, Dann (1977) and Crompton (1979) conducted research on intrinsic and extrinsic travel motivations, Cohen (1972), Loker&Murphy (1996) and Bieger&Laesser (2002) investigated tourist types, and Beard and Raghep (1983) worked on the scale of leisure motivation. Unfortunately, in our country, limited number of studies can be found in this field. Especially, the dynamics of student tourism which hold a significant position in the market of world tourism carry great values for our country. In light of these clarifications, the aim of the research was to determine the effect of motivational and demographic factors in the destination choices of college students based on recreational activity and opportunities. In accordance with this aim, basic inquires included the explanation of the importance level of recreational activities in the destination choices of college students through intrinsic and extrinsic travel motivations and whether this level of importance demonstrated a meaningful difference in proportion to gender, age and type of university.

In this study, the basic question whose answer was to be found was "the explanation of the importance level of recreational activities in the destination choices of college students through intrinsic and extrinsic travel motivations". In this respect, the research is in "predictor correlation pattern. Since this study focused on the differences between the groups, it is also a comparative research. The other question whose answer was sought in this sense was whether there was a meaningful difference between the level of importance given to recreational activities in destination choices and gender, age and type of university. The sample group of the study included 700 college students (X_{age} = 20.85, SS= 1.61) from Bilkent University, Atılım University, Hacettepe University, and Gazi University in Ankara, of whom 435 were females (62.1%) and 265 were males (37.9%).

In the questionnaire of this study, there are four parts. In the first part, there were seven closed-end questions oriented at the personal information of the students. The second, third, and fourth parts of the questionnaire comprised of the "Scale of Recreational Activities in Destination Choices" (SRADC) consisting 22 items, "Scale of Intrinsic Travel Motivations" (SITM) consisting 40 items, and "Scale of Extrinsic Travel Motivations" (SETM) consisting 40 items whose validity and reliability were confirmed by Özdemir, Karaküçük, and Büyüköztürk (2013). 4-point likert scale was used in each response option of the three scales. The ratings were determined as 1- Not Important at all; 2- Not important; 3-Important; and 4- Definitely Important, by 1 being the lowest and 4 being the highest scores. "Hierarchical Multiple Linear Regression Analysis" and "Multivariate ANOVA Analysis" were used in the analysis of data. Statistical analyses were evaluated at 95% confidence interval level, and □= .05 was considered statistically significant.

The results of the study indicate that the importance given to recreational activities in destination choices can be explained by intrinsic and extrinsic travel motivations. With reference to the results obtained from the study, it is seen that intrinsic travel motivations of university students play a greater role in the importance given to recreational activities in destination choices. According to this result, it was found that there was a significant effect of the factors "Sports", "Exploring-Knowledge", "Visiting Friends and Relatives", and "Escape" on the importance given to recreation activities in destination choices. This result also shows that people, whose intrinsic travel motivations including "Travel Bragging-Prestige," "Exploring-Knowledge," "Visiting Friends and Relatives," and "Escape," are high, give more importance to recreational activities in destination choices.

Secondly, the "cultural and historic heritage", "natural environment" and "popularity" factors of extrinsic travel motivations were found to have a significant effect on the importance given to recreational activities in destination choices. This result indicates that people with higher "cultural and historic heritage" and "natural environment" motivations give more importance to recreational activities in their destination choices. On the other hand, a negative relation was found between the "popularity" motivation and the importance given to recreational activities in destination choices, which shows that as the importance given to popularity rises, the importance given to recreational activities tends to fall.

Keywords: *Recreation; Tourism; Motivation; Destination Choice.*

Factors Affecting Students' Academic Demoralization Among Senior High School Students

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Abstract

As the government fully implement the K-12 Program, it has confronted oppositions. Amidst its noble cause, its implementation rose apprehensions. Ever since, the Philippine Education has faced adversaries, from the lack of qualified teaching force to the lack of materials and classrooms more so, the underperformance of students. With the addition of two years in the curriculum, the dilemma has added another to its endless list of challenges. The discouragement of students to keep their attention on academic performances resulting in failing grades, losing focus in class and the worse is dropping out is called students demoralization. The researcher categorized this into four factors. The Polytechnic University of the Philippines served as the locale of the study. One of the state universities that offers senior high school program in close relation with the Department of Education. 168 or 28 randomly selected students from the three strands with two sections each are the respondents. It is a Quantitative-Qualitative Research where research-made questionnaire, interviews, and observations were the tools utilized. The data revealed that School Related Factor came to the topmost factor affecting academic demoralization. This is attributed to the unconducive physical climate of the classrooms in addition to the lack of learning materials. Followed by Teacher Factor wherein based on interviews, most students find their teacher neither boring nor lacking in classroom management. Subject Related Factor specifically the medium of instruction used causes demoralization among the students. While Student Related Factor came to the least factor. It is hence, recommended for the administration to address such concerns. Since the university plans to continue offering senior high school programs, the results of this study are vital in its implementation. In addition, strong recommendation on teaching training and enhancement of the physical climate of the classrooms.

Keywords: *Academic demoralization, K-12 Program*

Introduction

The full implementation of Republic Act 10533 otherwise known as K-12 Program that aims to enhance the basic education system in the Philippine has impeded many oppositions. Amidst its noble objective, apprehension on its implementation such as readiness and preparedness in key areas such as teaching force, facilities, more so the awareness and acceptance of the parents furthermore the perceptions of the most affected stakeholder; the students. An addition of two years in the basic education sector might provide enhancement in terms of laying a plain field for globalization, however, this addition in education mean additional financial load more so, physical, emotional and mental weight to students.

Education is one of the most important aspects of human resource development. Poor school performance not only results in the child having a low esteem but also cause significant stress to the parents. There are many reasons for children to underperform at school such as student related, teacher related, school-related and family-related factors. It is important to find the reasons for child's poor school performance and come up with a treatment plan early so that the child can perform up to full potential.

According to Ryan and Deci (1979), Intrinsic Motivation is doing an activity for its inherent satisfactions rather than for some separable consequence. When intrinsically motivated a person is moved to act for the fun or challenge entailed rather than because of external prods, pressures, or rewards. The activity maybe done because it is inherently

Interesting or enjoyable for that person. Extrinsic Motivation, on the other hand, refers to doing an activity because it brings a separable outcome. In this kind of motivation, the person performs activities to reap positive external rewards or to avoid punishment

In a study conducted in University in California, (2012), 'Sometimes getting easily distracted is the result of insufficient motivation to complete your work' motivation is a big word for students; they can easily be motivated and get it lost in a bubble. They also said that 'Lack of motivation could be the underlying factor to being distracted.' Motivation has a big role for students to get their focus.

'Prioritizing your studies before you begin will help you follow a more structured plan to execute for you allotted study period. 'Studies have shown that 45% of the time we get distracted from our work causing us to forget where we left and 25% of the time we forget to even to come back to the task at hand.' (ASC University, 2012)
The discouragement of students to keep their attention on academic performances resulting in failing grades, losing focus in class and the worse is dropping out is called students demoralization. This research aimed to discover the different factors that result in students' demoralization and address the conflict using John Keller's theory of motivation.

According to Maria Guadalupe C. Salanga and Allan B.I Bernardo's research "Filipino Student's Reasons for Not Being Motivated in School: Insights Into Their Implicit Beliefs About Motivation and Learning" (2016), students are not viewed as lacking in motivation; instead, they are seen as having motivations that are less likely to lead to high achievement. They said all students are motivated including those indifferent or disengaged, but they are most likely motivated for wrong reasons.

The Study
The Polytechnic University of the Philippines-Quezon City Branch (PUP-QC) served as the locale of the study where it is one of the three campuses (PUP-Sta. Mesa and PUP-San Juan) that offers senior high school program in close relation to the Department of Education. Wherein it offers three strands; ABM (Accountancy, Business, and Management), GAS (General Academic Strand) and HUMSS (Humanities and Social Sciences).
Given the fact that any student can have poor academic performance, the trouble appears critical when this becomes a trend. The loss of motivation of the students leads to academic demoralization.

According to Self-Determination Theory by Ryan and Deci, there are two basic kinds of motivation: The Intrinsic and Extrinsic motivation. Intrinsic Motivation is doing an activity for its inherent satisfactions rather than for some separable consequence. Extrinsic Motivation on the other hand refers to doing something because it leads to a separable outcome. If there will be lacking one of this kind of motivation, it can lead to demoralization.
Student-related factors refer to the internal conflicts of the student that result in demoralization. This can be the loss of Intrinsic Motivation. While Teacher-related factors, school-related factors, and family-related factors can be under the lost Extrinsic Motivation. Teacher-related factors involve the behavior of the teacher, the teaching strategy and the kind of discipline implemented. The School related factors refer to the environment wherein students are supposed to study but fail to have student-friendly features. The Family-related factors involve the relationship between the student with his/her family and their economic status.

There are six reasons why students lose focus in school. The bonds, bullying, vices, job and school, poverty, and terror teacher. It states that bond is important to the students, because some of the students do not have siblings, so they like to be alone and they do not like to interact with other students. Having friends in school helps the students to cope with the environment in school and to share their thoughts and idea. Some of the students do not ask for any help in their studies by that they are starting to lose their interest in studying. Bullying is common in school nowadays, that student's experience it. Some of the students lose their self-confidence because it affects the physical and mental health. The student's experience bullying they do not go to school because of trauma that leads to depression. Vices can also affect the student's interest in school. Some of their hobbies can be a destruction of their studies. Their peers or their classmates influence their hobbies, the more they like it the chance of losing interest in studying. The students cannot sustain their education without a help of their parents but some of them do not a have a lot of money and their parents do not have a job. Therefore, the student is going to work to fulfill their needs in school. Some of them cannot focus on work because they are tired of their job and they do not have to study, and this is the reason they are failing in their exams. Therefore, they stop studying and focus on their work. Poverty is one of the reasons why students do not go to school. Their parents cannot avail the tuition fee and cannot earn some money for their children s education. In this reason, student has quit school because they lose interest going to school because their age does not match according to their school level. Having a terror teacher can have a bad feeling for the children; they lose interest to go to school because of that. (Spielgaben,2013)

The method used by the researcher in this paper is descriptive, wherein it is a Quantitative-Qualitative approach. Researcher-made questionnaire, interviews and observations were the tools utilized. The respondents of this research are the Grade 11 Senior High School students for School Year 2016-2017 from the three strands ABM (Accountancy, Business, and Management), GAS (General Academic Strand) and HUMSS (Humanities and Social Sciences) with two sections each. The respondents of this research are composed of 168 students.

Findings
Most of the respondents are 17-18 years old with a frequency 153 and a percentage of 91.07%. On the other hand, least of the respondents are 21 years old and above with a frequency of two and a percentage of 1.19%.

In terms of sex, many of the respondents are female with the frequency of 127 and a percentage of 75.60%. On the other hand, the least of the respondents are male with the frequency of 41 and a percentage of 24.40%.

In terms of the subject wherein the students are demoralized, most of the students from ABM strand are demoralized in the subject 21st Century Literature from the Philippines and the World with the frequency of 22 and a percentage of 39.3%. On the other hand, the least subject is Pagbasa at Pagsusuri sa Iba't-ibang Teksto Tungkol sa Pananaliksik with a frequency of 6 and a percentage of 10.7%

Most of the students from GAS strand are demoralized in Statistics and Probability with a frequency of 19 and the percentage of 33.9. On the other hand, Risk Reduction and Management with a frequency of five and a percentage of 8.9% is their least subject.

Majority of HUMSS students are demoralized in the subject 21st Century Literature from the Philippines and the World with a frequency of 17 and a percentage of 30.4% while Principles of Marketing and Physical Education and Health 2 tied with frequencies of 3 or 5.4%.

Most of the students are demoralized when English is the medium of instruction with the frequency of 107 and a percentage of 63.7%. The mainstream of the respondents confessed that the use of English as the medium of instruction demoralizes them. Respondent A states that "nahihirapan ako mag-express ng sarili ko sa English" (I find it hard to express myself in English) since English is not their first language.

For the ABM, GAS and HUMSS students, the uppermost reason affecting their academic demoralization is School Related factor, Teacher Related Factor came second, and while Family Related Factor came the least.

First, the noise created by frequent programs at the covered court and the neighborhood houses of the school are singing karaoke while the classes of senior high students are ongoing. The researchers have observed many complaints about noise that distracts the students. Second, the students are uncomfortable with the physical climate of the classroom; the electric fan is broken while the temperature is hot and the light bulb in the classroom is not functioning.
The classroom is untidy. Furthermore, the lack of learning materials. Respondent C says "lagi na lang may program, maingay" (there are always programs causing noise)

The second to the highest factor that affects students' academic demoralization is Teacher Related Factors the researchers concluded that this is because of first, the teachers teach fast and the students cannot follow the lesson. Second, as from interviews, some respondents perceived that some teachers do not compute the grades thus, resulted in "guessed grades" as they coined the term. Third, some students find their teacher boring. Fourth students are demoralized because of the teachers' irregular attendance.

Conclusions
In terms of the Medium of Instruction Used, majority of the students confessed that the use of English as the medium of instruction demoralizes them. Because this language is not the students' mother tongue. This is in line with the previous preview in related research which states that Students who are not fluent in the medium of instruction language that is not their native tongues have difficulty in grasping course topics.
As proven in the study conducted by Arnold et.al in 2006, Children whose primary language is not the language of instruction in school are more likely to drop out of school or fail in early grades.

The School Related Factors affects students' academic demoralization of Senior High School students of PUP Quezon City the most. The researchers concluded that this is because of First, the noise created by frequent programs at the covered court and the neighborhood houses of the school are singing karaoke while the classes of senior high students are ongoing. The researchers have observed many complaints about noise that distracts the students. Second, the students are uncomfortable with the physical climate of the classroom; the electric fan is broken while the temperature is hot and the light bulb in the classroom is not functioning. The classroom is untidy. Furthermore, the lack of learning materials.

This data agrees with the study of Abdolreza Gilavand and Amir Jamshidnezhad, (2016) states that the learning environment dramatically affects the learning outcomes of students. Noise, inappropriate temperature, insufficient light, overcrowded classes, misplaced boards and inappropriate classroom layout all makeup factors that could be confounding variables distracting students in class

The Teacher Related Factor ranked as second, the students find their teacher neither boring nor lacks classroom management in addition to irregular attendance.
It agrees with Miller et.al research, (2007) which states that the absenteeism of teachers reduces the student's achievement by 3.3 percent of a standard deviation. The interruption on the lesson loses the interest of the students to the subject and results into not achieving the yearly progress of the school

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From Playground Movement To Leisure Education: A Structural Perspective Of Recreation Education And Recreation Departments In Turkey

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This paper is a report and comparison on explaining the development of Recreation and Leisure Education in universities. From Playground Movement in 1880's of America to daily and professional leisure habbits, hobbies, amateur interests, volunteer participations and finally serious leisure are all begins in education continuum. The aim of this study was to explain the development of recreation departments and the training process of recreation field specialist in comparison with Turkey and American education. Within the scope of this research; The recreation departments and curricula of the fifty (50) universities in the United States and ten (10) universities in Canada, two leading countries in the establishment and development of the Recreation Departments, have been examined. Qualitative content analysis method was used in the research. The research data were obtained by screening the web pages of the recreation departments of the universities in April 2017.

The beginning of recreation training in America dates back to the mid-1920s. The Playground Association of America (PAA), which made its first contribution to recreation training, operated between 1906 and 1911, and was established in 1911-1930 by the changing mission of the organization to the Recreation and Playground Association of America (RPAA), continued to exist as the National Recreation Association (NRA) between 1930 and 1965, and in 1965, The National Recreation and Park Association (NRPA), which is the current organization of five different national institutions related to parks and recreation.

The National Recreation and Park Association has developed a training program to train professional recreation, park and leisure leaders in the 1920s to make leisure more free and recreational activities more common, different ways of life, and meeting the changing social needs of people. The recreation curriculum at universities in North America dates back to the 1940s. A single department deals with both leisure time and recreation and park management. First, it is aimed that students can work as leaders and managers in public recreation and organizations related to parks, therapeutic recreation and outdoor recreation (Godbey et al., 2005). The first department on recreation in the United States was established in 1946 under the roof of the University of Indiana (www.hper.indiana.edu). As recreation became a sector that created job opportunities in the 1960s, this field has gained momentum both in the academic world and in related sectors. This has led many universities and colleges to open new programs and change department names. As a matter of fact, they have added 'tourism' to departmental names in order to make many department programs richer in recreation and leisure time (McLean et al., 2008). In the 1960's, more than 300 academic programs were created to provide undergraduate education in recreation and parks (Caneday, 2000).

When the literature is examined, it is seen that the studies in Turkey on programming themes such as recreation training, structuring of recreation departments, curriculums and course contents of the departments seems to be very limited (Tütüncü, 2008, Çetinkaya, 2011, Tütüncü etc., 2012; Metin, 2012, 2014; Yagci, 2015). In these studies undoubtedly, the effort to contribute to the development of the field and to create a recreational training model that works better is prevailing. When such researches on the subject in our country are examined, suggestions based on differentiation of recreation subspecialties like recreation in the systems which we see in the examples of the developed countries, in general terms, suggest that various programs and models are offered by exhibiting different approaches to recreation departments established under the disciplines of sport and tourism in our universities form.

Keywords: *Recreation, Recreation Education, Recreation Departments, Leisure Education*

From Social Network to Research Network: A Novel Approach for Integrating Teaching and Research through Technology

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Abstract
This paper describes a novel approach for integrating teaching and research. The integration is achieved through a web based cooperative network platform which allows students to interact with each other in exploring, collecting, entering, and analyzing bibliographic citation data to discover the structure of the area in which they want to carry out further study.

A mechanism of inheritance is built in the process: each year students, search and explore the bibliographic citation data entered into the system by the previous groups of students and make improvements on it by cleaning, correcting and making additions. The data is explored and analyzed, in addition to traditional searching and browsing techniques, using two methods implemented within the system: Social Network Analysis and Content Analysis.

Students initially learn the core concepts of these two methods as well as quality and quantity of the data available in the system through easy exploration and visualization. They then move to work on the data until satisfactory results are obtained in answering questions they develop in the process. This process can be repeated until publishable results are obtained.

Although, the use of the system is currently limited to one department in one higher education institution in Turkey, it is generic and can readily be used in other disciplines and institutions. This paper describes this system and points to further work.

Introduction: Why Integrate Teaching and Research

The nature of relationship between teaching and research in higher education has been under increasing focus over the last three decades, especially since after the Boyer Commission report (Boyer 1998). There seems to be a broad agreement among researchers that the 'teaching-research nexus' (Neumann 1992; Tight 2016), or linking "research and teaching" (Healy 2005; Jenkins at al 2007) or even "integrating teaching and research" (Locke 2005; Chang 2010; Acun 2010) is central to higher education for an increased productivity in learning as well as in constructing knowledge.

But how to achieve the desired result in practice is a matter of debate among the researchers and practitioners. This is because effective teaching research links are not automatic and have to be constructed. But political, institutional and disciplinary factors get in the way (Acun 2009, Brew 2010). Jenkins at al. (2007) suggest that the disciplinary variations in teaching-research relations need to be valued in creating linkage. By way of providing an implementation that has potential for crossing institutional and disciplinary boundaries, this paper argues that the preoccupation with disciplinary differences may not be the best way forward in providing effective linkage or integration.

At this point some personal background is in order: Having been trained in and working at the intersection of two what is considered widely different disciplines, History, and Computing, I instinctively look for connections and commonalities between disciplines. And having developed a number of projects in which I worked closely with graduate as well as undergraduate students, I thought about developing a platform in which faculty and students work together and learn from each other irrespective of their institutions and disciplines.

One more important requirement I had in mind for that platform was that it accommodated changing but cumulative nature of data and knowledge. That is a kind of inheritance built into it similar to the one described in (Chang 2005) but for a much wider community of learners. The result is: *kaynakca.info*, an academic social network *with a difference*. This is explained in the next section.

A Platform for Integration: Kaynakca.info

The origin of *kaynakca.info* was a bibliographic database, created in mid 1990s in search of finding a simple way to teach basic database technology skills in a series of courses called "History and Computing" in the History Department at Hacettepe University. These courses were offered as electives in undergraduate as well as postgraduate programs with an increased sophistication in line with the program level.

The students, under the direction of the teacher, were firstly collecting and entering the bibliographic citation data in a standard form into this database running on a local area network (the internet penetration was not high at that time in Turkey) and then querying it in order to summarize data in the form of tables and graphics using its query language, SQL. Summarizing the data made it easier for the students to find relationship and associations that might have existed in the data.

In each year and semester in operation, the database grew bigger with new entries. A few years on, more comprehensive inquiries became possible. In effect, a primitive form of cooperative learning environment was set up. The environment itself was also improved by time: In 2008, the database has been made accessible over the web with some social network features, such as user (member) account management, the design of which was explained in detail in an earlier IETC conference paper (Acun 2009).

This move not only lifted the restriction of its usage to a specific location for the students but also opened its content to a much wider community of learners for further development and query using web based tools. Latest figures regarding the volume of the content can be seen in Table 1.

Table 1. A Numerical Summary of the Content of Kaynakca.info.

Content Type	Count
People (Author, Translator, Editor)	97,718
Citations	188,290
Articles	121,387
Books	99,023
Theses	10,438
Journals	7,423

As of July 07, 2018, the site counts 14,131 members, most of whom are university students and teaching staff. In accordance with the tendency observed in other collaborative networks, approximately 10% of these members are actively contributing to the system content, the majority of them being postgraduate students.

After five years in operation, a new version of the system deployed in 2012 with stronger social network features, such as integration with *Facebook* and *Twitter*. Users can now access and become a member of *kaynakca.info* using their Facebook account or share or like (or dislike) the content in *Facebook* or in *Twitter* with just click of a button.

More importantly, this new version has made it available a built in analysis module for advanced users. And this made the system different from other content creating social networks in a big way. The Analysis module includes two widely used methods in many disciplines: Social Network Analysis (SNA) and Content Analysis. In *kaynakca.info* these methods are currently being used to explore and analyze bibliographic citation data available in the database. Because of the space restriction, this paper concerns only SNA method.

In short, *kaynakca.info* is an end product of at least 15 years of learning process of finding a better way to integrate teaching and research. The next section provide sample work by students to give a sense of to what extent this is achieved.

How it is done: Sample Works

First scholarly papers, based on the data in *kaynakca.info* and its analysis module started to appear three years after the deployment of its new version (see, for example, Acun 2015a, 2015b, 2015c, 2015d). This has been the time when the data has reached critical mass enabling scholarly investigation. The main purpose of these publications was to present original research, of course.

The second purpose was to create a model for the students taking the courses mentioned above. Therefore all these publications emphasized the method, show the various ways in which the data can be used for research purposes, and draw attention to *kaynakca.info*, especially the part of the system that facilitated the data analysis for that publications.

It must be stressed here that the data used in these publications mostly collected, entered and/or edited by the students working in a networked fashion within the framework of the above mentioned courses. This process is guided by the teachers of the courses as well as the students' own findings through exploration of the existing data.

These publication effort also increased the visibility of system which in turn has led system being adopted in other courses, albeit only as a partial requirement. One of these courses has been "Methods and Techniques in Historical Research" the only compulsory course in the postgraduate programs in the department. The result of this was a dramatic increase in the number of postgraduate students using the system. This in turn has led to more research with an increased likelihood of publishable results.

Considering international audience, this section will give a flavor of this research by mentioning only two of the four such research, the ones that are in English.

The first of these two researches is about a social network analysis of the scholarly publications on Spanish women (Mujeres Libres) during the Spanish Civil War by Onur Yamaner[1] (Yamaner 2017). He was a student of Master's program of History Department at Hacettepe between 2014-2016 academic years. He is now a PhD student at Universitat de València, Spain. He carried out the work during his studies at Hacettepe.

Having an idea of doing a study on Spanish women (Mujeres Libres) during the Spanish Civil War, he created a comprehensive bibliography on *kaynakca.info* consisting of 686 items of books, peer reviewed journal articles and conference papers.[2] He then manually entered the citations of the works in the bibliography converting it into effectively a bibliographic-citation index. As may be known citations (or footnotes) are one of the important ways of communication between scholars. And these form a complex invisible network over time even in a relatively narrow area of research such as History of Spanish Civil War. He then created a number of visualizations called sociograms or network maps out of this data using Social Network Analysis (SNA) method implemented in kaynakca.info.

The value of visualizing networks that are hidden in historical bibliographic-citation data, has been forecasted Eugene Garfield almost half a century ago: the analysis of historical bibliographic citations can reveal key events, their chronology, their mutual relations and their relative importance. Thus, a new field of history of science studies has been opened up (Garfield, 1971, 167). There are tools and methods readily available today which go even further than imagined by Garfield in processing historical bibliographic-citation data.

SNA method for example can be used to examine all types of networks that are formed through social interactions and personal relationships. These are simply called social networks. Structure of social networks can be examined using the centrality measures of SNA method in order to understand the diffusion of knowledge between actors in the network. Citation networks, are a type of social network which can be studied to observe the diffusion of scientific knowledge between scholars. In this respect, citation networks can also be considered as research networks.

Figure 1 shows one of the sociograms Yamaner produced. This was drawn using betweennes centrally measure of SNA. *Betweenness centrality,* measures how often a node (an author in this case) is included in the shortest path between node pairs. It highlights those nodes that have the highest control over the flow of information through a graph – this can for instance be applied to domains where it is important to manage access to information.

The figure shows that Mary Nash at the center of that network. That means she is the first scholar to consult for those who study Spanish Women and especially Mujeres Libres during Spanish Civil War. This figure also shows that Martha Ackelsberg is the second among the leading scholars of that field.

Figure 1: Showing Mary Nash and Martha Ackelsberg at the center according to Betweenness Cenrality measure of SNA.

This kind of visualization was first in that area and seems to getting some attention from the scholars. Indeed, the paper, before it's publication as a journal article, was presented at European Social Science History Conference (ESSHC) in 2016.

Figure 2 shows essentially the same sociogram as the previous one but with a difference: the student who created the diagram as part of his post graduate studies, has now become connected to that network through his citations to the major authors in the area in his published work.

Figure 2: This sociogram showing Onur Yamaner as a part of the research network he has helped to visualize (created on July 14, 2018).

The second study to be mentioned here is a master's thesis completed in June, 2018: *The Ottoman Period in Albanian Historiography (1915-2015)* by Ekrem Zajmi (Zajmi 2018).[3] Again starting from a coursework, Ekrem Zajmi proceeded to thesis research. As can be seen form the intensity of connections in Figure 3, he worked with more bibliographic citation data, contributing greatly to content of the system in the process. At time of starting research for this thesis (2017-18), the number of titles available in kaynakca.info database in Albanian language was relatively low.

As a result of this study, more than 3300 titles on Albanian history and 6371 citation data entered into the system in order to achieve the results presented in his thesis. Although most of these works belong to Albanian authors, a significant number of them belong to international authors as well. Now, for most of these publications, kaynakca.info is the first and often the only source to come across if a search is randomly done for the titles of these publications on search engine google.com. An example of this is given in Figure 3.

As to the sophisticated use of SNA, firstly, the study identified most prominent Albanian historians on the Ottoman period of the Albanian history, based on centrality measures of SNA (Degree Centrality Betweenness Centrality, Closeness Centrality and Eigenvector Centrality).

Secondly, the study examined views of those historians determined by SNA centrality measures, on the Ottoman rule of Albanian land. This is done through analyzing texts of their works using qualitative methods.

And finally, the study determined centrally important authors source of influence following their connections to other authors in the respective network map that is their references to other authors. At this point, the network map shown in Figure 4, may help to clarify what that means.

Figure 3. A random search, Injac Zamputi; *Reports on North and Middle Albania's situation in the 17th century (1610-1650),* [Accessed: 20.02.2018]

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[3] See Ekrem Jazmi's kaynakca.info profile: http://kaynakca.hacettepe.edu.tr/uye/12661374/ekrem-zajmi

Figure 4. Citation Network of Albanian Historians based on Betweenness Centrality
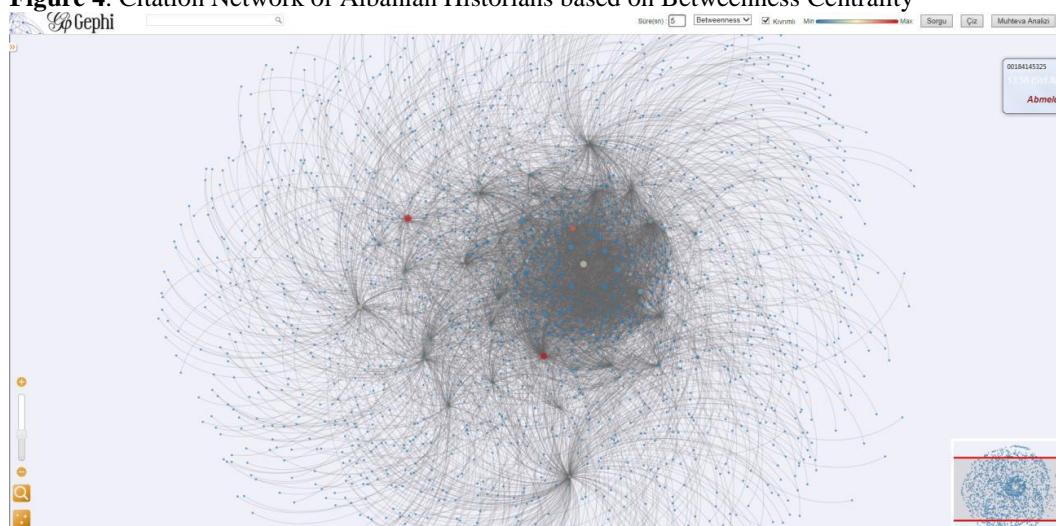
A close examination of the connections in the figure reveals an interesting pattern: Albanian historians seem to prefer to cite other Albanian authors. For example, Kristo Frashëri one of the two centrally important Albanian historians in the network map in Figure 4, shown with red dots in the figure, cited only two Ottoman authors, Aşık Paşazade and Şemseddin Sami but no contemporary Turkish historians including world renown Halil Inalcık who made big contribution to the Albanian history of Ottoman period with his *Hicri 835 (1431/1432) Tarihli Suret-i Defter-i Sancak-ı Arvanid* published as early as 1954 (see citation lists in Zajmi 2018, 107-112). It may be worth noting here that Şemseddin Sami (Frashëri) is an Ottoman of Albanian origin.

The other centrally important figure in the network, Alex Buda, had even none of these. But the Ottoman historians (or chronicles) are internationally considered as primary sources for the history of any part of the world once under the Ottoman rule. In other words, Albanian historians seem to form a hemophilic

network that suggests a concern about a reduced diversity in theoretical perspective and research methods within Albanian historiography.

There is no need to say that with his work Ekrem Zajmi also become part of the citation network he studied, certainly connecting that hemophilic network to other networks with more diversity of opinions and methods.

Discussion

"At present, much university education is dedicated to the rote learning of things that do not benefit anyone directly. The currently fashionable emphasis on transferable skills only reflects an underlying worry that the content of university education is useless for most students' lives. Even students destined for academia are supposed to be in training, and therefore not expected to produce new knowledge". (Chung 2005, 385).

What is need to change this type of "useless" learning is a new environment, where not only the data is constantly accumulated and modified in order to reflect the dynamic nature of the real world, but also new questions asked for and answers returned in the form of relationships in a structured and faster way. Such an environment would enable students, and even their teachers to develop skills that are transferable to other domains. These skills involve collecting and formatting data, entering it in a database, exploring and/or analyzing them with a formal method and putting results of analysis in a context that makes them meaningful.

This is a very short description of the process of experimenting for almost 6 years in the design and use of kaynkca.info in the courses in all three levels, graduate, master's and doctoral. In all these, there is a heavy emphasis on doing rather than teaching.

The bibliographic citation data is created and used in almost all the academic fields. And the SNA and content analysis methods, also widely known in many disciplines, can usefully be employed to process and visualize this kind of data. This means that the approach and the associated system, kaynakca.info, can be used in any courses where knowing the structure (or the map) of the area of learning is considered important to start with.

Moreover, as demonstrated by the sample research described briefly in the previous section, discovering the structure of an area can be a research on its own. The benefit of this kind of research for the students is that it can prompt new questions leading them deeper into the research. This means a smooth transition from teaching to research with of course some guidance from teachers especially at the beginning. The need for guidance, obviously is grater at the undergraduate level.

The only problem with this approach is that discipline specific bibliographic-citation data has to be manually collected and entered into kaynakca.info database. This is clearly a time-consuming routine task, and some students are discouraged by it. Speaking in general terms, however, research procedures involve routine tasks and therefore there is some merit in doing hands on experience in that area as well in terms of gaining perseverance and patience. But this should not go as far as leading to discouragement. This problem will be addressed in future work.

One more advantage of this kind of cooperative learning is that students can work in mixed groups having members from all three levels, undergraduate, master's and doctoral. In the case of mixed groups, interactions between students from different levels need to be highly structured and guided so that confidence of students from lower level programs are enhanced in participating the original work that the students from upper level programs are doing. Guidance should be provided by the teachers not only on research methods but also on the norms and values of academia.

Here, ethical norms need to be given priority. Since at any point in time, the data collected and entered into the database by previous groups of students are used by the current students, they are reminded that this is the case. Also it is made clear from the start this is what will happen to their data too. To ensure data quality as well as acknowledging intellectual property rights, every record is associated with a persistent clear identity of its creator.

In case of publication, however, a general reference to the source of data and analytical tools, kaynakca.info, would suffice.

Conclusions and Further Work

Cooperative learning is a connective activity in which every participant is working to achieve the goal for his or her own benefit. What connects them is an overall theme or goal. Original research by ordinary students in cooperative learning is made possible by members' ensuring all members are making good academic progress and providing each other with support, encouragement, and assistance in completing their projects.

The approach and associated platform presented in this paper, *kaynakca.info*, the connectivity is strengthened and even in some cases facilitated to ensure a fruitful outcome: the completion of individual projects. In the last two years some of completed projects have been published or are being considered for publication in refereed journals. It is hoped that the publication trend will grow in line with the growth of the database thanks to the inheritance mechanism built into the system.

One of most innovative features of this environment is that students by publishing their discovery of network structure of the area that they are interested in become part of that network, literally and visibly. This in turn gives them a better sense of how knowledge grows in real scholarship.

Furthermore, being part of a research network in this way motivates students to continue in doing original work. It certainly increases their confidence in handling critically the secondary literature that their works heavily rely on. In short, learning in this environment is not simply a knowledge acquisition but a form of knowledge production. Thus if this approach is adopted widely in academia learning productivity as well as knowledge production would increase sharply.

It may be argued that though bibliographic citation data is created in almost all academic disciplines, when it comes to analysis its use is restricted to the discovery of the structure of any given research area. And therefore the approach presented here is also of limited value. But the SNA and content analysis methods work for much richer sets of data. True.

To overcome this limitation, analysis module of *kaynakca.info* needs to be extended with text mining features capable of structuring contemporary as well as historical texts such as traveler's accounts and chronicles. This would allow users to explore and analyze a much richer sets of data expanding the content of the database in the process with new texts, whether historical or contemporary, which they wish to analyze, just as the way they do with bibliographic citation data.

One of uses of text mining capability would be extracting automatically or semi-automatically the citation data which some students dread dealing with, from the full texts of works once they are identified and marked for analysis in the system through a mechanism which also need to be programmed afresh.

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Gamifying The Classroom With Mobile Devices To Enhance Students' Of Public Junior Secondary School Academic Participation In Rivers State

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Abstract
This study investigated ways classroom could be gamified with mobile devices to enhance junior secondary school students' academic participation in Rivers State. Three research questions and three null hypotheses guided the study. This is an analytical survey that involved a sample of 378 teachers from a population of 2,700 teachers spread across Rivers State. This represented 14% of the population. The instrument used in the study was questionnaire tagged "Gamification of classroom with mobile devices to enhance junior secondary school academic Participation in Rivers State (GCMDEJSSAP) developed by the researcher. The instrument was validated and the reliability yielded an index of 0.76. The research questions were answered using mean and standard deviation while the null hypotheses were tested with independent samples z-test at 0.05 alpha level. The findings revealed among others that the ways classroom can be gamified through integration of new approach to learning process and pedagogy are by incorporating technological change in the classroom using mobile devices as the new generation of learners are immersed in the digital world from birth. Challenges to gamifications of classroom instructional process are teacher incapacity, adoption reluctance and inaccessibility of instructional programmes. The need to empower teacher with technological knowledge for gamification through sponsored training and empowerment among others were recommended.
Keywords: *Gamification, Mobile Devices and Academic Performance*

Introduction

Gamification is a process of using play to learn through rules, dialogue and healthy competition with others. It is a form of active learning process which also promotes competitiveness and competences. It helps the participant to bond and build better relationship with truth, confidence and dignity. It also brings out the best in the individual and collaborative effort with others. Gamification also instil into the participant a sense of self-discipline, self-discovery, team spirit, learning how to win and loose honorably without bitterness, envy or jealousy. It is about finding solution to problems through net-working.

Gamification of learning environment is not alien to Africa. It is indigenous to African traditional system of education which is hardly applied in modern times even with the sophisticated mobile devices available. This process of learning is central to African traditional system of education where children are taught through moonlight play, games of various types like the local abacus ("okwe" in Igbo language) which trains the analytical mind right from childhood, folklores and "Oga" (in Igbo language), which teaches self discipline and the spiritual laws of cause and effect among others. Gamification is an approach to motivate students to learn by using game design element in learning process. The goal is to maximize engagement, participation and fun through capturing the interest of the learner and inspiring him to a better learning outcome.

Gamification in education could be seen as the process of transferring an academic component with games to demystify a concept which ordinarily would have been seen by the learner as an abstract. The use of games makes a construct real and natural to the learner. It decodes a complex idea to a natural phenomenon and bring life into it. This encourages participation and the use of dialogue in solving problems and makes the learner curious to help in finding solutions by himself which invariably gives him a sense of self-fulfilment, and courage to forge ahead in facing future challenges. It turns a difficult concept into fun and easy to understand and comprehend. In support of this Wheeler (2015) opined that game-based learner is effective for a number of reasons which he highlighted as follows:

- Firstly, there is an impressive array of transferable skills to be acquired especially if the games played are designed effectively.
- Secondly, most people now have the capacity to play games the more, using smartphones, touchscreen, tablets and handheld consoles.
- Thirdly, as we have already seen, many online games have very rich social dimension, which lead gamers to extend their learning further through discussion, collaboration and competition (p.77).

On the other hand according to Nigerian National Policy on Education Section 1 subsection 3b education maximizes the creative potentials and skills of the individual for self-fulfilment and general development of the society. As a

result, if we must have a quality, comprehensive, functional and relevant education that will help the development of the child and the society at large, we must have to adopt the technological change that is ruling the world and making the world a global village through these devices.

The only thing that is permanent in life is change and life is change. The future of quality education delivery lies in the adoption of technological change. FRN (2013) opined that educational activities shall be learner centered for maximum self-development and self-fulfilment that teaching should be practical, activity based, experiential and IT supported, and that the acquisition of functional skills and competencies necessary for self-reliance must be adopted in the system. Moreover in Section 2 article 29 stated that:

> In recognition of the prominent role of Information and Technology (IT)
> in advancing knowledge and skills necessary for effective functioning in
> a knowledge driven world, government shall provide adequate
> infrastructure and develop capacity for effective utilization of
> Information Technology (IT) to enhance the delivery of Basic Education
> in Nigeria (p.15).

This study is anchored on Social Cognitive Theory by Albert Bandura (1977) which states that human behaviour is extensively motivated and regulated by the ongoing exercise of self-influence. There is a link between what exercises that go on in the environment cognitive enhancement of students. Researchers have shown that there is interconnectedness between social interaction and cognitive enhancement.

Despite the lackadaisical attitude of the school system to effectively use and implement the use of mobile devices to enhance teaching and learning and student participation in the learning process there are some benefit accruable from their proper use. This is outlined by Bell and Ans in Amia-Ogan and Osuji (2016):

- Global access to knowledge
- Instant sharing of experience and best practices
- Self paced and self based learning
- Learning become interactive and joyful through multimedia tools
- Opening windows for new atmosphere of innovation
- Bringing excitement and motivation, proud of owing technology, feeling of in-a-way being ahead of time.

Moreover a research carried out by Peckenkina, Laurence, Oates, and Hunter (2017) revealed that after measuring the relationship between students'' application usage and their engagement, retention and academic achievement in the subject area students retention rates, and academic performance increased and that there was a positive correlation between students' scoring highly on the application and achieving higher academic grade.

Statement of the Problem

Effective students' classroom participation which is critical to learning is increasingly becoming an issue particularly at the early years of schooling namely primary and junior secondary school (Basic level). Surprisingly, these children who are not learning fast in classroom instructional process seem to demonstrate high level of proficiency in the manipulation of mobile devices at home even without being taught. Unfortunately, these devices are considered in most schools as distractions and hence banned. Incidentally in today digital age, gamification has been a popular tact to encourage behaviours and increase motivation and engagement. With these the researcher as well as members of the public and other stakeholders in education wondered why gamification with mobile devices should not be implemented into educational programme helping learners to achieve their objectives and give them the advantage to compete globally in the 21st century as leaving in the digital age is different to any previous form of education we are used to. In today's world knowledge is highly interconnected than ever, so also are humans, and we now see these mobile devices knowledge being used to negotiate and interact within and around the globe, making the world a global village.

Aim and Objectives

The study aimed at investigating ways classroom could be gamified with mobile devices to enhance junior secondary students' academic participation in Rivers State, Nigeria. Specifically, the study sought to:

1.   Determine ways in which classroom can be gamified through the use of mobile devices to enhance junior secondary school academic participation in Rivers State.
2.   Ascertain the benefits of gamifying the classroom through the use of mobile devices to enhance junior secondary school academic participation in Rivers State.
3.   Examine the challenges militating against the use of gamification through mobile devices to enhance junior secondary school academic participation in Rivers State.

Research Questions

The following research questions were answered in this study.

1.   What are the ways in which classroom can be gamified through the use of mobile devices to enhance junior secondary school academic participation in Rivers State?
2.   What are the benefits of gamifying the classroom through the use of mobile devices to enhance junior secondary school academic participation in Rivers State?
3.   What are the challenges militating against the use of gamification through mobile devices to enhance junior secondary school academic participation in Rivers State?

Hypotheses

The following null hypotheses were tested at 0.05 alpha levels.

1.   There is no significant difference between male and female teachers on ways in which classroom can be gamified through the use of mobile devices to enhance junior secondary school academic participation in Rivers State.
2.   There is no significant difference between male and female teachers on the benefits of gamifying the classroom through the use of mobile devices to enhance junior secondary school academic participation in Rivers State.
3.   There is no significant difference between male and female teachers on the challenges militating against the use of gamification through mobile devices to enhance junior secondary school academic participation in Rivers State.
4.

Methodology

The study adopted analytic survey. This involved a sample of 378 teachers from a population of 2,700 teachers spread across Rivers State. This represented 14% of the population. The instrument used in the study was questionnaire tagged "Gamification of classroom with mobile devices to enhance junior secondary school academic Participation in Rivers State (GCMDEJSSAP) developed by the researcher. The instrument was validated and the reliability yielded an index of 0.76. The research questions were answered using mean and standard deviation while the null hypotheses were tested with independent samples z-test at 0.05 alpha level.

Results

Research Question One

What are the ways in which classroom can be gamified through the use of mobile devices to enhance junior secondary school students' academic participation in Rivers State?

Table 1: Weighted mean and standard deviation scores on the ways classroom can be gamified through the use of mobile devices to enhance junior secondary school students' academic participation

s/n	Items	Male teachers= 153		Female teachers= 225	
		Mean	Sd	Mean	Sd
1	The teachers should make the students co-designers	3.43	0.11	3.09	0.34
2	Educational video game should be incorporated into the curriculum	3.59	0.05	3.12	0.56
3	The teachers should make use of badges	3.21	0.22	3.87	0.01
4	There should be the use of virtonomics	2.97	1.07	3.66	0.21
5	Abandon grade and use expansion points to award marks	3.01	0.90	3.12	0.33
6	Students do not design or create their own game of play	3.71	0.19	3.44	0.42
7	Gamify homework to make learner continue after school hours	3.15	0.23	3.26	0.66
8	Gamification should focus on meaningful learning task	3.18	0.22	3.39	0.11
9	The teachers make progressive visible	2.98	1.02	3.09	0.71
10	The teachers, should have instant feedback	3.17	0.15	2.88	1.20
		32.4	4.16	32.92	4.55
		3.24	0.42	3.29	0.46

Table 1 revealed that items with serial numbers 1-10 have their various mean values above the criterion mean value of 2.50 and are therefore agreed by the respondents as the ways in which classroom can be gamified through the use of mobile devices to enhance junior secondary school students' academic participation in Rivers State. The ways classroom can be gamify are that: teachers should make students co-designer, incorporation of educational games in the curriculum, the use of badges, the use of virtonomics, abandonment of grade and use expansion points to award marks, students do not design or create their own game of play, homework, work should be gamified to make learner continue after school hours, gamification should focus on meaningful learning task, the teachers make progressive visible, the teachers should provide instant feedback.

Research Question Two

What are the benefits of gamifying the classroom through the use of mobile devices to enhance junior secondary school students' academic participation in Rivers State?

Table 2: Weighted mean and standard deviation scores on the benefits of gamifying the classroom through the use of mobile devices to enhance junior secondary school students' academic participation

		Male teachers = 153		Female teachers = 225	
		Mean	Sd	Mean	sd
11	It improves learning cohesiveness	2.77	1.77	3.01	1.00
12	It brings about behavioural change	3.67	1.09	3.21	0.10
13	Gamification provides better learning environment	3.43	0.12	3.39	0.88
14	It appeals to the overall learning	3.58	0.11	3.67	0.26
15	It enhances learners concentration	3.66	0.32	2.99	0.92
16	Gamification makes learning interactive	3.31	0.53	3.21	0.66
17	Gamification promotes retention	3.54	0.37	3.31	0.65
18	Gamification encourages slow learners	3.33	0.71	3.24	0.20
19	It initiates healthy competition	2.88	0.35	3.44	0.67
20	It develops in the students sense of achievement	3.21	0.23	3.31	0.21
		33.38	5.6	32.78	5.55
		3.34	0.56	3.28	0.56

Table 2 revealed that items with serial numbers 11-20 have their various mean values above the criterion mean value of 2.50 and are therefore agreed by the respondents as the benefits of gamifying the classroom through the use of mobile devices to enhance junior secondary school students' academic participation in Rivers State. The benefits of gamifying the classroom are that: it improves learning cohesiveness, it brings about behavioural change, gamification provides better learning environment, it appeals to the overall learning, it enhances learners' concentration, gamification makes learning interactive, gamification promotes retention, gamification encourages slow learners, it initiates healthy competition and it develops in the students' sense of achievement.

Research Question Three

What are the challenges militating against the use of gamification through mobile devices to enhance junior secondary school students' academic participation in Rivers State?

Table 3: Weighted mean and standard deviation scores on the challenges militating against the use of gamification through mobile devices to enhance junior secondary school students' academic participation

s/n		Male teachers= 153		Female teachers= 225	
		Mean	Sd	Mean	sd
21	Most schools see the use of mobile devices as a distraction	3.37	0.12	2.98	0.98
22	Dearth supply of usable games	3.54	0.23	3.31	0.38
23	Lack of clear instructional objectives	3.47	0.22	3.87	0.12
24	There is lack of facilities to encourage gamification	2.99	0.13	3.84	0.23
25	Teacher incapacity	3.76	0.24	2.71	0.87
26	Poor time management for the programmes	3.90	0.11	3.56	0.12
27	School system adoption reluctance	3.88	0.51	3.22	0.61
		24.91	1.56	23.49	3.31
		3.56	0.22	3.36	0.47

Table 3 showed that items with serial numbers 21-27 have their various mean values above the criterion mean value of 2.50 and are therefore agreed by the respondents as the challenges militating against the use of gamification through mobile devices to enhance junior secondary school students' academic participation in Rivers State. The challenges of gamification are that: most schools see the use of mobile devices as a distraction, there is dearth supply of usable games, lack of facilities to encourage gamification, lack of clear instructional objectives, teacher incapacity, poor time management for the programmes and school system adoption reluctance.

Hypothesis One

There is no significant difference between male and female teachers on ways in which classroom can be gamified through the use of mobile devices to enhance junior secondary school students' academic participation in Rivers State.

Table 4: Independent z-test on the mean ratings of male and female teachers on the ways in which classroom can be gamified through the use of mobile devices to enhance secondary school students' academic participation in Rivers State.

Gender	N	Mean	Sd	Df	z-cal.	z-crit.	Decision
Male teachers	153	3.24	0.42				Not
Female teachers	225	3.29	0.46	376	1.00	1.96	statistically significant

Table 4 showed that male teachers have mean and standard deviation scores of 3.24 and 0.42 while female teachers have mean and standard deviation scores of 3.29 and 0.46 respectively. With a degree of freedom of 376, the calculated z-test value of 1.00 is less than the critical table value of 1.96; therefore, the null hypothesis is accepted. By implication, there is no significant difference between male and female teachers on ways in which classroom can be gamified through the use of mobile devices to enhance junior secondary school students' academic participation in Rivers State.

Hypothesis Two
There is no significant difference between male and female teachers on the benefits of gamifying the classroom through the use of mobile devices to enhance junior secondary school academic participation in Rivers State.

Table 5: Independent z-test on the mean ratings of male and female teachers on the benefits gamifying classroom through the use of mobile devices to enhance secondary school students' academic participation in Rivers State.

Gender	N	Mean	Sd	df	z-cal.	z-crit.	Decision
Male teachers	153	3.34	0.56				Not statistically significant
Female teachers	225	3.28	0.56	376	1.20	1.96	

Table 5 showed that male teachers have mean and standard deviation scores of 3.34 and 0.56 while female teachers have mean and standard deviation scores of 3.28 and 0.56 respectively. With a degree of freedom of 376, the calculated z-test value of 1.20 is less than the critical table value of 1.96; therefore, the null hypothesis is accepted. By implication, there is no significant difference between male and female teachers on the benefits of gamifying the classroom through the use of mobile devices to enhance junior secondary school academic participation in Rivers State.

Hypothesis Three
There is no significant difference between male and female teachers on the challenges militating against the use of gamification through mobile devices to enhance junior secondary school students' academic participation in Rivers State.

Table 6: Independent z-test on the mean ratings of male and female teachers on the challenges militating against the use gamification through mobile devices to enhance secondary school students' academic participation in Rivers State.

Gender	N	Mean	Sd	Df	z-cal.	z-crit.	Decision
Male teachers	153	3.56	0.22				Statistically significant
Female teachers	225	3.35	0.47	376	5.00	1.96	

Table 6 showed that male teachers have mean and standard deviation scores of 3.56 and 0.22 while female teachers have mean and standard deviation scores of 3.35 and 0.47 respectively. With a degree of freedom of 376, the calculated z-test value of 5.00 is greater than the critical table value of 1.96, therefore, the null hypothesis is rejected. By implication, there is a significant difference between male and female teachers on the challenges militating against the use of gamification through mobile devices to enhance junior secondary school students' academic participation in Rivers State.

Discussion of Findings
The findings of this study are discussed under the following subheadings.

Ways Classroom can be Gamified
The ways classroom can be gamify are that: teachers should make students co-designer, incorporation of educational games in the curriculum, the use of badges, the use of virtonomics, abandonment of grade and use expansion points to award marks, students do not design or create their own game or play, homework should be gamified to make learner continue after school hours, gamification should focus on meaningful learning task, the teachers make progressive visible, the teachers should provide instant feedback. It was found that there is no significant difference between male and female teachers on ways in which classroom can be gamified through the use of mobile devices to enhance junior secondary school students' academic participation in Rivers State. The importance of gamification cannot be overemphasized. The finding of the study is in line with Opurum (2014) who found that gamification can be carried out in the school through active involvement of the students and instant feedback on the students.

Benefits of Gamifying Classroom

The benefits of gamifying classroom are that: it improves learning cohesiveness, it brings about behavioural change, gamification provides better learning environment, it appeals to the overall learning, it enhances learners' concentration, gamification makes learning interactive, gamification promotes retention, gamification encourages slow learners, it initiates healthy competition and it develops in the students' a sense of achievement. It was found that there is no significant difference between male and female teachers on the benefits of gamifying the classroom through the use of mobile devices to enhance junior secondary school academic participation in Rivers State. In line to this Akpa (2017) established that gamification is beneficial and rewarding to both the students and the teachers in the enhancement of quality educational development.

Challenges of Gamifying Classroom

The challenges of gamification are that: most schools see the use of mobile devices as a distraction, there is dearth supply of usable games, lack of facilities to encourage gamification, lack of clear instructional objectives, teacher incapacity, poor time management for the programmes and school system adoption reluctance. The study showed that there is a significant difference between male and female teachers on the challenges militating against the use of gamification through mobile devices to enhance junior secondary school students' academic participation in Rivers State. The work of Uzonna (2000) was in agreement with this study. This is because he found that teacher's incapacity has marred the use of gamification in the school system. More to this finding was Ndukwu (2016) who reported that lack of school facilities has discouraged effective use of gamification in the schools. Still in line with the finding, Monday (2017) found that teacher's negative attitude has adversely affected the effective and efficient use of gamification in the school. There are more to the challenges of gamification in the school. The study carried out by Akaranta (2015) corroborated this study because he found that inadequate allotment of time incapacitates gamification in the school.

Conclusion

Based on the findings of this study, it was concluded that gamification through the use of mobile devices is indispensable and incredible in enhancing academic participation in Rivers State.

Recommendations

The following recommendations were made in this study:
1. Gamification should be fully integrated into the school curriculum in order to enhance students' participation in arduous academic activities with keen interest.
2. Orientation services should be organized for the students by the school administrators on the importance of their full participation in gamification for improved academic participation.
3. Government, Unicef, Unesco and TET-Fund should supply the schools with games, mobile devices and befitting classrooms that can encourage and sustain gamification in the schools.
4. The need to empower teacher with technological knowledge for gamification through sponsored training and empowerment among others were recommended.

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Graduate Candidates' 21st Century Skills And Challenge For The Faculty And The University In Online Learning Era

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Abstract

This study aimed to investigate students' 21st century skills at a Faculty of Science Technology at a University, Indonesia. The 21st is consist of of two main skills, they are soft skills and hard skills. Soft kills classified into six sub skills, communication, IT, numeracy, learning how to learn, problem solving, and team work. Hard skills were not classified into any sub skills. Students' self-report questionnaire were distributed to 212 hundred the third year students at and 150 returned. The findings show that the students at science technology faculty rated their overall 21 st century skills at average level. Students also rated overall soft skills and hard skills were at average level. All of sub components of soft skills; communication skills, IT skills, numeracy, learning how to learn, problem-solving skills and teamwork skills at average level. These findings implied that the science technology students was not prepared enough with 21st century skills. This result implied that the faculty as well as University had a hard challenge to reform the process of learning practices, and such as a policy must be taken to give more emphasizes 21st skills on curriculum, syllabus and teaching and learning practices.

Keywords: *Soft skills, hard skills, learning practices, global challenge, IT Skills, Higher Education*

1. Introduction

There had been hot issues on 21st century skills discussed today in many field of workplace dealing with human resources quality working and seeking for a job. The terms are used might be very, however the essential of the issues are remain the same, such as key skills, adaptive skills, soft skills, generic skills, life skills and interpersonal skills, etc. The issues are broadly published in journal, books and conference, such as Hadiyanto, et al 2017, Laura., et al (2015), Hadiyanto & Suratno, 2015, Bialik, et., al. (2015), ILO, (2014), Hassan., et. al. (2013), Hadiyanto & Mohammed Sani (2013), Person, et. al. (2009), Partnership for 21st century skills (2008) and Zalizan., et. al (2006).

In Indonesia, emphasizing on students 21st century skills had been stated in curriculum based Indonesian Qualification Framework or called by KKNI 2013. Furthermore, Ristekdikti (2016) and UNJA (2018), teaching and learning process at University must enhance the students' soft skills and hard skills. The practices of soft skills bring them to develop and acquire their hard skills. It is expected that the graduates of University come out with lifelong learning, employability and competitiveness capacity.

In responding the new curriculum policy, universities in Indonesia had reconstructed curriculum based on KKNI standard. It stated that the outcome of University graduate must possess 21st century skills such as soft skills and hard skills (Hadiyanto, et al, 2017; Ristekdikti, 2015). However, there is no evaluation or research yet conducted to search students' level of 21st skills today as the impact of new curriculum implementation. The current studies as one of research activities under LPDP Fund conducted a survey research to measure students 21st century skills based on self-evaluation questionnaire of 21st century skills. This study was conducted at the Faculty Science and Technology, Humanities, Economic and Business, and Husbandry, Universitas Jambi. The findings were focused on the level of students' soft skills in terms of communication, numeracy, IT, learning how to learn, problem solving, teamwork, and hard skills.

2. Defining 21st Century Skills: Soft Skills, Hard Skills and Competitiveness

Soft skills, professional skills, interpersonal and personal skills, generic skills, key skills, adaptive skills and others term are interchangeable term used by educator to refer to 21st century skills (Hadiyanto, at al 2017; Bialik at, al 2015; Ristekdikti, 2015; Hadiyanto, 2010; Unja, 2014; Partnership for 21st Century Skills. 2008; Zalizan, et. al, 2006). 21st century skills define is a popular term used among universities to reveal skills needed by

graduates Universities to seek for a job. In this research, soft skills and hard skills are discussed as components of 21st century skills.

Students learning activities are designed with a view of encouraging students to actively participate in their process of learning. Priority is placed on lecturer setting goals and objectives for the students' engagement and activities related to the promotion of soft skills and hard skills as well as its impact on students competitiveness level (Hadiyanto, et. al. 2017, Ristekdikti , 2016, Washer, 2007).

2.1 Soft Skills Soft skills is defined as practical activities applied to generate and developed hard skills in the students' learning context and graduates' working context. This definition based on analysis and synthesis from related articles as stated in (Hadiyanto, et. al 2017; Laura at al 2015 and Partnership for 21st Century Skills, 2008). Students' soft skills were developed through students' engagement in learning activities. Students must learn the content knowledge by their learning activities.

Communication skills continue to be essential at work so as to maintain successful job performance. The skills need to enable graduates delivering their idea as individual or as group member and comprising a diversity of backgrounds in order to come out with a good decision, solution and negotiations (Dikti, 2015; Ahlstorm, et. al, 2014; Marando, 2012). In this study, Communication skill is defined as the ability of using English to express and exchange ideas by using feelings of thought a variety of verbal and non-verbal media, including speech and written text as also to synthesise information gained from relevant resources (Hadiyanto & Sani, 2013; Zalizan et al, 2006; Washer, 2007).

Information technology skills are one of the '21st century skills' which appears to create a powerful synergy for '21st century skills development'. The use of ICT in teaching and learning would provide many opportunities to teachers and learners in order to develop their lifelong learning. In this study, students' IT practices include the use of Computer, Cd Roms, internet, WEB, Online conference, program, software, database, video and others technology by students for learning. IT Skills, then defined as the competence of using technology of computers as well as its' device and programme, such as using Microsoft office, internet, website, email, messenger, downloading and uploading, applications, online conference, necessary tool and application to access, gain, create, manage and expose information (Hadiyanto, 2010; Barbara, et. all, 2008; Washer, 2007; Zalizan et al, 2006).

Numeracy skills are not only related with number, however it includes the ability of some on to handle information, to express ideas and opinions, to make decisions, solve problems, times management and job priority (Zalizan Mohammad Jelas, et al 2006) and (Bennet, et. al, 2000). Students' activities and engagement, which relate to numeracy activities are such as time managements, identifying relevant and irrelevant information, reporting tasks or assignments by using tables, charts, graphs and numbers. Then *Numeracy skill* refers to the ability of using basic mathematic calculation, interpreting graphical information, timing, prioritizing tasks and sequencing of job or activities. (Hadiyanto & Sani, 2013; Hadiyanto, 2010; Zalizan et al, 2006; Washer, 2007).

Learning skills is learning features processes, understandings and skills that can be learned and taught when one has gained mastery in learning how to learn, one can learn effectively and efficiently through process teaching and learning a course. *Learning skills* is defined as the ability of using strategies as well as doing evaluation on self-learning strategy, seeking for the weakness and coming to better way and output of learning goal, it includes gaining general and detailed information, knowledge and skills in order to achieve the goal of learning (Hadiyanto, et. al. 2017; Hadiyanto & Sani, 2013; Zalizan et al, 2006; Jones, 2009)..

The ability to solve problems will have a great impact on the success of the students' "real life" endeavors. Laura, et. al (2016) and Ahlstrom, et. al (2014) argue that the ability to resolve business or operational problems, reduce 'downtime' and increase system efficiency is all part of the pressures now faced by employees at almost all occupational levels. On the one hand, this requires an individual to focus on the whole production and delivery process in order to understand the significance of a task; on the other hand, it requires independence of thought and action, and a sense of resourcefulness to pre-empt, identify or remedy problems. Problem solving skills can be encouraged through students' activities for instances, problem identification in doing assignment, ways of tackle problem, looking at previous problem, PBL, case studies, self-learning and etcetera. *Problem solving skills*, which is the ability to tackle problem systematically and appropriately in appropriate situation in order come out with an appropriate solution (Luara, et. al, 2016; Ahlstrom, et. al, 2014; Hadiyanto & Sani, 2013; Jelas et al., 2006; Washer, 2007).

The ability to work as team member will give a great impact to produce new ideas and to find the way out in every situation of real work life. In this study, WWO development will be investigate related to students' activities in-group, such as group discussion, group assignment or project, collaboration and cooperation, inter-communications with different races and etcetera. *Working with others* refer to a capacity to interact effectively with other people both on a one to one basis and in groups, including understanding and responding to the needs of a client and working effectively as a member of a team to achieve a goal (Luara, et. al, 2016; Ahlstrom, et. al, 2014; Laura., et. al. 2016; ILO, 2014),

2.2. Hard Skills

Hard skills refer to subject content knowledge, core concepts, ideas, values, and facts, related with students' selected discipline that can be practiced and applied in the real world integrated setting. Specifically, hard skills are defined the ability of person using and generating his/her major specific knowledge skills in the real context of learning and working, and it is blended with soft skills (Hadiyanto, et, al. 2017; Chan, et, al., 2015; Unja, 2014; Ahlstrom et. al., 2014).

One should possess the subject specific competencies as his/her basic knowledge and capabilities. The students' engagement in the classroom such as discussion on concepts, ideas, values and facts, as well as students' activities such as explaining contents of knowledge, utilize knowledge in practicum and apply content of knowledge in doing assignment.

3. Developing Students 21st Skills at University

There are many ways of achieving the goals and learning outcomes or program objectives that have been set by each institution. Nevertheless the approaches used in designing the curriculum and the selection of the teaching-learning activities must be based on sound learning principles, where the students are encouraged to acquire hard skills, soft skills and academic character (Hadiyanto, 2017, Ristekdikti 2015, 2016, Burce & O'Sullivan, 2014).

In relation to preparing the classroom for 21st century skills development certainly requires proper planning and preparation. Giving a full lecture or demonstrating the 21st century skills practices; soft skills, hard skills and academic character are not proven methods of developing the skills among the students. The literature stresses the importance of both theory and practice as necessary elements in the process of learning (and the development of 21st century skills through real practice, yet many writers assert that students have difficulty in transferring theoretical concepts acquired in the classroom to practical applications in the workplace in areas as varied as aviation, all disciplines knowledge. For answering the issues, some expert suggested that important opportunities for the development of 21st century skills must occur in the selection of delivery methods. Teaching contexts can provide an explicit focus on the development of 21st century skills, thus providing students with opportunities to develop them. The students '21st century skills will be highly promoted if the large opportunity given to the students to practice these attributes within learning activities and otherwise (The Ontario Public Services. 2016, Hadiyanto & Suratno, 2015, Hassan., et. al. 2013, Hadiyanto, 2010).

Students learn most effectively when they have the opportunity to interact with other students. Interaction among students typically leads to group problem solving. When students are unable to meet together, appropriate interactive technology for learning such as E-mail, E-learning, Online learning, Online course some current ICT application, should be provided to encourage their it skills as well encourage their small group and individual communication. Assignments in which students work together and then report back or present to the class as a whole, encourage student-to-student interaction. Ensure clear directions and realistic goals for group assignments. Distant students need to reflect on what they are learning. They need to examine the existing knowledge frameworks in their heads and how these are being added to or changed by incoming information (Hadiyanto, 2010).

The concept and indicator of students' 21st century skills were retrieved from theories and concept of teaching and learning and then characterized into statements of 21st century skills. In daily learning process, hard skills are typically easy to observe, quantify and measure. The evaluation formally designs for this type of skills for every subject. However the hard skills in real contact were rarely measured by educator. Soft skills are typically hard to observe, quantify and measure by a test. Self- evaluation questionnaire model were developed to measure students' 21st century skills.

4. Research Method

The target population of this study was Science Technology Students at State University in Indonesia. The sample of the study was third year students that were selected by purposive sampling. The total sample used in the study was 150 students. The data for this study were generated using a quantitative method. A questionnaire

was conducted to elicit students' self-reports regarding their level of 21st century skills. The students were asked to respond each statement about their level of soft skills, hard skills and competitiveness using a 5-point Likert scale (never, rarely, sometimes, often, and very often). The mean score of the respondents' level of 21st century skills was calculated and interpreted in five levels, as shown in Table 3.

Table 2. Mean Interpretation of 21st Century Skills

Mean Score	Level
1.00 – 1.80	Very Low
1.81 – 2.60	Low
2.61 – 3.40	Average
3.41 – 4.20	High
4.21 – 5.00	Very High

As Table 3 shows, a mean score between 1.00 and 2.33 indicates a low level of soft skills and hard skills, a mean score between 2.34 and 3.66 a average level, and a mean score between 3.67 and 5.00 a high level of soft skills and hard skills.

4.1 Reliability and Validity of Instruments

A reliability analysis demonstrated that overall Cronbach alpha yielded α at 956, means that the instrument is obtain very good consistency. Looking at soft skills and hard skills and all components also obtained Cronbach alpha coefficient at >0.7 and corrected-item correlation >.300 (Pallant, 2011). Related to validity, the instrument was developed by referring to existing instruments such as Hadiyanto & Sani, (2013) and Zalizan, et. al, (2006), and latest references of 21st century skills in the higher education as published in Hadiyanto, et. al, (2018).

Tabel 1 Reliability of the Instrument

Main Components and Sub-Component	Number of Items	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Soft Skills	50	,382 - .593	,949
Communication Skills	10	,535- ,619	,857
It Skills	6	,551- ,606	,811
Numeracy Skills	8	,476 - ,629	,836
Learning Skills	11	,492 - ,602	,862
Problem Solving Skills	8	,501 - 588	,823
Team Work Skills	8	,550 - ,663	,854
Hard Skills	10	,541 - ,668	,883
21st century skills	107	,421 - ,600	,956

5. Research Findings

Descriptive statistics were used to portray students' soft skills and hard skills at University of Jambi. The findings were reported below.

5.1 Overall Levels of Students' 21st Skills

Mean score of 21st century skills in overall, softs skills and hard skills (2.87 of 5.00) is at average level. A closer examination of the mean score given by the students to each soft skill components were also at average level (see Figure 1).
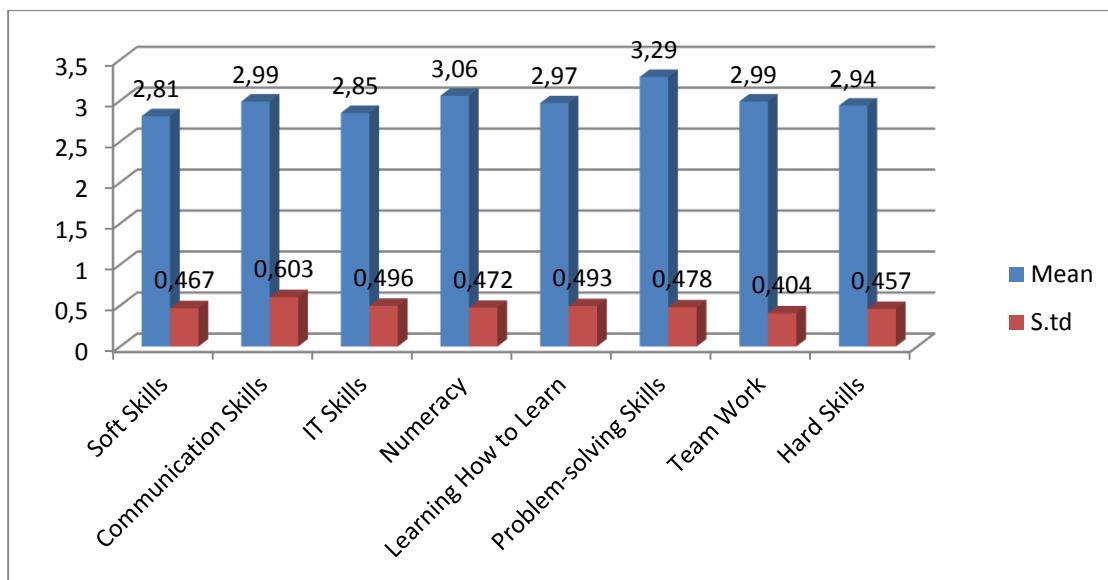
Figure 1 Mean score of Students 21st Skills

5.2 Level of Students' Soft Skills

As displayed in Table 4 the students' communication skills in overall was at average level (mean score 2.81). Furthermore, students rated nine of 10 indicators of communication skills at average level (mean between 2.70 – 3.05). This signifies that the third year students' communication skills had not been encouraged during the process of teaching learning. Statement number 10 of communication skills was at low level mean score (2,17).

Table 4. Mean and level of students' communication skills

Communication	Mean	S.td	Level
1. Making a class presentation	2,98	,639	Average
2. Using different formats for presenting information.	2,74	,667	Average
3. Using varied vocabulary and expressions.	2,81	,628	Average
4. Integrating ideas or information from various sources	2,70	,713	Average
5. Summarizing key issues from a classmate oral presentation.	2,93	,722	Average
6. Giving feedback (question, comment or suggestion)	2,79	,755	Average
7. Communicating some ideas in writing assignment report	2,94	,752	Average
8. Writing a report clearly, in detail and precisely.	3,00	,647	Average
9. Reflecting and evaluating on use of communication skills	3,05	,642	Average
10. Using English as a average of oral and written communication	2,17	,748	Low
OVERALL	2,81	,467	Average

The mean scores of students' IT skills are at the average of 2.74. Furthermore, all indicators of IT skills yielded mean score at average level. Three indictors of IT skills yielded mean below 3.00 or at bottom up of average IT skills (Indicator number 3, 5 and 6) while three others indicators are yielded means score 3.18 to 3.32. These findings mean that the students' development in using ICT is still far from expectation.

Table 4. Mean and level of students' IT skills

IT Skills	Mean	S.td	Level
1. Looking for information from e- resources and printed resources.	3,32	,788	Average
2. Sharing references, resources and information using CD, email, online group, hang out, FB, WA, mobile phone application, etc.	3,20	,819	Average
3. Developing your report (assignment) in the form of text, graphs, chart, image and numbers such as carrying out calculations using suitable software, moving and resizing images.	2,81	,736	Average
4. Presenting assignment using power point, graphs, chart, image, numbers, etc.	3,18	,705	Average
5. Using software or application features to improve work efficiency.	2,62	,890	Average
6. Developing the structure of presentation by using paragraph styles, page numbers and refined presentation by combining text, graph,	2,82	,819	Average

chart images, video, and numbers.

Overall IT Skills	2,74	,667	Average

Table 6 shows that overall mean score of numeracy was at average level (mean score 2.85). All indicators of numeracy skills yielded mean score at average level (mean between 2.70 – 3.07). This finding signifies that the students did not prepared by the numeracy skills during their study at the faculty. While current working place, future employee must indulge with numeracy skills for instance in managing time, making job priorities, reporting working progress, etc.

Table 6. Mean and level of students' numeracy skills

Numeracy	Mean	S.td	Level
1. Reading and understanding tables, charts, graphs and numbers.	2,73	,733	Average
2. Calculating and measuring learning activities and outcome by times, words numbers, sentences, pages. Topics, number of pictures, table etc	2,66	,715	Average
3. Using effective ways to present findings.	2,98	,689	Average
4. Presenting and calculating main points and sub points in leaning activities and assignment report.	2,89	,618	Average
5. Constructing and labelling tables, charts and graphs to illustrate presentation and findings. ICT	2,85	,728	Average
6. Managing your time in doing assignment and dealing with any difficulties to meet your deadlines.	3,07	,774	Average
7. Monitoring, reflecting, getting feedback and improving calculation skills to support my study activities.	2,70	,694	Average
8. Identifying the relevant information sources and outcomes, I hope to achieve.	3,02	,607	Average
Numeric	2,85	,496	Average

Table 7 displays the students learning skills in overall was at average level (mean score 3.06). Looking at indicator of learning skills shows that all indicators were at average level (mean between 2.68 – 3.36). These findings indicate that the students were not strongly prepared with learning skills, while the skills signify to enhance a graduate lifelong learning.

Table 7. Mean and level of students' learning skills

Learning Skills	Mean	S.td	Level
1. Improving performance in the quality and way of work.	3,12	,650	Average
2. Assessing the effectiveness and efficiency of my learning activity.	3,11	,687	Average
3. Identifying factors that had an impact on my learning outcomes	3,15	,699	Average
4. Setting and planning realistic targets of work.	3,17	,718	Average
5. Learning independently at times and be responsible for organizing own task.	3,36	,720	Average
6. Identifying better ways of learning.	3,17	,642	Average
7. Getting conclusion from different angles of view when completing a an assignment and a discussion	3,08	,670	Average
8. Reviewing what had learned, what had not, and how my way of learning worked.	3,07	,696	Average
9. Consulting way and performance of learning to a lecturer.	2,77	,875	Average
10. Adapting learning strategy (i.e. independent, collaborative and cooperative) as necessary to improve your academic performance.	2,68	,666	Average
11. Creating new information by comparing it from various sources to draw a conclusion.	3,02	,814	Average
Overall	3,06	,472	Average

The findings in Table 8 show that the students' problem solving skills in overall at the average (3.01). Further analysis in each indicator of problem solving skills revealed that there is no indicator obtain mean score at high level, nevertheless all indicators were at average level. These findings imply that the students' problem-solving skills were not developed significantly until at third year of study.

Table 8. Mean and level of students' problem solving skills

Problems Solving Skills	Mean	S.td	Level
1. Identifying problems in doing assignments.	2,93	,631	Average
2. Coming up with ways to tackle a problem.	3,09	,638	Average
3. Using different methods to analyze the problem.	2,91	,713	Average
4. Including and suggesting diverse perspectives.	3,22	,724	Average
5. Making comparisons with similar problems and finding analogies from readings or own experience	2,98	,655	Average
6. Solving problems by getting and making efficient use of available resources	2,86	,765	Average
7. Finding and showing evidence to support my conclusions in an assignment or in a discussion.	2,82	,686	Average
Overall	3,01	,677	Average

Teamwork skills are one of necessary skills in order that the prospective employee be able anticipate work challenges and multi-task constraints, more over obtaining an optimal team work will come out with a high quality of working output. As displayed in Table 4 shows that the students rated their teamwork skills at average level (mean score 3.29). All indicators of teamwork skills yielded mean score at average level (mean between 3.07 – 3.36), except indicator number 7 (Respecting diverse perspectives from different races, religion, gender, academic achievement etc) in learning activities).

Table 9. Mean and level of students' team work skills

Team Work Skills	Mean	S.td	Level
1. Working with others on activities other than coursework.	3,20	,735	Average
2. Having discussion in different race,, ethnic and religion.	3,31	,580	Average
3. Working with others on projects.	3,36	,700	Average
4. Resolving conflicts occurred in group work.	3,18	,754	Average
5. Sharing constructive feedback.	3,07	,696	Average
6. Seeking effective ways to keep team member motivated.	3,26	,609	Average
7. Respecting diverse perspectives from different races, religion, gender, academic achievement etc) in learning activities.	3,67	,718	High
8. Thinking and offering ideas to a group work to complete and achieve better output of a group assignment.	3,30	,757	Average
Overall	3,29	,478	Average

5.2 Level of Students' Hard Skills

Irony findings occurred at the mean scores of hard skills, whereas it is a subject specific skills, it yielded mean score at average level 2.94. Furthermore, students perceived all indicators of hard skills at average level. It was supposed to give high to very high level of mean score, due to these skills relate to their own subject discipline (See Table 9).

Table 10. Mean and level of students' hard skills

Hard Skills	Mean	S.td	Level
1. Applying specific knowledge and skills.	3,09	,616	Average
2. Discussing ideas from your specific knowledge of a course with your colleague.	2,91	,554	Average
3. Doing a field study related to my subject course.	2,76	,641	Average
4. Reflecting and Evaluating my work and it's outcome based on my subject knowledge and expertise	2,88	,618	Average
5. Connecting prior knowledge with topic of discussion in oral and written presentation	3,06	,637	Average
6. Transferring your knowledge based to others people.	3,06	,667	Average

7.	Connecting concepts, knowledge and skills in doing filed study	2,79	,788	Average
8.	Interpreting and practicing your subject-content knowledge into real action	3,01	,762	Average
9.	Answering technical questions proposed by lecturer, friends and others people	2,90	,678	Average
10.	Contributing thoughts from my subject knowledge perspective in group assignment activities	2,95	,724	Average
	Overall	2,94	,457	Average

6. Discussion

The students able to reflect on their own level of 21st century skills in term of soft skills and hard skills and to identify which of the seven skills they have had. However, students rated their soft skills and hard skill at average level. The teachers must employ some strategies of learning for the students in order that the students and acquire specific knowledge and skills as well as giving a change for the students to practice and developed their own communication, IT, numeracy, learning how to learn, problem solving, and Team Works skills (Laura, et. al, 2016; ILO, 2014; Ahlstrom, et. al; 2014),

Due to the lack of 21st century skills practice among the students, that University should encourage lecturers to implement learning activities that aim to improve students' soft skills and hard skills to ensure a minimum mean score of 4.20 and above, that is, the 'very high level' banding of soft skills.

A team of the university should conduct a bigger research to foster the students 21st century skills to know how its' developed through the students learning. Such as a policy might be taken after deep and detail need analysis, and it is expected that the University develop a blue print of such as guidance of the students' 21st century skills development at the university and faculty. In term of teaching and learning practice, 2st century skills can be nurture in a syllabus and teaching scenario.

The limited students 21st century revealed by this study are therefore of concern. Specifically, our study questions the assumption that 21st century are an inevitable outcome of time spent studying at university, and as discussed, this raises an issue that has received considerable attention both within and beyond HE institutions. Universities researcher must conduct R & D for the model of students 21st century skills development that is integrated with curriculum form University into the classroom. University must take a policy in order the model developed can be implemented through the faculty. Lecturers should make a standard syllabus, the connections between the various parts of the teaching syllabus more explicit, in order to forge stronger links between hard skills and soft skills. At the same time, the promotion of soft skills should be highlighted as one of the strengths of graduate training at university.

Graduates should possess at least high capability, competencies, hard skills, and soft skills that we call as 21st century skills when they completed their study. Graduates need to be equipped with soft skills and hard skills that they can use to 'sell themselves' to employers. By practising these soft skills in and outside of the classroom will enable students to become more effective, independent learners during their studies, and will enhance their employment prospects following graduation. As a result, the university graduate should leave with three main attributes, namely employability, life-long learning, and good citizenship (Hadiyanto, et. 2017; The Ontario Public Services, 2016; Bialik, et. al, 2015; Alberta Education. 2011; Washer, 2007; Star and Hammer, 2007). In short, this study contributes to the issues surrounding the development of soft skills and hard skills at university, and its results may be used as one of justification to develop the model of students' 21st century skills. That is also to inform, support, and plan innovations within the university curriculum and teaching at both universities.

7. Conclusion

This study was conducted at a Science and Technology Faculty of the University in Indonesia, which aims to identify the level of 21st century skills of the third year bachelor students. Students' the 21st century skills were at average level. In more specific, it concludes that soft skills with all components also yielded mean score at average level. The findings also showed that the mean score of the aspect 'hard skills' was at the average level. This signifies that the third year BEd (Hons) undergraduates at the institution were not strongly prepared with 21st century skills and neither the hard skills as the content of courses.

The students were not engaged to practice the 21st century skills in the classroom practice at the faculty. The faculty should think the manner in which soft skills and hard skills could be embedding in curriculum, syllabus and system assessment. The students' engagement in learning activities should be more encouraged. In other words, the students acquire hard skills through students' cantered along with the learning process in the classroom. Furthermore, Faculty must define a certain level of 21st century skills level a requirement of completing a degree programme within their faculty.

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Influencing Students Decision-Making Process Of Higher Education Institution: The Digital Marketing Experience

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Abstract

Most universities throughout the world use digital marketing and many have a presence on at least one, or even several social media platforms to address various stakeholders especially their potential students. Social media marketing has received increased attention in marketing for higher education. Yet little research has examined the potential of social media for higher education marketing. The main objective of this study was to evaluate the potential of university digital marketing, especially through their social media for influencing student's choice of a higher education institution. The research combines quantitative and qualitative approaches. Surveys and case study was chosen as the research strategy. Data were collected from primary sources by self-administered questionnaire and a semi-structured interview. First-year undergraduate students who currently enrolled at Brawijaya University Indonesia and some academic staff who involve in managing university digital marketing were selected for the research participant. Descriptive statistics were utilized in the form of distribution frequency tabulation analysis and supported by thematic analysis from the interviews results. The results of this study found that Brawijaya University uses several digital marketing channels in addition to traditional university marketing channels. University social media and website are two important channels according to the most of participants. Therefore, some recommendations have been provided for developing a better communication with the university's stakeholders.

Introduction

Technological expansion along with the rise of the internet and development of Web 2.0 has enabled the interconnectivity of consumers to increase. As a results consumer behaviour has changed and organisations required to understand the influence of digital marketing on the consumer decision-making process. Digital marketing is one form of marketing being widely used to promote products or services and to reach consumers using digital channels. Digital marketing extends beyond internet marketing including channels that do not require the use of Internet. It includes mobile phones (both SMS and MMS), social media marketing, display advertising, search engine marketing and many other forms of digital media. Through digital media, consumers can access information real time everywhere and every time. With the presence of digital media, consumers have many opportunities beyond the passive viewing of media content to actually contributing to the content. Therefore, traditional media has been challenged by the digital media, especially social media and there has been a great audience shift towards social media.

University embraces digital marketing in the current disruptive technology era as an institutional promotion tool. Combination of digital marketing into entire university promotional strategy is no longer an option, it is crucial especially for recruitment success. The development of digital marketing has changed the way higher education use technology because universities are aware of the technological habits of the millennia as their potential target market. Digital marketing has assumed a wide spread application across sectors, however in the current context with proliferation digital and social media have gained enormous popularity and are integral parts of the decision making of young students seeking higher education. Ernst and Young (2012) predict that although the digital revolution will not eradicate campus-based universities, it will transform how education is delivered and supported, and the way higher education institutions create value. The aim of this research is to evaluate the potential of university digital marketing, especially through their social media for influencing student's decision making of a higher education institution.

Concurrently, the development of digital marketing in Indonesia continues to increase quite promising from time to time. Indonesia's digital landscape is rapidly growing with country's over 260 million populations along with rapidly rising number of internet users, striking 40% of social media penetration rate, and developing infrastructure. Indonesia has a potential to become a focus of digital creativity supported with growing economy, digital literacy, and rising urban population, (GetCRAFT, 2017). Figure 1 shows Indonesia's Digital Landscape by GetCRAFT. Based on Indonesia's Digital and Landscape Marketing Reports conducted by GetCRAFT (2017) describes that the explosion of digital platforms and increased technology savvies are making consumers more discerning about how they spend their time online. This situation offers marketers to think as a publisher to attract prospects to their own channels with persuasive contents, along with other strategies. Digital offers a bright future

for marketers because as technology improves, there will be more innovative, effective, and greater ways to serve the customers' needs.

Figure 1. Indonesia's Digital Landscape

OVERVIEW :
INDONESIA'S DIGITAL LANDSCAPE

TOTAL POPULATION

262 million
URBANISATION
55%

INTERNET USERS

132.7 million
PENETRATION
51%

ACTIVE SOCIAL MEDIA USERS

106 million
PENETRATION
40%

TOTAL ACTIVE MOBILE INTERNET USERS

123.3 million

NUMBER OF INTERNET USERS

47% of total population
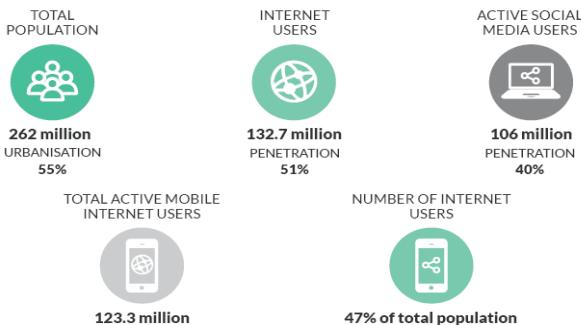
Source: GetCraft.com, 2017

On the other hand, since 2015, several of Higher Education institutions in Indonesia have been encouraging to be an autonomous university in terms of management system. Currently, one of emerging agendas that coincides with the rise of Higher Education Long Term Strategy (HELTS) is the need to become a World Class University (WCU) for Indonesian universities (Syahid & Tulung, 2016). Along with this agenda, the Strategic Plan of the Directorate of Higher Education in 2025 HELTS reveals that Indonesia will regard itself as ― Smart and Competitive Indonesia in 2025 (Anonim, 2002). This program requires Indonesian Higher Education Institutions (HEIs) to compete with other universities internationally in order to turn into the best. It is also commensurate with the Ministry of Research, Technology and Higher Education which is always reminiscent of all Higher Education in Indonesia, both private and public continue to innovate and Higher Education in Indonesia can no longer only compete with fellow universities in the country, but also prepare to compete with foreign universities (kelembagaan.ristekdikti.go.id, 2018). This strategy is also in accordance with Law of The Republic of Indonesia Number 12 in 2012 on Higher Education which stated that: In order to increase the national competitiveness to face globalization in all sectors, higher education is required to develop science and *technology* as well as produce intellectuals, scientists and/or professionals who are cultured and creative, tolerant, democratic, strong character, and brave to defend the truth of the nation interest". In this situation, the term 'technology' becomes key considerations that imply the role of digital marketing is prominent. Hence, the issues of digital marketing are crucial in Indonesian Higher Education Institutions to engage with the internalization agenda of HELTS. Consequently, many university marketing professionals has realised the importance of implementing social media as a marketing tool for promotional purposes. This paper focuses on the importance of digital marketing for both marketers and students, as well as examines the influence of university digital marketing on the students' choice of higher education institution.

Digital Marketing and Higher Education Institution
Social Media is a very interactive dynamic medium that provides with a lot of opportunities. At the same time it creates challenges for the marketers to develop conforming marketing strategies. Previous researchers have certainly supported this claim that this conformation needs to be carried out in order to stay competitive in the market (Kreutzer & Hinz, 2010; Mangold & Faulds, 2009). Affectivity of traditional media and current marketing strategies using unidirectional communications and mass marketing efforts have been questioned as the target audience seem to have lost trust on this medium (Constantinidines & Fountain, 2008). Customers seem to value this new media more through direct involvement and looks at this from a sense of ownership as they also generate the contents within them (Mangold & Faulds, 2009).

According to research by Martin (2015), digital marketing has taken the world changes and their higher education sector is no exception. Without enrollment growth, colleges and universities will not sustain. College and universities have the challenge of maintaining relevance among students who are increasingly more reliant on technology as a communication source. In Best Practices Guide "Proving the Value of Digital Marketing in Higher Education", Sherman (2014) asserts that higher education has been undergoing a transition for many years. Students become more selective in their school choice due to increasing competition and rising prices of higher education. In this case, alternative methods of learning are having an impact on the pool of prospective students.

Consequently, higher education marketing has moved from glossy brochures to social media and the web to capture prospective students' attention.

Students Decision-Making Process of Higher Education Institution
In consequence of the transformation of educational services it is becoming a commercialized product, strongly influenced by the expectations of its students as customer. The other key characteristic of educational services is it is inseparable from the service provider. This characteristic poses an extra challenge to the marketers as that will force them to bring their consumers to them or take the services to their customers. Higher education is a life changing decision for the students and considered as a high involvement choice (Gary, 1991; Mazzoral, 1998; Mazzoral and Soutar, 2002). The students are influenced by a multifaceted pattern of attributes that includes both intangibles and tangibles. Intangible attributes may include the brand of the institution, the quality and relevance of the courses that they offer or even the reputation of the educators involved in those institutions.

According to Lamb et. al. (2008) who investigated the decision making process, they proposed a few tangible elements that can be used for marketing efforts named as 'cues'. These cues include physical facilities, staff profiles and their publications that refer the sign to the prospective students to choose their target institutions. Furthermore, these cues can be marketed aggressively to achieve the expected marketing outcome (Lamb et.al., 2008). The focus on tangibility is possibly an easy way of pushing the prospective students through the purchase funnel but it will not be prudent to question this strategy's affectivity when thinking about a long term competitive advantage through a well-designed marketing strategy. In a high involvement decision-making perhaps the students might put more stresses on the intangible factors rather than the tangible factors. In this situation, referral process through word of mouth might be more importance compared to the claims made by the degree offering institutions on their websites. Many scholars have acknowledged this information source as more trustworthy than the latter one (Crotts, 1999; Perdue, 1993). With the availability of Social Media spreading this word has become much easier than it was in the past. One cannot emphasize more, the power of the post purchase feedbacks in an educational institution's marketing context.

Several researchers have attempted to explain student choice criteria. Models of student enrolment behavior theory started to emerge in the early 1980s. These models are related to various general consumer-behavior and decision-making models such as those of Engel, Blackwell and Miniard (1995; 2001), Perreault and McCarthy (2005), Schiffman and Kanuk (2007); and Kotler and Keller (2009). A comparison of these models is summarized in Table 1. Such models have been helpful in allowing later researcher to understand that the decision to attend college is a complicated that is lengthy process and influenced by a diverse set of factors.

Table 1. Consumer Decision Making Process Model

Authors	Consumer Decision-Making and the Student Choice Model				
Engel, Blackwell & Miniard (1995; 2001)	Need recognition	Information search	Evaluation process	Outlet selection and purchase	Post-purchase process
Schiffman & Kanuk (2007)	Need recognition	Prepurchase search	Evaluation of alternatives	Purchase	Post-purchase evaluation
Kotler & Keller (2009)	Problem recognition	Information search	Evaluation alternatives	Purchase decision	Post-purchase behaviour
Perreault & McCarthy (2005)	Need-want awareness	Search for information	Set criteria and evaluate alternative solutions	Decide on solution / Purchase product	Post-purchase evaluation
Chapman (1981)	Pre-search	Search	Application	Choice / Enrolment	
Hanson & Litten (1982)	Deciding to go to college	Investigating colleges	Application, admission and enrolment		
Jackson (1982)	Preference		Exclusion	Evaluation	
Hossler & Gallagher (1987)	Predisposition		Search	Choice	
Kotler & Fox (1985)	Initial decision to investigate college	Information-gathering	Evaluation and elimination of choices to generate set of options	Choice	

Source: Kusumawati, 2013

Kotler and Armstrong (2014) reveals that consumers pass through all five stages with every decision making steps but in more routine purchases, consumers often skip or reverse some of these stages. This argument also matches the conditions faced by students or prospective students in higher education institutions.

Research Methodology

Self-administered questionnaire consisted of 10 questions inviting optional qualitative comments. Five questions related to demographic information and the rest questions related specifically to the line of enquiry reported here. Of these 10 questions, five questions invited optional open-ended qualitative comments, generating numerous qualitative responses. Questions focused on use of digital marketing, most frequently used digital marketing, frequency of use (including how many times per day), length of usage per day, reason for using digital marketing, digital marketing used in relation to university search and selection, how digital marketing were used as part of decision-making process, and ways that digital marketing could enhance university choice processes. Semi-structured qualitative interviews involve questions about the use of digital marketing (number of media, patterns of use, i.e., frequency, duration and purpose) and perceptions of how digital marketing impact their decision-making process. This method was conducted by researcher in the location that convenience for each participant involved. Total 48 first-year undergraduate students who currently enrolled at Brawijaya University Indonesia and 2 academic staffs who involve in managing university digital marketing were selected for the research participant. Simple quantitative analysis by means descriptive statistics in the form of distribution frequency tabulation analysis was utilized to determine total responses of text generated by each participant, amount of participation, total sums of questions, statements, as well as number of directed responses sent and received. Thematic analysis (Braun & Clarke, 2006) was employed in this research to identify, analyse, interpret and report on themes located in the qualitative data sets. Thematic analysis aims to expose meaning in the data by ascertaining and evaluating themes (Buetow, 2010) found in qualitative methodology, such as discussions in interviews and focus groups about experiences pertaining to the research question. Patterns of participation were grouped and correlated to the contexts of interactions. Style, register, and "voice" or tone analysis were also used on the data sets to try to discover the dynamics among the participants.

Findings

Brawijaya University was first established into a state university on January 5, 1963, following a Presidential Decree issued earlier in the same year. This date was later promulgated as UB's anniversary (specifically called Dies Natalies among Indonesian academic society members) with acronym of UNBRA and then UNIBRAW, before UB being inaugurated as the official acronym of Universitas Brawijaya in 2008. With approximately 60,000 students in various degrees ranging from the Diploma Program, Bachelor's Degree Program, Master's Degree Program, Doctoral Degree Program, and Medical Specialist Program, in 16 Faculties, UB is the 5th largest university in Indonesia according to Webometrics world university ranking on 2017. Based on 4ICU world university ranking, UB's position on 2018 is on 4th rank in Indonesia, going upward from the previous year's rank of 6th. On Southeast Asia level, UB is on 17th.

At present, UB's website has a comprehensive and professional design look. Information such as student's admission, selection of degree programs, faculty-related links, and student services are available. However, the website only provides basic information (typically in a roundabout manner) and lacks depth in the info it could provide for potential students. A comment left behind by some of the students particularly mentioned that, "The website is not quite informative" and that information "did not give me confidence applying to UB". There is no complete information of the necessary courses for each degree, or detail on what these courses require. Other information that might be considered important for prospective students such as housing accommodation and location assistance (maps) were not provided and difficult to found. In terms of social media, UB has done well for itself with Facebook with, as of this writing, 34,864 followers, Twitter with 159,000 followers, and Instagram with more than 40,000 followers. Beside these three social media, YouTube, Flickr, and RSS were also utilised by UB. Furthermore, on these social media pages there does not show to much activity from students; most activities are from the university itself with slight to no reposts or comments by the followers.

Finding of this research reported the socio-demographic profile of the participants. Out of 48 students' participants, a numerous percentage of the participants were 19 years old followed by 18 years old, which associated with a characteristic population of first-year undergraduate students. More female students participated in this research due to a commonly larger class attendance by female students and there are more female students enrolled in Brawijaya University. When categorized by the city from where students originated, it was found that the largest percentage of respondents originated within the region where the university resided. The greatest proportion of students graduated from their high schools one year ago and the majority of them graduated from public high schools rather than private high schools.

In terms of digital media, students' awareness is very high, at least in the age group of 18-19 which was the target population for this research, majority of the respondents use digital media for getting some or other kind of information out of reference group influence emerged as the driving factor of the digital media usage. Before deciding on the decision-making of the respondents referred to Internet, went to search engines and browsed on university social media, also checked university websites. As per the analysis most of respondents referred to

social media before taking decision to select particular university. Facebook was the most referred medium of university official social media platform. For gathering university life sense decisions Facebook was the most preferred medium over Twitter, Intagram, YouTube and RSS. However, university website appeared to be the most preferred choice in case of decisions related to course offered and admission.

The research results describe the ways in which the students learn about university and related information through online and offline media. Based on previous research, daily student internet usage was expected. Almost 90% of the respondents use the internet multiple times a day, slightly less than 6% use the internet once a day and the rest use it less regularly. Based on the collected data, there is a large difference among the devices used to access the internet. Respondents primarily use their mobile phones and laptops to access the internet while other devices and other public computers are not used to a greater extent. It should be pointed out that the respondents were asked two questions about using different communication channels for information access. Respondents rely the most on the social media Facebook when it comes to general university information and students live information at the university, and then on university website when it comes to specific university information such as course offered, admission, student achievement, and academic reputation. For admission related decisions' University website is preferred compare to all other mediums closely followed by search engines. The study also confirmed that very few students are informed through offline media such as university brochures, newspapers, radio or television or directly through campus visit.

Table 2. Summary of the Research Findings regarding digital media influence on students' decision-making process of university

Finding	Description
Learn about university	Online and offline media (mostly online)
Frequently medium for searching	Internet
Frequently usage	Multiple time a day
Length of usage per day	1-2 hours a day
Devices used to access	Mobile phone
Communication channel for information access about university	Social media
Preferred digital media used for searching and selecting university	They utilized social media and university website to explore universities that they considered joining.
Most digital marketing used	Social media
Preferred sites of social media	Facebook and Twitter
Increasing popularity sites	Instagram
Frequently type of participation	mostly reported that they did browsing or surfing universities they considered attending on any digital media platform
Most influential information during the university search process through digital marketing	Study program or course offered and university entry information
Least influential information	University history and events happening
Kind of information or impressions collected	read the information regarding university course offered and entry requirements as the thing that make them interested
The reason of using digital marketing before making a decision to select particular university	to collect information relate to university considered joining and to feel the impression relate to university considered joining
The impact of digital marketing on university choice process	to ensure they select the right university and address all the requirements required

Concerning the social media used to explore universities that they considered attending, of 48 participants, most of them responded that they use Facebook and Twitter. Majority of participants indicated that they viewed those sites for researching about university considered attending. Interestingly, Instagram was growing popularity sites among students which especially were invited to participate in Instagram platforms when they were searching for a particular university. Most of the student who viewed the sites was reported that they did browsing or surfing universities they considered attending on any digital media platform. This result od study corroborates with Hartmen's (1998, p54) viewpoint who emphasized that "prospective students are increasingly accessing and relying on the Internet as a primary source for both 'official' and 'unofficial' information about colleges and universities".

Digital media information offers beneficial information to the students. Valuable information from digital media was useful during their college search process according to the most of participants in this study. Course offered and university entry information is two of the most significant aspects for education related decisions and is referred to by most of the respondents. Other important aspects include university website (display and layout), university ranking, students' profiles, and faculty profiles. University history and events happening at the university are the least referred information. In order to influence the students target group, a university needs to brand itself strongly by improving its visibility in each of the above mentioned areas projecting precise and updated information in an interesting manner. While searching about specific course or institute, various advisements are displayed as a result. Respondents observe the advertisement's relevance to their need.

Digital media information offers beneficial information to the students. Valuable information from digital media was useful during their college search process according to the most of participants in this study. Student life was revealed to be the most valuable information by participants, followed by school information valuable, photos valuable, and the rest found information related to activities valuable. Based on participant opinion, the least valuable information was information that remained unchanged and could be found in printed materials or websites. This information including the categories of courses offered, tuition fee and scholarships, admissions deadlines, and career services. While the student participants identified that those information as the least valuable on the list, they still indicated as an important value to an enormous population of those researched. Findings of this research validates Bonnema and Van der Waldt's idea (2008) who revealed that each subgroup prefers to ask when exploring for information about higher education institutions with a specific criteria of information sources. The finding has also highlighted that social sources, word of mouth or direct sources from the university are sometimes preferred rather than other media or advertising in addition to the real description of the university social life.

On answering the question of the reason for using digital media before making a decision to choose the university, majority of students' participant in this study explained that to collect information relate to university considered joining and to feel the impression relate to university considered joining as the most common reasons. However, those students also mentioned that they used social media before making a decision because they want to make sure that they choose the right university to attend. Indeed, information searches signify a key phase of consumer decision models in service areas which associate to a higher level of perceived risk such as institution of higher laerning (Beatty & Smith, 1987; Mourali, Laroche, & Pons, 2005).

Students explicitly answered that digital marketing has impact of on their decision-making of university. Most of the students reviewing information through digital media to ensure they select the right university and address all the requirements required. Some of them found information concerning the varieties of students' enrolled attending as well as a sense of the community within the university considered attending. In such situation, students explained that the social media could give them a sense of how they will fit in and a sense of university spirit although they do not enrol yet. In addition, a sense of university reputation (academic quality and prestige) was felt by a few of students as leading them to the increasing confident level of their decision. As highlighted by Murray (1991) and Choi and Lee (2003) that if the level of perceived risk is higher, the tendency to search for information is greater.

Based on preceding questions responded, it was confirmed that students followed the common steps of all decision making process from problem recognition, information search, evaluation alternatives, and finally purchase decision as explained by Engel, Blackwell, and Miniard (2006; 1995), Kotler & Keller (2009), Perreault and McCarthy (2005), Schiffman and Kanuk (2007) as well as the specific student choice model suggested by Kotler and Fox (1995), Hossler and Gallager's (1987), Chapman's (1981), Jackson (1982), and Hanson and Litten (1982). The summary of this process according to the student participants' information was explained in Table 3.

Table 3. Summary of the Research Findings regarding the process of students' choice of university

Students' decision making process	Description
Problem recognition	"Since high school, I wish to continue my study further. But, before come up with the decision, I also discussed with my parents, family, teachers in high school and some of my friends who about going to university"
Information search	"I turned to internet and started to browse and search about the university that I'm interested in to see whether the university fit with my requirements".
Evaluation alternatives	"Other people comments from social media encouraged me to choose this university, but I tried to make sure by exploring the official website of the university before making a choice"

Purchase decision	"Yes, for sure sometimes social media is helpful but again I did not just count on the social media per se. Still I use other sources such as university website and my parents', families, and my teachers in high school's opinions as a consideration."
Post-purchase decision	"By using comprehensive sources I feel more confidence with my decision about this university as my choice for further study"

Initially, in the problem recognition process, students were aware about their decision to continue study at the university. However, they look for other trustworthy information sources from their parents', families, peers and high school teachers. In this step, reference groups such as family, friends, peers and teachers in high school serve as influential person in the decision-making process of university. This finding verify prior research in Thailand, which found that reference groups play an important part in shaping Thai students' selections of vocational education (Pimpa & Suwannapirom, 2008) and there is a significant correlation among family, friends, peers' influence and the students' intention to study at a university in Malaysia (Wagner & Fard, 2009).

In information search process, students revealed that they turned to internet and started to browse and search about the university to see whether the university fit with their requirements. Opinions shared and recommendations made by other especially from those reliable person on social media become one of the sources of information considered as a powerful force and part of word-of-mouth marketing. This result confirmed Gomes and Murphy's (2003) opinion that reliable information is a crucial matter with online enrolment. For some students, looking for other comments or testimonials before making a choice was encourage them that would make a correct decision. Students asserted that they need other opinion or review related to the university selected in order to convince them that they did not make a inaccurate decision. On commenting the question regarding the common strategies employed by them in evaluation alternatives step, one student indicated "Other people comments from social media encouraged me to choose this university, but I tried to make sure by exploring the official website of the university before making a choice". This activity was doing as part of evaluation alternatives step which is become the features of mostly social media platform. It seems that students considered social media as valuable tool to shape their decision about university considered attending.

Students highlighted that social media is useful tools for them to shape their decision regarding the university choice. However, most of the students claimed that although social media could give some advantageous, they still looking for another reliable sources such as university official website or other sources from offline media such advertising, brochure and other people comments through word of mouth communications. As part of purchase decision step, one student confirmed that, "Yes, for sure sometimes social media is helpful but again I did not just count on the social media per se. Still I use other sources such as university website and my parents', families, and my teachers in high school's opinions as a consideration". This comment suggests that there are other useful information sources used by the students and provides the information needed in order to make a decision regarding which university to attend. Research conducted by Mateos et al. (2001) confirmed that there was a high relationship between the number of students enrolled in Spanish universities and the growing popularity of their websites as information source for university search.

Concerning post-purchase decision as the last step of decision making process, students in majority explained that two way communications provided by social media platform allowing them to receive as well as supply information for others. After making the decision, immediately they could express their response such as feelings and thought regarding their decision made apart from the university chosen. On responding this step, students commented, "By using comprehensive sources I feel more confidence with my decision about this university as my choice for further study". This finding validates prior research by McColl-Kennedy & Fetter Jr, (1999) and Murray, (1991) who emphasized that comparing to tangible product, commonly consumers look for more information when encountered with a service purchase decision. Involving in such situation, the consumer has aware about the risky nature of service provision in order to reduce risk (McColl-Kennedy & Fetter Jr, 1999, p242-243).

This research also conducted two semi-structured interviews with representatives working with university digital marketing at the university in order to try to see if their thoughts on the topic match our research. After introducing about the study, the rest of the interview was as open as possible in order not to affect their answers in any way. The participants have requested to remain anonymous. Relate to the position of the participants, they explained that, "I am a public relation affairs working with all the communications at university that includes Social media etc. I have been at this position at the university for 3 years, before that as university cooperation and international affair since the late 2005". Regarding what kind of digital media they use and how it started out, they explained that, "Brawijaya University use many different digital media especially social media sites since years back. It started out with Facebook as an experiment, then Twitter and Instagram has been reinstated after some downtime." Related to the used of Facebook, they mentioned that "Facebook is not used mainly for branding but also for

informing events and recruiting student as well as conducting two way communications. Since everyone knows about it and how it works, Facebook quite easy to use. There is no formal standard for using it, just like usual we used our own Facebook. However, we have not totally left the traditional ads such as newsletter and prospectus for recruiting student. The remainder is made through university websites, and other social media sites." For example, YouTube is used as a storage place for the videos they have. Most of the times the videos are made for a particular intention such as university anniversary, university events and then distributed on our other social media sites." Regarding other social media, they indicated that "Instagram and Twitter has been used for occasionally but the use has been fluctuating, as well as RSS is being used for their alumni connections". Continuing their explanation, participants mentioned "the problem of this social media is about maintaining and keep updating the information real time in which it demands a lot of commitment and time. It is a lot of work involved to keep it running but the potential to rapidly reach out with university news, research, press-releases and information is huge and unfortunately we lack of personnel."

The participants also explain about the potential social media as marketing or promotional tools, that "as we are a public university, we need to be careful about the information supplied through social media. It is clear that social media make our publication much easier and more efficient but again, we need more resources. Higher up in the university they have supported for social media but at his level they are a bit tied as a public institution. We already use social media more than traditional media when it comes to recruiting students and establishing university reputation and ranking although we would like to do more. I think we will use social media ever more but we have to be careful. Social media and its trends are continually evaluated and we bring it up every year during our planning. Modifications are made along the way but not always according to trends." Considering by the responses collected through the interviews, two participants noted they lacked engagement from their audience however they lacked any specific plans on how to prevent that. By beginning to take risks with things that have already shown to be successful, such as social media campaigns, institutions can improve their use of social media and in turn lead to more knowledge and better practices that can be implemented into their routines. In this point, social media managers at higher education institutions recognize that adopting and utilizing social media is critical; however they are still learning how to use it effectively in order to effectively reach their audiences online. Research has determined that university can increase awareness of their brand by being creative when engaging students on social media sites. "As more shoppers are using social media (e.g., Twitter, Facebook, MySpace, and LinkedIn) and rely on them for marketing shopping decisions, promotion through these media has become important" (Shankar et al. 2011, 32). According to Curran et al. (2011), social media sites such as Facebook are better than other advertising avenues because it stores information on all its users thus ensuring marketing reaches their specific target market. Social media sites are a great stage for university to create an experience and university can use information stored on social media sites to improve user experience with their reputation.

Regarding the way of higher education institutions utilize digital marketing media, the results indicated that the university applied and expanded more on official websites along with social media as an additional communication channel in order to widely reach their target audiences as well as an additional medium to brand themselves online. Even though many institutions use digital media, this media is not considered a primary strategy in regards to communication. The university still relied primarily on prospectuses, printed advertisements, posters, email and more in order to reach their audiences. Additionally, within university, different faculty use social media differently. International affairs office, public relation office, admissions and recruitment offices use social media in an effort to support public relations and marketing of the university. The content posted by international affairs was addressed to influence international students for selecting the university. Admissions offices were carefully selected in order to attract potential students as well as ensure that the institution was viewed favourably by the public. Alternatively, faculties, department, and student activity offices used social media with an attempt to communicate and engagement with current students. In this situation, it is understood that faculties, department, and student activity offices use social media as way to increase face to face interaction with students at events and other programs.

Conclusions

This study deals with the topic of applying digital marketing in university choice process. In order to create a complete picture of the research scope, the interrelation of digital marketing and student's decision-making behaviour was described in general terms. The research indicated that the internet is the most frequently medium used among student population for both general information about university, and for information about student general activities. When analysing the results of the research related to the student information about the university, it can be concluded that students are prefer familiar source of information fitted to their activities and mobility. Research has shown that students were more rely on internet and they were search and browse Brawijaya University before either through the official media such as Facebook, Twitter, Instagram or university website. Information about student activities was gathered from other students, whereas equally popular was sharing the

information via Facebook. A very small number of students are informed through other websites and offline media such as newspapers, radio or television. Therefore, university should invest more with great emphasis on digital medial especially social networks and the usage of mobile phones to access the internet.

Following up on social media usage, personalization and relevance are tremendously important for the students and assistance to foster better two-way communication for influencing their university choice. Despite social media and website, e-mail is still the preferred method for contacting and being contacted by universities. Creating a reputation as well as international recognition is other potential use of university digital marketing. To summarize, it was determined that, in its current form, UB digital marketing was attracting predominately for young students. Most respondents indicated that information supplied on social media was influencing them to choose the university. In UB case, results suggested that students value the digital media choose the university not due to its success in branding but rather in its convenience compared to other media. Furthermore, applicants became aware of UB mostly through referrals or by searching the university's website. UB's digital marketing should switch to a having a more proactive role in communicating personalized and relevant promotional material to prospective students; while addressing these individuals concerns for international recognition and reputation.

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Investigating The Influences Of E-Learning Compatibility And Technology Expectancy To Acceptance Of E-Learning In One Of Hong Kong Universities

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Abstract
Considering the perceptions of the student on acceptance of e-learning are not significant enough. There were abundant of research that have investigated the influence of the technological expectancy on the behavioral intention on the educational acceptance. But there are only a few of them are investigating the learning expectancy and educational compatibility of students.
In order to improve the investigation of student's e-learning acceptance, not only consider about the technological aspects during the implantation of the e-learning system to the students but also the student's expectancies, such as their expectancy on technology and learning expectancy.
In this report, student's behavioral intention on their acceptance of e-learning is based on two main components which are the student's technological expectancy and the e-learning compatibility. There are four primary factors in the Unified Theory of Acceptance and Use Technology (UTAUT), including the performance expectancy, effort expectancy, social influence and facilitating conditions. Moreover, the e-learning compatibility is added to this hypotheses model in order to have a better idea of the acceptance of learning. Therefore, questionnaires are conducted to investigate and analyze the new theoretical model. Also, there are suggestions for the developers and relevant stakeholders on the implantation of the e-learning system.

Introduction
In Hong Kong, e-learning has become one of the most important tools in higher education. Students are able to access to different learning activities without any limitations of time and space. It does not only improve their learning experiences but also increases the effectiveness and efficiency of learning process for the students.
However, there are barrier during the implementation of e-learning. There are more and more higher educations have implemented and adopted e-learning. Some of them have adopted successfully while some of have not. Even many higher online education institutions have failed due to the high cost of technology, poor decisions, competition, and the absence of business strategy (Elloumi, 2004). These are the most common reasons for the failure of the implementation. In the meanwhile, many universities that provide e-learning face enormous difficulty in achieving successful strategies, including the delivery, effectiveness, and acceptance of the courses (Saadé et al., 2007). The students' acceptance is one of the critical reasons for the successfulness of implementing e-learning. Since the students' acceptance is crucial to the implementation and application of e-learning, finding out the methods for increasing the acceptance is the way for enhancing the successful rate of the adoption of e-learning in the higher education. In general, information acceptance is determined by the behavioral intention of users, which in turn is motivated by user's expectancies (Fishbein & Ajzen, 1975). Moreover, knowing students' belief about e-learning can help academic administrators and managers to create mechanisms for attracting more students to adopt this learning environment (Grandon, Alshare, & Kwan, 2005). Therefore, this study is to find out and understand more about the perceptions and expectations from the students who are the main users in e-learning by different kind of the research and methods.
There are different kinds of models to show the technology acceptance, such as the technology acceptance model (TAM), which is a famous model for explaining the technology acceptance. It is proposed by Davis in 1986 and is used to explain and predict user behavior of information technology (Legris, Ingham, & Collerette, 2003). It is mainly based on two beliefs which are the perceived usefulness and perceived ease of use.

However, there are arguments about it is not an easy task for finding out someone's perceptions of the technological features. There is a new model called the unified theory of acceptance and use of technology (UTAUT). It is proposed by Venkatesh, Morris, and Davis in 2003. It aims to explain individual intentions and his/her use behavior in using information technology. There are five key elements in this model, including the

performance expectancy, effort expectancy, social influence, facilitating conditions and behavioral intention which are the main factors for determining the use behavior.

Aside from the technology acceptance, the learning behavior is also the factor for influencing the motivation of students to use e-learning. The educational compatibility in e-learning means that the requirements from the students are met. There is a greater success for implementing e-learning in higher education if students receive more support in the learning process.

In this study, a new model that is the combination of the UTAUT with the educational compatibility. It is used to demonstrating the student's acceptance in e-learning with the empirical data. The research questions as follow:
1. To compare the effects of the combination of the compatibility and technology acceptance in e-learning in one university in Hong Kong?
2. What are the reasons for the insufficient of acceptance of e-learning in one university in Hong Kong?
3. what are the possible solutions for one university in Hong Kong to improve the development of e-learning system?

The Study
E-learning acceptance in one university in Hong Kong
According to the above survey result, it shows that the usage of mobile technologies in e-learning in one university in Hong Kong. Half of the functions in mobile e-learning have more than 50% of usage while the other half are less than 50%. In this study, it is to investigate the effects of the compatibility and acceptance to e-learning. One of the objectives is to fulfill the students' expectancy as well as to improve the system.
Acceptance models
There are different kinds of technology acceptance models to investigate the students' e-learning acceptancy. There are several popular models to determine the reasons or causes for acceptance and rejection of the information system, including the technology acceptance model (TAM) and the unified theory of acceptance and use of technology (UTAUT).
For the TAM, it is the most common model proposed by Davis in 1989. It is used for the technology adoption. It is like the theoretical basis for investigating and explaining the impacts in both internal and external variables. The examples of internal variables are the belies, attitude towards use, behavioral intention and actual system use while the external variables are the objective system design characteristics, training, computer self-efficacy (Ibrahim& Jaafar, 2011).
For the UTAUT, it is proposed by Venkatesh et al. in 2003. It is the integration of TAM and the comparison of different elements in the different acceptance models empirically. As mentioned above, there are four main factors of the behavioral intention as well as the use behavior. The four factors are the performance expectancy, effort expectancy, social influence and facilitating conditions. They improve the descriptive and illustrative power of the model. Moreover, there are four controlling variables (i.e. gender, age, experience and voluntariness of use). They provide a better understanding in the differences among the group with different characteristics.

Development Of Hypothesis
As the previous mentioned, the new model is shown on Figure 1. The foundation of the theoretical model. It shows the basics and development of the hypotheses.
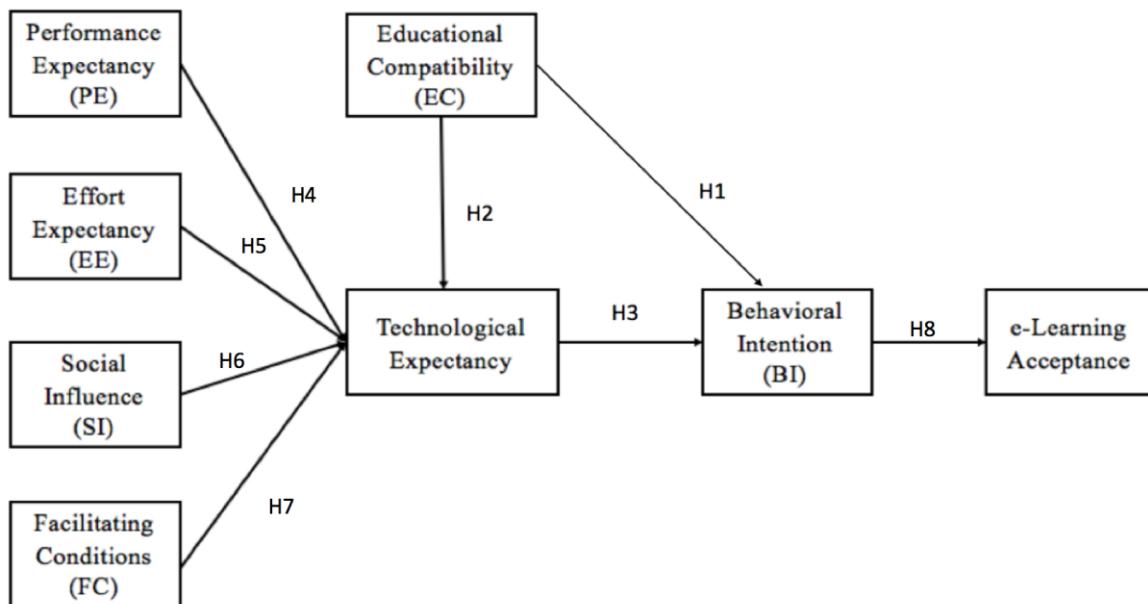
Figure.1: The New Theoretical Model

A. Educational Compatibility

Educational compatibility referred to adopt students' value and experiences with system features as well as students enjoy learning system constantly (Jin Tan, 2009). In this study, it is suggested that the educational compatibility is referred to the different students' expectancies, such as the learning style, the learning environment and different preferences of learning tools. There are studies show the compatibility is one of the most important factors of predicting the behavior of information system acceptance (Hardgrave et al,.2003)

According to Liao and Lu (2008), they found that there are significant influences of compatibility to the behavioral intention when the implementation stage or the adoption stage of the e-learning system. Therefore, we suggest the hypothesis as following:

H1. The educational compatibility will affect behavioral intention positively.

Besides, the educational compatibility is also one of the factors for the technological expectancy. The learning environment should be as an important part of the requirements from students' learning experiences. The performance and experiences of learning would be improved as the requirements are fulfilled. It is easier to get a higher compatibility in student's skills, value judgment, and desired learning patterns (Mayer, 2004) if the learning factors which are the learning content, context, and the symbol systems has a suitable coordination among them (Salomon,1994). As the recent studies show that the satisfied learning environment enables students to reduce or even solve the difficulties during learning (Schiaffino et al., 2008). It is suggested that if there are assistance of the system, students tend to believe that the improved assistances are provided during they are using the system. Therefore, we have the following hypothesis:

H2. The educational compatibility will affect the technological expectancy positively.

A. Technological expectancy

According to the Unified Theory of Acceptance and Use of Technology (UTAUT), the four basic factors: the performance expectancy, effort expectancy, social influence, and facilitating conditions. They are used to reflect the technological expectancy of the students. It is suggested that the individual expectancy influences on his/her own behavioral intention (Venkatesh et al., 2003). Therefore, we have the following hypothesis:

H3. The technological expectancy will affect the behavioral intention of the acceptance of e-learning positively.

Although the four basic elements in UTAUT are not the focus of this project, the following hypotheses are used to clarify their relationship with the technological expectancy.

H4. The performance expectancy will affect the technological expectancy positively.

H5. The effort expectancy will affect the technological expectancy positively.

H6. The social influence will affect the technological expectancy positively.

H7. The facilitating condition will affect the technological expectancy positively.

B. Behavioral Intention

The student's intention of using the e-learning informative system is the behavioral intention that is mentioned in this project. The original meaning of behavioral intention is that the factors that motivate and influence student's behavior in using e-learning. There are research of information system shows that if there is a stronger intention to perform a behavior, the probability of the behavior performed is higher (Venkatesh et al., 2003). There are studies that show a positive relationship between the intention and acceptance in e-learning (Toral et al., 2007). Therefore, we have the following hypothesis:

H8. The behavioral intention will affect the e-learning acceptance positively.

Findings

The questionnaires are used in this study, in order to collect standardized data and information from a large number of respondents. It belongs to one of the quantitative research methods. It is commonly used in different research areas, including the e-learning acceptance study (Chen, 2011). The questionnaires are used as the base of their research and the collected data are used to test new theories and hypotheses.

Population and Sample

In this study, the aim is to investigate the student's behavior of e-learning in one of Hong Kong universities. The random sampling is applied as about 250 copies are distributed to the students in the University. The 250 students are assumed as likely as the other students in the university. They are randomly selected to generalize the opinions with other students. Table 1 shows the demographic characteristics of respondents.

Individual Variables	Frequency
Gender Distribution	
Female	*47.3%*
Male	*52.7%*
Academic level of University	
Year 1- Year 2	*19.1%*
Year 3 – Year 4	*80.9%*
Time Usage of e-learning tools	
Less than 2 hours	*29.5%*
2-4 hours	*39.8%*
4-6 hours	*26.6%*
More than 6 hours	*4.1%*

Table 1: Demographic Characteristics of Participants

A. Data Collection Method & Analysis

There are two part in the questionnaires. The first part is about the personal information of the participants, such as the age, gender, age, total number of the course taken, occupation, hours of usage of the e-learning tools, etc. The second part is collecting the subjective opinions about the behavioral acceptance through their experience of using the e-learning tools. There are six main perspectives are used for investigating the acceptance of e-learning including the e-learning compatibility, performance and effort expectancy, social influence, facilitating condition as well as the behavioral intention. For the compatibility is measured through the four elements in UATUT that are combined into one aspect. The elements are performance and effort expectancies, social influence and facilitating conditions. They are expressed in this study as the technological expectancy with minor wording changes which makes it be more adoptive in the e-learning. All the questions in the questionnaires are graded with a 7-point Likert-type scale to measure the perceptions of students.

The well-written questions from the pre-existing questionnaires should be used as much as possible. The questions could be found in question libraries in the specific area. It will be like a guide and basis for writing the questions professionally. For the part of designing the questionnaires, there are two goals: minimizing measurement error

and reducing non-response. Thus, the design of the questions should be able to motivate the participants to finish it actively. Also, the instructions for each question should be clearly stated and understandable.

Adopting the right collection method is the best way to obtain unbiased without any noises and up-to-date information from the respondents. The collected information could be used for the classification of the respondents. According to the characteristics of the study, the respondents could be identified by their gender, age or occupation. The data analysis will be more clear and understandable. Moreover, it is using the random sampling. It allows the researchers to obtain results from a large population.

B. Data Analysis & Findings

The Table 2 shows a summary of the data and information of all the perspectives and items that are discussed for the hypothesis model in this report. The left part of the table shows different items of different perspectives while the right part shows the statistics data of them. They include the frequency, mean, standard deviation and standard error of skewness. The items are all using the 7-point Likert-scale (1-strongly disagree to 7-strongly agree).

Refer to Table 2, all the item statements are used to investigate the e-learning acceptance of students in one of universities in Hong Kong. There are six different perspectives that are in the hypothesis model. They are the e-learning compatibility, e-learning performance expectancy, e-learning effort expectancy, social influence, e-learning facilitating conditions and e-learning behavioral intention. The items 1-4 are for the e-learning compatibility; The item 5-8 are for the e-learning performance expectancy; The item 9-12 are for the e-learning effort expectancy; The items 13-16 are for the social influence; The items 17-20 are for the e-learning facilitating conditions; The items 21-24 are for the e-learning behavioral intention. The relationship analyses are discussed as follows:

Items	N	Mean		Std. Deviation
	Statistic	Statistic	Std. Error	Statistic
1. I think the ELT are completely compatible for all my learning.	241	5.06	.053	.822
2. I think the ELT are completely compatible with my current learning situation.	241	5.07	.053	.821
3. I think the ELT are easy to fit well with different learning activities.	241	5.07	.049	.763
4. I think the ELT fit into my own learning style.	241	4.88	.073	1.136
5. I find the ELT useful in my learning.	241	5.12	.050	.781
6. I think the ELT are able to help me to accomplish tasks faster.	241	4.94	.074	1.144
7. ELT increase my learning productivity.	241	5.11	.051	.788
8. If I use the ELT, the probability of getting higher grade is increased.	241	4.81	.086	1.330
9. My interaction with the ELT is clear and understandable.	241	5.22	.049	.766
10. It is easy for me to become skillful at using the ELT.	241	5.22	.048	.740
11. I find the ELT easy to use.	241	5.19	.057	.886
12. It is easy for me to learn how to operate the ELT.	241	5.15	.067	1.046
13. My tutors and friends suggest that I should use the ELT.	241	5.06	.060	.936
14. My professors/tutors are helpful to me during using the ELT.	241	5.02	.060	.933
15. People who are important to me suggest me to use the ELT.	241	5.04	.058	.907
16. In general, the people that are related to my learning support me to use the ELT.	241	5.05	.058	.907
17. I get the resources necessary for using the ELT.	241	4.84	.075	1.167
18. I get the knowledge necessary to use the ELT.	241	4.84	.080	1.248
19. The ELT are not compatible with other e-learning systems I use.	241	4.86	.077	1.192
20. There is enough support for the general enquiry about the difficulties of using the ELT.	241	4.81	.077	1.191

21. I intend to use the ELT in the next one month.	241	5.20	.044	.684
22. I predict I would use the ELT in the next one month.	241	5.27	.040	.616
23. I plan to use the ELT in the next one month.	241	5.23	.041	.636
24. I intend to use the ELT for learning as often as needed.	241	5.25	.047	.728
Valid N (listwise)	**241**			

Table 2: Descriptive Statistics among Items

The collected data must be valid and reliable for collecting useful and related information. (Field 2003). Therefore, the validation is used to measure confirm the reliability and validity of the collected data.

The collected data must be valid and reliable for collecting useful and related information. (Field 2003). Therefore, the validation is used to measure confirm the reliability and validity of the collected data. The important criteria for evaluating the validity are the factor loading of the factor analysis and the corrected item-total correlation. For the factor analysis, the generally accepted value of the factor loading is greater than 0.3 (Fornell and Larcker 1981). It is useful to investigate the variable relationships of the similar or related items.

First, the variable of e-learning compatibility factors includes item 1-4. Factor loadings ranged from 0.590 to 0.827. Second, the variable of e-learning performance expectancy factors includes item 5-8. Factor loadings ranged from 0.709 to 0.953. Third, the variable of e-learning effort expectancy factors includes item 9-12. Factor loadings ranged from 0.709 to 0.797. Fourth, the variable of social influence factors includes item 13-16. Factor loadings ranged from 0.737 to 0.962. Fifth, the variable of e-learning facilitating conditions factors includes item 17-20. Factor loadings ranged from 0.766 to 0.806. Sixth, the variable of e-learning behavioral intention factors includes item 21-24. Factor loadings ranged from 0.812 to 0.897. Therefore, the scale of the collected data is retained. Moreover, the reliability analysis was examined by Cronbach's Alpha, the cut-off value 0.7 for reliability (Henson, 2001). The values of the six factors are: 0.752, 0.868, 0.727, 0.924, 0.797, 0.881. Since all values are higher than the acceptable values 0.7 for reliability, all of them are considered as reliable.

Hypothesis Testing

The statistic tool that used in this analysis is called SPSS - Statistics Package for the Social Science. It is a predictive analytics software tool that provides advanced techniques in a user-friendly way to do different analysis. It is a powerful tool for the users to understand and analysis the big data in order to prevent different risks and increase the efficiency of different model building, reporting and evaluation of the analytical process.

In this study, all the relationships of the hypotheses are tested by the Pearson Correlation. Pearson's correlation coefficient (r) is the value to measure the strength of the association between the two variables. It shows the relationship between the two variables. It is to find out a positive or negative relationship between them. Figure 2 shows the hypothesis testing of the model.

H1. The educational compatibility(EC) will affect behavioral(usage) intention(BI) positively

The Pearson's correlation coefficient (r) is 0.226 with a significant p-value 0.000 which is less than 0.01 which is the significant level as shown at the table. It means that EC is positively and significantly influence BI as stated in the hypothesis. As the value of r is 0.226 between the EC and BI, it is classified into a "weak positive correlation" (Evans, 1996).

H2. The educational compatibility (EC) will affect the technological expectancy (TE) positively

The Pearson's correlation coefficient (r) is 0.459 with a significant p-value 0.000 which is less than 0.01 which is the significant level as shown at the table. It means that EC is positively and significantly influence TE as stated in the hypothesis. As the value of r is 0.459 between the EC and TE, it is classified into a "moderate positive correlation" (Evans, 1996).

H3. The technological expectancy (TE) will affect the behavioral intention (BI) of the acceptance of e-learning positively

The Pearson's correlation coefficient (r) is 0.35 with a significant p-value 0.000 which is less than 0.01 which is the significant level as shown at the table. It means that TE is positively and significantly influence BI as stated in

the hypothesis. As the value of r is 0.35 between the TE and BI, it is classified into a "weak positive correlation" (Evans, 1996).

H4. The performance expectancy (PE) will affect the technological expectancy (TE) positively

The Pearson's correlation coefficient (r) is 0.861 with a significant p-value 0.000 which is less than 0.01 which is the significant level as shown at the table. It means that PE is positively and significantly influence TE as stated in the hypothesis. As the value of r is 0.861 between the PE and TE, it is classified into a "very strong positive correlation" (Evans, 1996).

H5. The effort expectancy (EE) will affect the technological expectancy (TE) positively

The Pearson's correlation coefficient (r) is 0.136 with a significant p-value 0.034 which is less than 0.05 which is the significant level as shown at the table. It means that EE is positively and significantly influence TE. As the value of r is 0.136 between the EE and TE, it is classified into a "very weak positive correlation" (Evans, 1996).

H6. The social influence (SI) will affect the technological expectancy (TE) positively

The Pearson's correlation coefficient (r) is 0.182 with a significant p-value 0.005 which is less than 0.05 which is the significant level as shown at the table. It means that SI is positively and significantly influence TE. As the value of r is 0.136 between the SI and TE, it is classified into a "very weak positive correlation" (Evans, 1996).

H7. The facilitating condition (FC) will affect the technological expectancy (TE) positively

The Pearson's correlation coefficient (r) is 0.368 with a significant p-value 0.000 which is less than 0.01 which is the significant level as shown at the table. It means that FC is positively and significantly influence TE. As the value of r is 0.368 between the FC and TE, it is classified into a "weak positive correlation" (Evans, 1996).

H8. The behavioral(usage) intention(BI) will affect the e-learning acceptance(EA) positively

The Pearson's correlation coefficient (r) is 0.499 with a significant p-value 0.000 which is less than 0.01 which is the significant level as shown at the table. It means that BI is positively and significantly influence EA. As the value of r is 0.499 between the BI and EA, it is classified into a "moderate positive correlation" (Evans, 1996).

Results of Relationships among UTAUT Factors
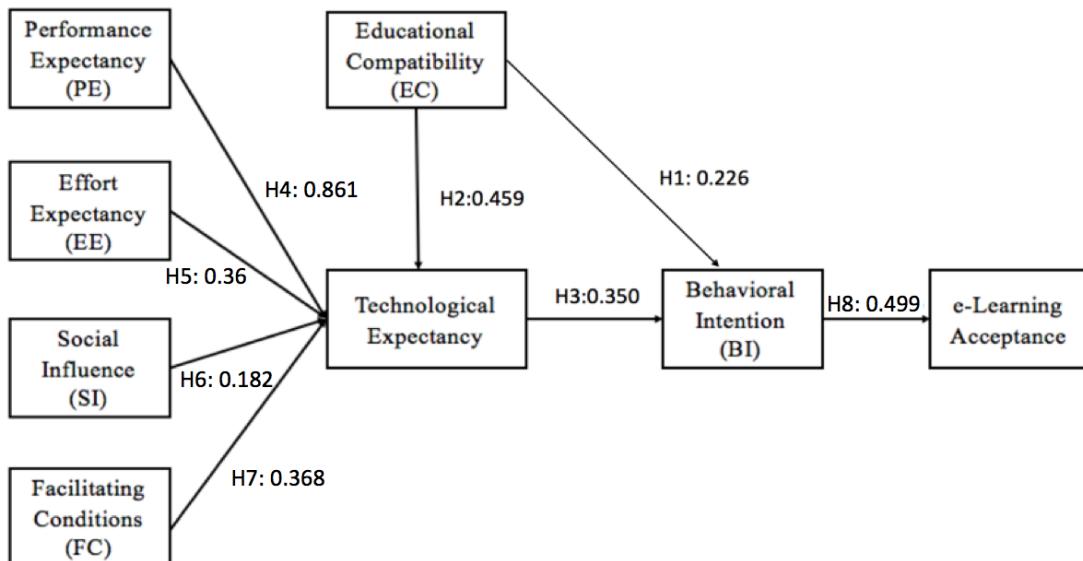
Figure. 2: Hypothesis Testing of UTAUT model

Discussion And Conclusion

The aim of this study is to investigate the influences of educational compatibility and technological expectancy on e-learning acceptance in one university in Hong Kong. The different factors in the UTAUT model are analyzed with the collected data from the information of the questionnaires. The results show that the e-learning compatibility is also important for the e-learning acceptance. Its total effect on behavioral intention is more than the technological expectancy. In the past, most of the developers emphasize on the technical supports or improvements of the e-learning system. They might only focus on putting the most effort on the technical expectancies of the system.

For the technological expectancy, it is positively and statistically affect the behavioral acceptance in e-learning as mentioned. Its direct influence on the behavioral intention is higher than the e-learning compatibility. It indicates that the student's technological expectancy (TE) is an essential and important factor of using e-learning. In order to improve the facilitating conditions as well as the technological expectancy, some strategies can be applied. For example, some tutorials for acquiring the skills before using the e-learning system and online instructions are provided for both experienced and inexperienced students. There is more suitable facilitation for

learning are provided nowadays as the popularity of the artificial intelligence suggested by Xu & Wang, (2006). Moreover, the teachers or the tutors could also be the key for improving the facilitating conditions. For instance, they have to be trained to teach the students to use the system more effectively and efficiently. Therefore, students might be able to obtain an improved condition.

For the learning expectancy, students expect to receive varieties of learning experiences. For example, there should be sufficient facilitation for them to improve their social interaction with their family and friends (Johnson & Johnson, 1999) in order to be able to create, record and apply their theories or hypotheses. Moreover, they expect to obtain different kinds of skills and knowledge that are related or compatible with their current learning as well as their future career. The expectations would be different from one another as they might be affected by their own cultural and social background or learning styles. Each of them prefer a customized learning experience (Kolb,1984). In order to fulfill the above expectations and requirements for their learning, e-learning has taken an essential and critical role nowadays.

For the design of the e-learning system, it is critical for the developer to consider about the educational goals of learning. In the meantime, it is also important for them to consider about how to improve the student's learning experience of using the system. As the compatibility of e-learning is the most important factors for affecting the acceptance of e-learning, we should emphasis more on the development of improving system's compatibility of student's learning expectancies instead of improving the technological aspects only. It allows students to obtain more benefits from using the e-learning tools.

The hypotheses are tested for testing the relationships among the eight factors as shown in the hypotheses model which is based on the UTAUT. In this report, the hypotheses are mainly focus on the relationships among the eight factors for the acceptance of e-learning. There are eight hypotheses in total for the testing. The Pearson's correlation testing was used for investigating the relationships. The results of the testing for the hypotheses are all supported.

The hypotheses H1, H2 and H3 are all supported with a positive and significant correlated relationship. The findings were supported by Liao & Lu (2008), Moore & Benbasat (1991), Mayer (2004), Salomon (1994), Schiaffino et al., (2008) and Chen (2011). They stated that there are significant influences of compatibility to the behavioral intention during both the implementation and adoption stage of e-learning system. In this research, the results show that there will be increase in the student's behavioral intention of e-learning if there is increase in the compatibility of e-learning. It indicates that if there are improvement and enhancement in the e-learning tools (ELT), students are more likely to use the ELT for their learning.

Also, it shows there is the strongest positive relationship between PE and TE. It is supported by several studies and research, such as the Liao et al. (2007), Liao & Lu (2008) and Chen (2011). Also, there are relatively weak relationship between EE and TE and between SI and TE. Effort expectancy revealed a relatively weak relationship is because of the ELT that students are currently using are not as complex as they as they expected. It is suggested that the effort expectancy would be less influence if the software is not inherently complex, stated by Subramanian (1994). Moreover, as there are more than 50% of the interviewees are male, they may focus on the performance and usefulness of the ELT more than female does suggested Ong & Lai (2006). Social Influence has also revealed a relatively weak positive relationship. There was a study suggested the social influence would affect the users of limited or even no experience on certain system more than the experienced one (van Raaij & Schepers, 2008). Also, Taylor & Todd (1995) suggested that the social cultural influence has a lower effect when it is compared to the systemic and control-based factors.

For the facilitating conditions, it revealed a second highest relationship in the hypotheses testing. It indicates that students require more environmental or technical supports for enhancing the technological expectancy on using ELT as supported by Padilla-Meléndez et al. (2008), Liao et al. (2007), Gong and Xu (2004) and Chen (2011).

For the H4 of BI and EA is supported. The result from the Pearson testing shows a relatively strong and significant relationship between them. As stated in (Venkatesh et al., 2003), if there is a stronger intention to perform a behavior, the higher chance that the behavior would be performed. It indicates that if students have a higher intention to do use the ELT for their study and learning, their acceptance of using them would be also higher, vice versa. Therefore, the acceptance of e-learning would be positively affected if students tend to be more willing to use the ELT for their study.

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Kinematic Analysis For Modeling The Layout Of A 2d Road Curve In Mathematica

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Abstract
Roads play an important role in the development of a region because they favor trade by speeding up the mobility of products and improving competitiveness, hence the importance of having safe and feasible roads. Road infrastructure in Ecuador has been affected by various factors, both natural and anthropogenic. At present, three fundamental elements are considered in a road layout: the line, the circular curve and the transition curve or spiral. The latter demand more attention because these are more likely to overturn and road exits. The present work consists of the elaboration of a program using the programming language MATHEMATICA that takes as input variables, the geometric data of two points on the ground: the UTM coordinates and the azimuths. From these values, a third control point is generated which allows the construction of the path of the curve. This trajectory is described by the combination of the Bernstein Polynomials that define the Bézier curve. Simple Bézier curves are characterized by being constructed from a single polynomial which allows us to make a single path, which cannot be achieved with circular and transition curves. To generate an important range of freedom in the manipulation of the curve, the third control point is replaced by two additional control points (point management), obtaining an elevation of degree and a quasi-local control of the curve. We present the graph of the trajectory of the curve, which can be manipulated by the user, so that; we calculate the velocity and tangential acceleration of a particle along the curve in a given time from a magnitude of referential velocity. The graphical representations of the speed and acceleration at each point of the trajectory of the curve were implemented due to the parametric nature of the Bernstein polynomials. We conclude that the velocity along the curve is not constant and that it is determined from the geometry of the curve.

Logical Computer-Based Learning: Versatile E-Learning

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This article discusses how the logical computer-based e-learning is useful and practical in life today. Researchers have used a literary narrative research to build the foundation of scientific knowledge. Researchers have collected all the important points in the discussion, and put them in here with reference to the specific areas in which this paper was originally **Abstract**
based. The results showed that someone who can not follow conventional education because of various causes, for example time constraint, geographical constraints, physical constraints, limited available seats, phobia of school, dropout, or home schoolers possible to be able to keep learning through e-Learning. Electronic learning (e-Learning) related to meeting with online learning or computer-based learning. In the future the application of Internet technology in the field of education and training will be needed in order to improve quality and equity of educational services, especially in Malay archipelago whose territory is scattered in very remote areas.
Keywords: *Electronic Learning, Online Learning, Computer-Based Learning*

Introduction

If a person brings a laptop to a distant place in small isolated island, the person starts to use his laptop and access to various training program materials available. There is no learning support services from tutor or other forms of learning support services. In this context, can the person be said to have implemented e-learning? The answer is NO. Why? This is because he did not get learning assistance services in his learning activities. But what if he has mobile phone and then successfully use it to contact a tutor? Is it in this context that the person has implemented e-Learning? The answer is YES (Newsletter of ODLQC, 2001; Rabiah, 2008).

The illustration above provides clarity about learning activities that can be said as learning activities based on computer and network or e-Learning. Furthermore, the above description is actually only a small part of the possible benefits we can get when we understand correctly computer applications with the development of information technology that is so globalized recent decades. In subsequent developments the reality shows that computer and network applications are not limited to the manufacture, delivery and data storage only, it allows us to interact directly even at a great distance though. In situations where conditions have been conditioned interactions even can be done not only to one person, but to the entire community of network users. This application we easily see in the virtual world / internet, in other words the development of communication and information technology expressly provides opportunities for application in various fields. In line with the advancement of network technology and the development of the internet, it is possible to apply this technology in various fields including in education or training (Mohamad, Hardhono, et.al, 2017).

In the future the application of Internet technology in the field of education and training will be needed in order to improve quality and equity of educational services, especially in Malay archipelago whose territory is scattered in very remote areas. So it takes the right and fast solution in overcoming various problems which is related to the quality of education, as well as efforts to realize equity acquisition educational services as they are mandated by law (Ana & Elan, 2017).

With the application of distance education based on computer and network (internet, fax, internet-fax etc.) then the dependence will be the distance and time required for the implementation of education and training will be overcome. This is because all that is required will be available online so it can be accessed anytime. In this paper discussed matters relating to the application of internet and network technology for as a form of learning method, by providing some information on the understanding, advantages, disadvantages, as well as some examples of methods related to this computer and network-based learning system.

Logical thinking is one way one sees something as well as an attempt to identify what is wrong or what is true according to the individual's logic. Logical thinking is also a process of finding information, knowledge, data and facts about the truth of a thing. In other words, the reason given logically is to strengthen the truth of a situation to be more reasonable. Logical thinking can also be measured using a variety of easy-to-use tools. However, at present there are no tools available that can meet the demands of globalization for the purpose of measuring logical

thinking. For example, e-learning methods are transformed into online learning levels, or online, (Trombley & Lee, 2002) and e-commerce, which authorize the control of business activities and exchange on websites. The progress of e-logic use is to make online logical thinking skills assessment reach more customers. E-logic is a method that refers to how a person's logical thinking and reasoning ability can be measured on the website. Another approach in teaching and learning, whose components are also on the website, is an e-learning framework (when rationale is applied, e-logic evaluation can be effectively managed) providing a favorable arrangement through trade channels. Enhanced progress may mean fast and less challenging data access but does not guarantee higher quality.

E-learning has grown rapidly, as a result of the latest developments in web innovation. This situation encourages the implementation of a lot of training through the use of tools and materials that can be found specifically at home or office, at any time. Likewise with the advancement in innovation, which is used to enhance intelligence and media materials on websites and evolving situations at the stage of delivery, makes the perfect situation to continue the e-learning framework (Alkhatabi et al., 2011). As stated by Ramayah et al. (2010), the framework, data, and quality of governance are the determinants of any behavioral expectations reinforced by its establishment by monitoring relevant matters in order to create procedures for improving acceptance of e-learning. By understanding the behavioral determinants through the e-learning framework, appropriate action can be taken to build confidence in e-learning and also e-rationality in advanced education in Malaysia.

Understanding Of Learning Based On E-Learning And Network
Electronic learning or e-Learning began in the 1970s (Waller and Wilson, 2001). The Concept of Computer-Based Learning and Networking is a form of learning model by utilizing web and internet technologies, the concept of learning and teaching is actually not new, not even new ideas or thoughts, even has developed since a few decades ago. Various terms are used to express opinions / ideas about electronic learning, among others are: on-line learning, internet-enabled learning, virtual learning, or web-based learning, web based distance education, e-Learning, web based teaching and learning. Its development in the world of formal education only occurred in the late 90's.

Modern mobile devices start with Apple Newton in 1993, followed by Palm Pilot in 1996. Five years later the pocket computer and the introduction of the flash player are the next major introduction used for teaching purposes. The following true improvements occur when mobile phones deploy digital Personal Assistant Applications (PDA) and integrated integration. The multi-dimensional integration of mobile phones is: WIDE AREA NETWORK (WAN), Local Area Network (LAN) and Personal Area Network (PAN). In the field of training, it was initially conceived that a handheld device could be a substitute for a computer where a full course could be delivered. However, so far only the application of individual preparation and educators, as well as information gathering, for the most part in the field of experiments and medicine was found to be effective. At present, many tools can be used for learning, from PDA to music players in the phone. Additional items included in mobile phones, for example, cameras, barcode readers, and Global Positioning System (GPS) are also widely used.

Technological development has greatly changed teaching and learning. We are currently learning through versatile devices and tablets. Innovation has restructured the way educators relate to their students and it has also helped students gain knowledge from anywhere and empower them to obtain academic data anytime anywhere. Data is a force, so both students and teachers can use this driven progress for training related to subjects or hobbies. The most prominent innovation that has changed instructional materials include the use of advanced cell in the classroom, the use of versatile tablets and PCs in training and classroom, the use of whiteboard for visual line in the classroom, web use for long learning separation, and the use of social media to link students with educators like Piazza.com. The first example, educators using board and chalk to explain mathematical numerical statements are the kind of training that most of us have ever experienced, and however some students may ignore learning as a result of the absence of continuous visual representation. The second example, educators using a whiteboard that give students a visual line of each subject. All the students in the class will draw differently from the classroom using the board.

"App" is a short term for 'mobile app'. "App" is generated by a third party, and introduces to the phone by the owner. It is described as a small stage that uses the web for delivery and has various purposes, for example, entertainment, referral, business, and learning. App achievements may be due to Apple iPhone and iPad presentations. On March 3, 2012, Apple confirms that more than 25 billion applications have been downloaded following the iPhone's presentation in 2008. This number increases as well as downloaded apps for other frameworks, for example, Google Android OS and RIM BlackBerry OS.

Technology In Education: Mobile Learning
The use of computer systems and applications has changed to a higher level of lifestyle that has been accustomed to most individuals. Furthermore, various PC applications are being developed for use in mobile phones. Progress

in the field of versatile applications can be helped with the number of individual developers using mobile phones for regular training (Pattison & Stedmon, 2006). Countries in the Asia Pacific region are progressively looking for data and communication technology (ICT) capabilities to extend educational opportunities and expedite the nation's financial progress. The application of ICT and mobile phones is progressively seen as a major instrument that may be able to generate worldwide access to teaching materials and improve the quality of education.

Improvements that address physical and space needs, ICT and mobile phones provide exceptional teaching opportunities for individuals from all levels of the economy. Examples of tools such as Personal Digital Assistants (PDA), portable personal computers, pocket PCs, and mobile phones can be used as a learning tool to enable teaching and learning in previously unacceptable areas such as remote areas. Meanwhile, a new way of addressing student-focused learning is being implemented at any time in any learning, and is likely to grow at the rate of maintenance and investment of the school. Many countries have created e-learning and m-learning procedures, and quickly expanding ICT usage and learning in teaching training by incorporating ICT into teaching, educating procedures and curricula, and providing trust in ICT-related assets. On the other hand, the use of e-learning and effective m-learning projects include the setting up of various difficulties. At this point when investigating the range of ICT mediation in training, it is important to consider how m-learning can be used to improve the achievement of objectives in each classification included: develop educational opportunities, develop skills, upgrade learning quality, improve quality of instruction , supports learning resilience, promotes expertise development, drives group improvement, and improves managing and administering strategies.

Depending on the level of determination, m-learning can assist in most of the objectives stated above. For example, it can support the development of open-ended teaching (access to training) as it can be used to deliver opportunity lessons to individuals including women who face social problems to teach; residents living in remote areas; and working adults who have limited time. If the objective supports lasting learning, m-learning is important as it can provide useful and customer-focused learning.

One of the major differences is the assumption that the student is constantly moving. Students learn to cross space because they use the thinking and learning assets found in a field then use or create them in another field. Learning takes place over time, by restoring previously added information in an alternate, more holistic environment, through thought-provoking and pre-established procedures and creating lifelong learning systems. Learning moves from a subject to subject matter, confronted with the scope of individual learning tasks, as opposed to taking on alone education programs. Learning also moves from innovation engagement, for example when we enter and leave the cellphone scope.

Action describes learning as a sensitive act rather than separating it from the types of teaching actions, as some casual sections and environmental learning work are at the basic level of mobile within the specified path. School students will move from room to classroom and move from subject to argument. Perhaps, it brightens the existing practice in getting from another angle. By placing learning portability as an object of inquiry, we can better see how the information can be shared, as well as, the ability to be exchanged across settings, for example, home and school, how learning can be transcended horizontally, and how new advances can be aimed to increase a lot in which individuals develop gradually in an effort to galvanize learning into the gaps of day to day life (Aminuddin, Fadzila & Sim, 2015).

Mobile learning theory needs to be aware of the use of individual and shared technology. In the UK, more than 75% of the community and 90% of young adults have their own handsets (Crabtree, 2003). An overview of 2003 at Birmingham University found that 43% of students had smartphones. These figures cover enormous variations in access to innovation around the globe, but show a pattern of minimal responsibilities, and for some individuals, several innovations include mobile phones, cameras, music players and PCs. A pattern of learning hypotheses in a versatile world in a number of countries involved in the field of creation, especially in sub-Saharan Africa, is the circumvention of a modified telephone system to introduce a mobile phone system for the countryside. This space allows individuals within the country to make phone calls, as well as to gain mobile administration advantages, such as content and sight and notification of information via sound.

Learning is envisioned as a customized and student-centered activity (Leadbetter, 2018), as well as a new computerized innovation service that offers customized services. For example, music lists and advanced log books. Learning is now seen as a community-organized movement (Brown, Collins, & Duguid, 1989), which goes anywhere, separately or as a whole. These tools have issues to understand or information to share. Multipurpose innovation also empowers individuals to create something in their area. Computer innovations in learning such as computer applications are incorporated into the printers and TV gadgets that run the capacity set out in accordance with the basic guidelines and customer-oriented guidelines. In addition it turns out to be more difficult, despite the

fact that the equipment can survive for just a few years, individual programming and capacity configurations (for example, PDFs) are developed through a progressive and widespread form. The availability of these equipment now opens doors for individuals to protect and authorize their study records in computerized terms for life (Bank, 2004).

Globally Concept of Computer-Based Learning and Networking often defined only as e-Learning or Distance Learning. The development of e-Learning concept is characterized by the emergence of sites that serving teaching and learning process based on computer and network since the era of 15 years ago across all corners of the Internet from free or commercial ones.

Canada's education world for example has even begun to apply this system to the world of education, as well as in the emerging American community of e-Learning sites is open to anyone, while in the Malay archipelago of learning using this concept seems still limited applied in Higher Education. Malaysia Science University for example since 1986 has begun to pioneer a form of learning concept which they call as Student Centered Learning (SCL) that enables students to actively explore their understanding of course material. This concept emphasizes on student active learner not teacher active learner (Center of Social Sciences, 1999). From the illustrations excerpted from the Newsletter of ODLQC, 2001 as set forth in the earlier section above, at least can be drawn 3 (three) important thing as requirement of electronic learning activity (e-Learning), that is:
a. Learning activities are done through network utilization ("Network" in this description is limited to internet usage. Network may include LAN or WAN - in the form of Website eLearners.com)
b. Availability of support learning services that can be utilized by participants learn, such as a CD-ROM, or printable material, and
c. The availability of tutor support services that can help participants learn when experiencing difficulties.
In addition to the above three requirements can still be added other requirements, such as:
d. Institutions that organize / manage e-Learning activities
e. Positive attitude of learners and educational staff on computer technology and internet
f. The design of learning systems that can be learned / learned by each participant learns,
g. The evaluation system on the progress or development of learners' learning, and
h. The feedback mechanism developed by the organizing agency.

Thus, it can simply be said that electronic learning (e-Learning) is learning activities that utilize the network (Internet, LAN, WAN) as a method of delivery, interaction, and facilitation and supported by various forms of other learning services (Brown, 2000; Feasey, 1998). In further details, the term "e-Learning" or "online learning" will be used interchangeably but still with the same understanding as has been stated.

Learning Functions Based On E-Learning And Networking
There are at least 3 (three) learning functions based on Computer and Network to learning activities in the classroom, namely as an optional supplement, complement, or substitution (Siahaan, 2002).

a. Supplement
It is said to function as a supplement, if learners have freedom of choice, whether to utilize electronic learning materials or not. In this case, there is no obligation / requirement for learners to access electronic learning materials. Although optional, learners who use it will certainly have additional knowledge or insight.

b. Complementary
It is said to function as a complement if electronic learning materials programmed to complement the learning materials received by students in the classroom (Grimsey & Lewis, 2002). As a supplementary means of electronic learning material is programmed to into enrichment or improvement materials for learners in following the conventional learning activities.

Electronic learning materials are said to be enrichment, if to learners who can quickly master / understand subject matter presented by teacher in face to face (fast learners) given the opportunity to access electronic learning materials that were specifically developed for them. The goal is to further strengthen the level of mastery of learners on the subject matter presented by teachers in the classroom (Mark & Fintan, 2001).

Said to be a remedial program, if to learners who have difficulty understanding the subject matter which are presented by teachers in face-to-face classes (slow learners) are given the opportunity to utilize electronic learning materials that are specifically designed for them. The goal is that learners more easily understand the subject matter presented by teachers in the classroom.

c. Substitute

Some schools / colleges in developed countries give some alternative model of learning activities / lectures to the learners. The goal is that learners can flexibly manage lecturing activities in accordance with the time and daily activities of students. There are 3 alternative models of learning activities that can be selected learners, namely:

      a. Fully face-to-face (conventional)
      b. Partly face-to-face and partly via the internet, or
      c. Completely over the internet.

Any alternative learning model that students will choose not a problem in the assessment. Because the three models of lecture material presentation get recognition or the same assessment. If the learner can complete the course and pass through conventional or completely through the internet, or even through the combination of these two models, then the institution of education providers will give the same recognition. This very flexible state is very helpful to the students to accelerate the completion of the lecture.

How E-Learning Is Implemented

The concept of learning by using Computers and Networking enables the process of developing knowledge not only in the classroom where the teacher concentrated in one direction, but with the help of computer and network equipment, students can be actively involved in the teaching and learning process. They can keep in touch with each other anytime and anywhere by way of access to the system available online. Such systems will not only increase the knowledge of all students, but will also help ease the burden of teachers in the teaching-learning process, because in this system some of the functions of teachers can be taken over in a computer program.

In addition, the results of the process and results of teaching and learning can be stored in data in the form of databases, which can be used to repeat the past teaching-learning process as a reference, so that it can be produced a better subject matter content.

As part of the development of e-Learning, web is one of the internet technology that has been growing for a long time and the most commonly used in the implementation of education and training remotely (e-Learning). In general, the application of communication on the internet is divided into 2 types, namely as follows:
a. Synchronous System
Applications that run in real time where all users can communicate at the same time, for example: chat, video conference, and so forth.
b. Asynchronous System
Applications that do not depend on the time at which all users can access the system and communicate between them according to their respective time, for example: e-mail, and so forth.

In the Malay archipelago, even if the development of the beneficiaries of this concept is somewhat sluggish. With network facilities owned by various educational institutions or institutions in Malay archipelago both intranet and internet, is actually very possible to apply web-based e-Learning support systems using synchronous or asynchronous systems, independently or combined, even though basically the two systems above usually combined to produce a more effective system because each has its advantages and disadvantages.

In some countries that have advanced with the condition of high speed network infrastructure will be very enabling the application of multimedia technology in real time like video conferencing for the benefit of e-Learning applications, however for general conditions in Malay archipelago where the network infrastructure is still relatively limited will experience obstacles and become ineffective. However, even without such multimedia technology, actually with the condition of the existing Internet network in Malay archipelago is very possible, especially by using the asynchronous system or by using a synchronous system such as customized chats with an educational support system to be developed.

Some of the institutions of e-Learning organizers can be put forward as follows:
a. University of Phoenix Online is the most successful virtual university in the United States. The University of Phoenix Online has 37,569 students from 78,700 students overall, 38 campuses and 78 learning centers spread across the United States, Canada, and Puerto Rico. In addition, the University has graduated 10,000 temporary students. Other private virtual universities in America are only able to pass far below (Pethokoukis, 2002).
b. Jones International University is one of the most successful universities in organizing e-Learning. The university has 6,000 students who studied online (Pethokoukis, 2002).
c. United Kingdom Open University (UKOU) is the largest university organizer of electronics learning activities in the world with 215,000 students (Daniel, 2000).

d. The College of Business at the University of Tennesse begins e-Learning specific lectures to 400 doctors working in the emergency room across the United States and in 11 other countries. The college that organizes the one-year program for MBA for doctors using e-Learning and face-to-face.

e. Universiti Tun Abdul Razak (UNITAR) is the first university in Malaysia and in Southeast Asia that presents e-lectures (e-Learning). This electronic lecture was started by UNITAR in 1998 (Alhabshi, 2002).

f. The Open University (OU) has conducted an Electronic Tutorial (ET) trial in 1999 for its students. The reason for this electronic tutorial trial is that it meets the needs of students to help them solve the difficulties encountered during self-study (Anggoro, 2001).

g. Universitas Gajah Mada (UGM) has started preparing lessons that utilize the internet for postgraduate programs in hospital management and health services management in 1996 (Prabandari dkk., 1998; Universiti Gajah Mada, 2017).

h. Florida Virtual School is one of the high schools in the United States that has grown rapidly in the provision of electronic learning. In the fifth year, the High School received 3,505 students by employing about 41 full-time teachers and 27 other teachers on a part-time basis. The motto of the school is "anytime, anywhere, through any path, at any speed." (Wildavsky, 2001).

Automation tasks that can be done by utilizing this connection are:
a. Inclusion of announcement information by instructor
b. Delivery of lecture files (file uploading)
c. Authentication of website users

Several Models Of E-Learning Implementation

As explained above, e-Learning enables learning not only to take place formally in class, but with the help of computer and network equipment, students can be actively involved in the learning process, in a form of distance learning system without being constrained by geographical, space and time, the following is outlined 2 models of many models of organizing e-Learning in learning:

a. Model of e-Learning tutorial

This model has been applied by the Open University Online, based on the type of communication application that is done can be divided again into two, namely (a). e-Learning Tutorial by utilizing internet e-mail application and (b). Tutorial by utilizing fax-internet application.

i. Electronic tutoring takes advantage of Internet email applications.

Internet-based learning system that can be developed can be a system that utilizes Internet applications called mailing-list. In this tutorial via the Internet teachers will discuss the material or task in writing and then the writing is distributed to all students via email. Then, when students open the Internet and check their e-mail, they can read the teacher's writing and give answers, comments or ask questions about the assigned task (Uno, 2017).

ii. Electronic Tutorial via Fax-Internet

Fax-Internet Integration in the Internet tutoring system will expand the access point for learners. In the Fax-Internet tutorial concept, learners send or receive messages by fax and the teacher / teacher will receive or send the reply by email. When receiving a fax from a learner, the teacher or teacher receives the fax in the form of an attachment on an electronic mail (Mohamad, Hardhono, et.al, 2017).

b. Model Computer Supported Collaboration Learning

Collaboration is defined as cooperation between participants in order to achieve common goals. Collaboration is not just putting the participants into study groups, but also how to coordinate them in order to work together in the study. Related research in the field of collaboration via the Internet known as CSCL (Computer Supported Collaborative Learning), in which CSCL seeks to optimize the knowledge possessed by the participants in the form of cooperation in problem solving. In fact collaboration among participants tends to be easier than collaboration between participants and teachers (Mark & Fintan, 2001).

Users consist of students and teachers who guide, where the students themselves are divided into students and other students who act as collaborators during the learning process. Participants collaborate with tools available through an intranet or internet network, where teachers direct the course of collaboration to achieve the desired goals, as expected, to collaborate among students on problem solving related to the subject matter. This collaboration can be realized in the form of discussion or question and answer by utilizing internet facilities commonly used for example: e-mail, chat, developed in accordance with the needs of the application to be made.

In the implementation of the e-Learning system, collaboration between students will be an essential factor, especially in asynchronous systems where students can not directly know the condition of other students, so if there is a problem in understanding the paper provided, there will be a tendency to fail to follow due to lack of communication between students, resulting in trending tendency in standstill condition, thus causing unexpected results.

There are 5 essential things that must be considered in running the collaboration via the internet, which is as follows:
a. Clear, positive interdependence among students (Clear / clean, positive interdependece among students)
b. Regular group self-evaluation (group self-evaluation on a regular basis)
c. Interpersonal behaviors that promote each member's learning and success (the behavior of personal relationships that promote each success and member lessons)
d. Individual accountability and personal responsibility (individual responsibility and personal responsibility)
e. Frequent use of appropriate interpersonal and small group social skills (frequent use of small groups and interpersonal relationships according to social skills)

In the process of collaboration among students, teachers may engage in it indirectly, in order to assist the collaboration process by providing instruction in the form of a message to solve the problem. So hopefully the collaboration process becomes more smoothly.

Some of the tools needed to run the CSCL method are: Database, for storing lesson material and records related to the teaching-learning process, especially the collaboration process. Web Server, is a part of regulating access to the system and set the display that is required in the education process. Including system security settings. Developers like this application can be done using the software as follows:

Platform Open Source Linux
Web Server Apache+Tomcat
Programming Java
Script Java Server Page

Database MySQL / Postgress
Frame Work Struts
Development Tool Eclipse

The advantage of using the above software is entirely an Open Source that can be downloaded for free from their respective web sites, so that in the implementation can be reduced costs as low as possible, without reducing the reliability of the system itself. Another advantage is that access to such systems does not depend on an operating system platform (Romi, 2017).

Therefore, with the implementation of various Open Source Software like this, it is expected to achieve a safe, reliable, high performance, multiplatform, and low cost e-Learning system (Persero, 2017).

Advantages of Utilizing Learning Based on E-learning and Networking
E-Learning facilitates interaction between learners and materials. Likewise the interaction between the learners with the lecturers / teachers / instructors as well as among the learners. Learners can share information or opinions about a variety of things related to the education or self-development needs of learners. Teachers or instructors can place learning materials and tasks that must be done by students in a particular place within the web for access by learners. In accordance with the needs, teachers / instructors can also provide students with the opportunity to access certain learning materials as well as exam questions that can be accessed only once and within a certain time frame (Kudos Website, 2002). In more detail, the benefits of e-Learning can be seen from two angles, namely from the point of the learners and teachers:

a. From the Sudden Participant's Corner
With e-Learning activities it is possible to develop high learning flexibility. That is, learners can access learning materials at all times and repeatedly. Learners can also communicate with teachers / lecturers at any time. With this condition, learners can better strengthen their learning materials.

While infrastructure facilities are not only available in urban areas but have reached the districts and villages, e-Learning activities will benefit (Brown, 2000) to learners who (1) study in small schools in poor areas to follow certain subjects that the school can not provide, (2) follow a home schoolers program to study learning materials

that parents can not teach them, such as foreign language and computer skills (Rabiah, 2017), (3) feeling phobia with a school, or a nursery student who is hospitalized or at home, who has dropped out of school but is interested in continuing education, issued by the school, as well as students in various regions or even overseas, and (4) not accommodated in conventional schools to gain education.

b. From the Corner of the Teacher / Lecturer
With the activities of e-Learning (Soekartawi, 2002a, b), some of the benefits of teachers / lecturers / instructors include, among others, that teachers / lecturers / instructors can: (1) more easily update the learning materials that are his responsibilities in accordance with the demands of scientific development, (2) to develop or research to increase its insights because of its relatively free time, (3) controlling the learning activities of the learners. Even teachers / lecturers / instructors can also find out when their learners learn, what topics they are learning, how long a topic is learned, and how many times a particular topic is being re-learned, (4) check whether the learners have done the exercises after studying a particular topic , and (5) examine the answers to the learners and inform the learners.

While the benefits of electronic learning according to A. W. Bates (Bates, 2006) and K. Wulf (Wulf, 1996) consists of 4 things, namely: (1) Increase the level of learning interaction between learners with teachers or instructors (enhance interactivity).

When carefully designed, electronic learning can improve the level of interaction of learning, between learners and teachers / instructors, among learners, and between learners with enhancing interactivity. Unlike the case with conventional learning. Not all learners in conventional learning activities can, be brave or have the opportunity to ask questions or express their opinions in the discussion. Why?

Due to the conventional learning, opportunities available or provided by lecturers / teachers / instructors for discussion or questioning are very limited. Usually this limited opportunity also tends to be dominated by some learners who are quick to respond and dare. Such circumstances will not occur in electronic learning. Shy or undecided or brave learners have ample opportunity to ask questions or submit statements without feeling watched or under pressure from classmates (Loftus, 2001). (2) Enabling learning interaction from where and at any time (time and place flexibility).

Given the learning resources that are already packaged electronically and available for students to access via the Internet, learners can interact with these learning resources anytime and from anywhere (Dowling, 2002). Likewise with the tasks of learning activities, can be submitted to the teacher / lecturer / instructor once completed. No need to wait until there is an appointment to meet with teachers / instructors. Students are not strictly bound with the time and place of organizing learning activities as well as on conventional education.

In this regard, the British Open University has utilized the internet as a method / media of material presentation. While at the Open University of Indonesia (OU), internet use for learning activities has been developed. In the early stages, the use of internet in OU is still limited to tutorial activities only or the so-called "electronic tutorial" (Anggoro, 2001). (3) Reaching students in a wide range (potential to reach a global audience).

With the flexibility of time and place, then the number of learners that can be reached through electronic learning activities more and more widespread.

Space and place and time are no longer an obstacle. Anyone, anywhere, and anytime, someone can learn. Interaction with learning resources is done via the internet. Learning opportunities are truly wide open for anyone in need. (4) Facilitate the refinement and storage of learning materials (easy updating of content as well as archivable capabilities).

The facilities available in internet technology and a growing variety of software help to simplify the development of electronic learning materials. Likewise with the refinement or updating of learning materials in accordance with the demands of scientific material development can be done periodically and easily. In addition, improvements in the method of presentation of learning materials can also be done, either based on feedback from learners and on the results of the assessment of teachers / lecturers / instructors as the responsible person or the constructor of the learning material itself.

Knowledge and skills for the development of electronic learning materials needs to be mastered first by teachers/ lecturers / instructors who will develop electronic learning materials. Likewise with the management of learning activities themselves. There should be a commitment from teachers / lecturers / instructors who will monitor the

development of learning activities of students and simultaneously motivate the students, this activity actually leads to efforts to keep controlling the quality of the process itself.

c. Web-Based Applications
Web-based tools are one of the best ways to conduct research for today. There are several advantages to using web based applications as an instrument in evaluating. Web-based software does not need to be installed and requires internet only. Therefore, it is inappropriate. The time required to answer this question is lower than the traditional method used. Using this method we do not have to wait for a paper questionnaire to return to you. The rate of reaction is immediate. In addition, using a web based application, it is cheaper as it can save research costs. The response can be automatically processed from the respondent and results are available at any time.

Using web based applications as a way to gather information is a more appropriate and more accurate way. The existence of errors is smaller as participants enter their answers directly into the system. In traditional methods used, researchers need to inform the respondents in depth and common mistakes made frequently.

In addition, web-based use is very easy. It is suitable for use by respondents and researchers. One study found that 90% of people with access to the Internet prefer to answer an online questionnaire. With online surveys, respondents can choose the right time to answer the questionnaire. The main advantage of using online surveys is that it saves time. The required data can either be transferred quickly and easily to special statistical software. The use of online surveys can save time, inexpensiveness, and get results quickly. The use of this online survey can be one of the best ways to conduct research

Conclusion
If the computer network between primary and secondary school students is linked to a computer network that currently operates between various universities in Indonesia. Learners not only interact with teachers but also directly personally interact with college students and lecturers. What will this relationship gain from? it is clear that the thinking insight of learners will be opened wide with this openness. The learners become aware of why they have to bother studying the various subjects that have been taught. Why is Physics and Mathematics so important to be an electrical and computer engineer? We can expect that this openness will spur the learners to learn and increase his interest in various fields of science.

In line with the definition of e-Learning or electronic learning as an alternative learning activities implemented through the utilization of computer technology and the Internet. A person who can not follow conventional education due to various factors, such as time constraint, geographical constraints, distance constraint, physical constraints, conventional school capacity not available (limited available seats), phobia to school, dropping out of school, or being educated through home schoolers education is possible to keep learning through e-Learning.

The implementation of e-Learning is determined by: (a) positive attitude of learners (high motivation for self-learning), (b) positive attitude of education personnel on computer and internet technology, (c) availability of computer facilities and access to internet, (d) the support of learning services, and (e) affordable access to the internet for learning / education purposes.

Developments in various countries show that the number of internet users is increasing; as well as the number of students who follow e-Learning and e-Learning organizers. The function of e-Learning can be as a complement or additional, and in certain conditions can even be another alternative to conventional learning. Learners who follow the learning activities through e-Learning program have the same recognition with students who follow the learning activities in conventional.

Learners and lecturers / teachers / instructors can benefit from the implementation of e-Learning. Some of the benefits of e-Learning is the flexibility of learning activities, both in the sense of interaction with learners / learning materials, and the interaction of learners with lecturers / teachers / instructors, as well as the interaction between fellow learners to discuss learning materials.

Conventional educational institutions (universities, schools, training institutions, or vocational and advanced courses) have extensively organized expansion of learning opportunities for their 'target audience' through the use of computer and internet technologies (Collier & Thomas, 2002). Along with this, school-age students who follow electronic learning activities also continue to increase in number (Gibbon, 2002).

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Mathematical Resilience And Test Anxiety Of Students: Kocaeli Vocational School Sample

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Abstract

Resilience as a physiological concept is directly connected with to learnings' attractional ability to concern with and to be manage some difficulties and subnormal positions be able to be coming to all education periods, so elaborating these subnormal habits to positions which turned out to make visible. These learners could be more positive learner findings according to expecting point. On the other side, Test anxiety, a widely used definitions, means to some sociological also personal explanations which the scientific person focus on some non-positive periods. Especially low answer beginning for anxiety in determining of the positions, towards to see test positions as individually intimidating are characterized by test anxious persons. These persons towards to act much to react with extensive anxiety, psychological ineptitude, tension, and physiological excitement when come to any examination habit.

In this paper, we focused to determine point of student's resilience based on math resilience and gender differences in test anxiety of the students, and differences in the school accomplishment. Students were 112 students from Accounting and Task Department of Kocaeli Vocational School in Kocaeli University. All of the students finished the scales of math resilience, and test anxiety.

At the end of the lectures they participated, students were evaluated by a multiple-choice and an open-question examination. When related with the male classmate, female students stated higher points of math resilience, and test anxiety, high point math anxiety in the three tests of our all fore test. Moreover, female's students have not responded lower academic accomplishment than male classmates when answered the open-question or the multiple-choice examinations.

Keywords: math resilience and trait anxiety, academic achievement

Introduction

Some problems which students are faced in the learning math, particularly, to advance the math doing capacity to be reached. The problems in learning and teaching mathematic are important when mathematics be the lecture that needs its students logical and mental activities on the mathematics concept (Aydın at all, 2017a; Yee, 2002). One important point of learning mathematics at the lecture being carefully and attentionally and that is an important necessary as ability of mathematics. The role of mathematics in real world which directly connected students' achievements at the lecture and learning capacity, and abilities and skills need to be understood by education personals, especially math teachers. In the learning procedure, students could have practiced disappointment and time organization problems in the learning procedure. The practice is definitely irrevocable, but its non-positive situations could be slowed by evolving learning skills (Kahraman at all, 2018; Reivich and Shatte, 2002).

Test anxiety could consume mental incomes so stopping students from focusing on the examination (Benson at all. 1992). Some studies' result has been suggested to explicate the connection between test anxiety and school accomplishment. They refer to the reality that anxiety could cause students' inspiration and challenge the learning approaches (Eysenck, 1992). He stressed that when the fundamental reason, test anxiety could decrease students' performance while taking an examination

and the school accomplishment by interaction with the examination studies (Koparan at all., 2018; Kılıçarslan at all., 2018).

Research Method

Students were 112 Accounting and Task Department students in Kocaeli Vocational School from Kocaeli University. They were joined in an investigation projects lecture during the 2016-2017 academic year. The sample included 65 women (mean age of 18.21 years) and 47 men (mean age of 19.35 years). Students were directed the following scales and questionnaires:

- Math Resilience Scale - MRS (Kooken at all., 2013): This instrument measures math resilience point by presenting 23 positions (Cronbach's alpha = .91). The students must designate the point of resilience related with each item using a five-point Likert-type scale anchored by 1 (strongly disagree) 2 (disagree) 3 (neutral) 4 (agree) and 5 (strongly agree). The sum of the item points yields a total score for math resilience, ranging between 23 and 115 (Appendix 1). (Núñez-Peñaa at all, 2016).

Findings

Gender differences were analysed by applying independent t-tests analyse to all papers collected from the students: the resilience points, the anxiety measures, the test-position questions, and the final examinations. On the resilience points, female students were found to register higher points of math resilience (t(108) = 6.00, p = .001) and test anxiety (t(108) = 3.29, p = .003), as compared with male students (Table 1). (Núñez-Peñaa at all, 2016).

Table 1. t-tests for resilience and anxiety measures by gender and means, standard deviations, p-value.

Scales	Female students	Male students	t-test	p
Math resilience	84.10 (11.42)	59.21 (14.27)	6.00	.001
Test anxiety	26.20 (8.01)	21.94 (7.25)	3.29	.003

In order to analyse gender differences in math resilience in more deeply, it was applied separate t-tests for each MRS item. As shown in Table 2, male and female students presented in the answers to items 3, 10,16 and 21 and (t(108) = 2.87, p = .002; t(108) = 2.53, p = .012; t(108) = 3.48, p = .003 and t(108) = 3.18, p = .002 respectively), with females recording a higher frequency of amount of the positions defined in these items. (Núñez-Peñaa at all, 2016).

Result and Discussion

In this paper, we tried to find differences between female students and male students vocational school students in the stated point of mathematics resilience and test anxiety, and the anticipated point of student's anxiety at the time met to special kinds of test positions.

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Mathematical Resilience and Test Anxiety of Students

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Abstract

Problems and difficulties in the procedure of learning mathematics can turned to be an undesirable conditions and negative conditions. The negative compressions and environments can be a bad practice for students. Resilience is connected to students' affecting skill to analyse and be able to solve problems and negative conditions in the learning procedure, rotating the negative conditions to conditions which focus the procedures. Resilient students can get improved learning results than students imagine. On the other side, test anxiety, a widely used definitions, means to the group of physiological and interactive responses which researcher deal with possible negative values or disappointment on an examination. Mainly low answer beginning for anxiety in evaluative conditions, tending to view test conditions as personally threatening are characterized by test anxious persons. The persons have a habit of to react with widespread fear, mental ineffectiveness, tension, and physical arousal when exposed to exam conditions.

In this study, it is discussed the level of student's resilience based on mathematics resilience and gender differences in test anxiety level of them, as well as differences in the school accomplishment. Participants were 108 students from accounting and task department of Niğde social science vocational school in Niğde Ömer Halisdemir University and 103 students from accounting and task department of social science vocational school in Gümüşhane university and so, totally 211 students. All students completed questionnaire of mathematics resilience, and test anxiety level. The students were also asked about the predictable level of anxiety when faced with the specific test conditions (Núñez-Peñaa at all, 2016);

- Open-question,
- Multiple-choice,
- An exam involving calculations
- Oral presentation,

Final step, students were evaluated by a multiple-choice and an open-question exam. Associated with the male friends, female students stated higher levels of mathematics resilience, and test anxiety, and bigger anticipated anxiety in 3 of the test conditions. Moreover, female students did not display lower school accomplishment than male students in the open-question and the multiple-choice exams applied to vocational school students (Núñez-Peñaa at all, 2016).

Keywords: mathematics resilience and trait anxiety, school accomplishment

Introduction

We can say which many difficulties in the learning math, specially, to advance the math skill to be realized. The snags in studying math are rational because math is a lecture which necessitates students to think reasonably, thoroughly and pensively (Hutauruk, & Piatna, 2016). One important way of learning which ask devotion is sentimental abilities as tenacity, confident, and understanding the effect of math in real world. In the teaching procedure, some students have experienced problems and difficulties in the education procedure. The involvement is usually irreparable, but its bad aspects are be able to reduce by composing strong learning skills (Hutauruk, & Piatna, 2016; Reivich And Shatte, 2002).

According to Norman, (2000), resilience is the size of students to oppose and answer perfectly to disagreeable situations which are predictable, and to get gain of the disagreeable situations to an occasion for private development. The factors which cause resilience are as below (Hutauruk, & Piatna, 2016; Reivich And Shatte, 2002):

- *Optimism,*
- *Impulse control*
- *Emotion regulation,*
- *Empathy,*
- *Reaching out,*

- *Causal analysis,*
- *Self-efficacy.*

Four connected influences making the skill of math resilience in relation to math (Hutauruk, & Piatna, 2016; Johnson-Wilder and Lee, 2010):

- "resilience: it is an orientation to produce a positive response when faced with a negative situation in learning mathematics".
- "value: the perception which mathematics is a subject which is valuable and worth studying. The more the students think mathematics is valuable, the greater the motivation to learn and to cope with the difficulties".
- "struggle: a confession which struggle in mathematics is universal even for people who have high-level mathematics skills. A student, who becomes aware which struggling with mathematics is a common thing to do, could tolerance in the face of obstacles".
- "growth: a conviction which everyone can develop mathematics skills and do not believe which some are born with or without the ability to learn mathematics".

The calculation of test anxiety could profit from the example of the procedure models of current stress model (Ballesteos, R. F. 2003; Hutauruk, & Piatna, 2016; Eysenck, 1992). Test anxiety research has prospered doing tests and the much applications that educational, public, and physiological problems because of the increasing personal level of test conditions for people in modern society (Ballesteos, R. F. 2003; Kassim at all., 2008). According to the research team, test anxiety facts obviously as one of the basic problem types in the constant production close psycho-educational testing. Many students can get on tests but achieve not Powderly due to the devastating levels of anxiety. Test anxiety could also start a chief foundation of test bias, in which worried positions could achieve less well than the facility and abilities (Linnenbrink, 2007). Most of the test anxiety study over the past century has been made to give on the negative aspects of test anxiety on examinee actions (Ballesteos, R. F. 2003; Eysenck, 1992).

Test anxiety could consume cognitive incomes that averting students from motivation on the exam (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016). Some studies' result has been planned to describe the connection between test anxiety and school accomplishment. One of them discuss to the situation which anxiety could source students' inspiration and demoralize the learning policies (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016; Eysenck, 1992). He stressed which when the basic source, test anxiety could decrease students' capasity while taking an exam and the school accomplishment by prying with the exam training (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016).

This paper focused the following purposes:

- *To explain mathematical resilience level,*
- *To explain gender differences in test anxiety,*

Research method

Participants were 108 students from accounting and task department of Niğde social science vocational school in Niğde Ömer Halisdemir University and 103 students from accounting and task department of social science vocational school in Gümüşhane university and so, totally 211 students. All students were joined in a research designs course during the 2016-2017 school year. The sample included 116 women, mean age of 19.10 years and 95 men, mean age of 20.05 years. Students were directed the following scales and questionnaires (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016).

- Mathematics resilience scale - MRS (Kooken at all., 2013): this tool measures mathematics resilience level by presenting 23 conditions (cronbach's alpha = .91). The answers must show the level of resilience related to each item using a five-point likert-type scale anchored by 1 (strongly disagree) 2 (disagree) 3 (neutral) 4 (agree) and 5 (strongly agree). The sum of the item scores produces a total score for mathematics resilience, extending between 23 and 115 .

Findings

The study of gender situation differences had been analysed by getting independent t-tests to all papers of students: the resilience levels, the anxiety questionnaire, the test-situation questions, and the final papers. On the resilience levels, female students were observed to show higher levels of mathematics resilience (t(205) = 5.27, p = .003) and test anxiety (t(205) = 2.74, p = .004), as compared with male students (table 1)(Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016).

Table 1. T-tests for resilience and anxiety measures by gender and means, standard deviations, p-value.

scales	Female students	Male students	T-test	P
Mathematics resilience	85.12 (12.15)	63.66 (15.11)	5.27	.003
Test anxiety	26.13 (7.03)	20.07 (8.12)	2.74	.004

To work gender differences in mathematics resilience by more detailed version, it was applied "separate t-tests for each MRS item". As shown in table 2, male students and female students varied in the answers to items 3, 9,16 and 22 and (t(205) = 2.96, p = .004; t(205) = 2.55, p = .011; t(205) = 3.26, p = .003 and t(205) = 3.20, p = .025 respectively), with female students registering a higher frequency of existence of the settings defined in the objects (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016).

Result and discussion

In this paper, we tried to find differences between female students and male students vocational school students in the stated level of mathematics resilience and test anxiety, and the estimated level of anxiety that faced with explicit forms of test conditions (NÚÑEZ-PEÑAA, M.I., SUÁREZ-PELLICIONIC, M. AND BONOA, R. 2016).

Finally, this examination presented which while stated levels of mathematics resilience were higher for female students' vocational students than for male students. And, this situation does not accepted to have power effect on the school accomplishment, since the final grades were similar with the of the male friends.

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Mathematical Resilience of Students

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Abstract

Problems and obstacles in the procedure of learning mathematics lecture can turned to be an undesirable conditions and negative conditions. The negative forces and conditions can be a bad practice for students. Resilience is linked to students' active skills to connect with and to overwhelmed problems and negative conditions in the learning procedure, changing the negative conditions o conditions which related with each other. Resilient students can get more effective learning products than students expect. On the other side, test anxiety, a widely used definitions, means to the way of social and physiological which complement anxiety about some negative moments or disappointment on an examination. Mainly low answer detected for anxiety in evaluation of the conditions, way to view test conditions as universally intimidating are categorized by test anxious persons. The persons way to respond with widespread anxiety, intellectual disorder, tension problems, and biological stimulation when showing to exam conditions (Núñez-Peñaa At All, 2016; Wilder At All, 2014; Hutauruk, & Piatna, 2016; Ballesteos, R. F. 2003).

In this study, it is discussed the level of students' resilience based on math resilience and gender differences in test anxiety of them, for example, differences in the educational success. Applicants were 94 students from Office Management Department of Kocaeli Vocational School In Kocaeli University. All of them finished the scales of math resilience, and test anxiety. The students were also requested for the estimated level of anxiety when write to the specific test positions (Núñez-Peñaa At All, 2016; Wilder At All, 2014; Hutauruk, & Piatna, 2016; Ballesteos, R. F. 2003);

- *Open-question,*
- *An exam involving calculations.*
- *Multiple-choice,*
- *Oral presentation,*

When finished the course in which students were joined, students were considered by a multiple-choice and an open-question exam. Matched with the male students, female students informed higher levels of math resilience, and test anxiety, as bigger predictable anxiety in the all test conditions measured (Núñez-Peñaa At All, 2016; Wilder At All, 2014; Hutauruk, & Piatna, 2016; Ballesteos, R. F. 2003)

Moreover, female students didn't display lower educational success than male students in the open-question and the multiple-choice exams.

Keywords: math resilience and trait anxiety, educational success

Introduction

We can say that there are many problems in the learning mathematics lecture, specially, to improve the math skills to be reached. The problems in mastering and studying mathematics lecture are sensible for that mathematics lecture is a lesson which needs students to analyse rationally, methodically and seriously (Yee, 2002). One important aspect of education which requests consideration is active skills such as perseverance, unyielding, self-possessed, and understanding the character of mathematics lecture in social world. In the learning procedure, some students could have practiced disaster and organizing of problems in the learning procedure. The practice is definitely irretrievable, but its negative things can be concentrated by emerging resistant learning abilities (Núñez-Peñaa At All, 2016; Wilder At All, 2014; Hutauruk, & Piatna, 2016; Ballesteos, R. F. 2003).

According to many authors, resilience is the ability of persons to oppose and answer positively to disagreeable situations which are unavoidable, and to get benefit of the disagreeable environments to a chance for personal self-development (Norman, 2000). The Factors Which Cause Resilience Are As Below (Nunez at all; 2016);

- *Impulse control*
- *Optimism,*
- *Causal analysis,*
- *Emotion regulation,*
- *Reaching out,*
- *Empathy,*
- *Self-efficacy.*

The linked issues building the skills of math resilience in relative to mathematics lecture (J Núñez-Peñaa At All, 2016; Wilder At All, 2014; Hutauruk, & Piatna, 2016; Ballesteos, R. F. 2003; Johnson-Wilder And Lee, 2010):

- Growth: "a principle which everybody can grow mathematics abilities and do not trust which some have basic backgrounds without the skills to learn mathematics lecture".
- Struggle: "a revelation which struggle in math is universal even for people who have high-level mathematics skills. A student, who be aware which belligerent with mathematics is a collective thing to do, could tolerance in the face of obstacles".
- Resilience:" it is a positioning to yield a positive answer when met with a negative position in learning mathematics lecture".
- Value: "the awareness which mathematics lecture is a topic which is appreciated and worth learning. The students think mathematics is appreciated, so than the inspiration to learn and to manage to the problems".

Test anxiety may consume cognitive resources thus inhibiting students from thinking on the examination (Benson at all. 1992). Some studies' result has been planned to clarify the connection between test anxiety and educational success. One of them mean to the reality which anxiety may cause students' inspiration and challenge the learning strategies (Núñez-Peñaa At All, 2016; Wilder At All, 2014; Hutauruk, & Piatna, 2016; Ballesteos, R. F. 2003). He stressed which when the essential cause, test anxiety may decry students' performance while taking an exam and the educational success by intrusive by the examination research.
This study focused the next objectives:

- To analyze gender differences in test anxiety,

Research method

Applicants were 94 Office Management Department Students In Kocaeli Vocational School from Kocaeli University. All of students were participated in this study projects lecture during the 2016-2017 educational year. The sample contained 61 female students with a mean age of 18.90 years and 33 male students with a mean age of 19.55 years. Applicants were directed the next tests and scales (Núñez-Peñaa At All, 2016; Wilder At All, 2014; Hutauruk, & Piatna, 2016; Ballesteos, R. F. 2003)

- Test anxiety questionnaire – CAEX (Núñez-Peñaa, Suárez-Pellicionic And Bonoa, 2016): this questionnaire actions test anxiety by relating 14 probable conditions, likert-type scale, extending from 0 (almost never) to 5 (almost always), to show how frequently students practice each of the conditions, which we were concerned in the intellectual features of test anxiety, the linked to concern and anxiety when making for exam or at the time meeting an examination skills was found high level from the authors which cronbach's alpha = .94

In this step, all the scales were applied in laboratory surroundings by the investigators, who administered accomplishment and delivered necessary provision when it was required. Data were collected from students as part of a voluntary activity. At the end of the lectures, students answered two assessments: one of them including open questions and the other with a four-option multiple-choice setup. Incorrect answers in the multiple-choice test were changed -0.25 to minus random predicting.

Findings

Gender differences were analysed by relating independent t-tests to all actions composed: the resilience levels, the anxiety measures, the test-situation questions, and the final exams. On the resilience levels, female students were created to note higher levels of math resilience (t(88) = 5.09, p = .003) and test anxiety (t(88) = 3.14, p = .002), as compared with male students (table 1).

Table 1. T-tests for resilience and anxiety measures by gender and means, standard deviations, p-value.

Scales	Female students	Male students	T-test	P
Math resilience	86.12 (12.10)	62.56 (15.09)	5.09	.003
Test anxiety	27.13 (7.16)	19.07 (8.00)	3.14	.002

In order to anlayse gender differences in math resilience in more deeply, it was applied separate t-tests for each mrs item. As shown in table 2, male and female students differed in the answers to items 2, 8,15 and

23 and (t(88) = 2.36, p = .003; t(88) = 2.16, p = .032; t(88) = 3.14, p = .002 and t(88) = 3.25, p = .004 respectively), with female students recording a higher rate of existence of the conditions described in the items (Núñez-Peñaa At All, 2016; Wilder At All, 2014; Hutauruk, & Piatna, 2016; Ballesteos, R. F. 2003)

Result and discussion

In this paper, we tried to find variances between female students and male students vocational school students in the stated level of math resilience and test anxiety, and the estimated level of anxiety at the time met with precise kinds of test conditions.

According to scale of resilience, female students stated upper levels of math, and trait anxiety than made male students. The results of the study are parallel to some exploration on gender differences in math resilience (Norman, 2000) and test anxiety (Núñez-Peñaa At All, 2016; Wilder At All, 2014; Hutauruk, & Piatna, 2016; Ballesteos, R. F. 2003) and in the none of this study, the gender differences haven't been detected. A more deeply analyse of the results showed which female students informed higher levels of resilience and anxiety.

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Mobile Learning Technologies and its Outcomes

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Abstract
Teachers have used the LEAP resources frequently for the development of all the English skills, although with a greater focus on listening and speaking than on reading and writing. This suggests that a more integrated approach to the development of the different skills could be further emphasised in any future training. A positive indicator about the learning experience was that the vast majority of the teachers consulted suggested that they perceived a high level of student enjoyment when using the LP resources. They observed that majority of students appear to enjoy using LP resources most of the time or sometimes. However, about 10% of students were reported enjoying English only occasionally and around 3% not enjoying it at all. The research concluded that LEAP pupils go through the educational system with a more consistent experience of the development of their listening skills.
Keywords: *Listening, Speaking, Reading and Writing*

Introduction

LEAP resources consist of a variety of audio stimuli including songs, poems, stories, radio programmes. Most teachers from both states liked these audio resources and complemented them with other teaching materials such as books, flashcards, posters and ordinary objects, as encouraged during their LEAP training. In addition, a few teachers have also been producing their own recordings. This means that pupils in participant schools have often been exposed to a good range of audio resources during their English literacy lessons.

Teachers have used the LEAP resources frequently for the development of all the English skills, although with a greater focus on listening and speaking than on reading and writing. This suggests that a more integrated approach to the development of the different skills could be further emphasised in any future training.

Moreover, a few participant teachers, mostly from Jigawa, expressed two main concerns with respect to the content of the audio resources provided. Comments were made about the unsuitability of some topics for rural areas, as well as the difficulty of understanding the intonation and accents of some of the materials.

It seems, therefore that many teachers from both states could benefit from more training on, on the one hand, planning activities that develop skills in a more integrated fashion, and on the other hand, listening strategies and additional supporting materials for a better understanding of the audio content

ICT Competencies

Nowadays, there is an enormous pressure on the schools from the society, and from the media to ensure that students are competent in the area of learning technologies. The majority of the teachers tend to change their attitude and introduce new ICT tools and technologies into their Physics classes. Currently, in most countries ICT is conceived to be a facilitator of development. Many of the productivity gains in the developed world economies are attributed to the impact of ICT. UNESCO Bangkok (2003). Similarly, the ability to utilize and integrate ICT in education has become the norm of the 21st century teacher, as ICT is already an obvious in every sphere of life. The vast amount of information, communication and collaboration available through ICT has given teachers the opportunity in becoming experts in their fields that would satisfy the demands of educational challenges for the 21st century. On the same note, using ICT in education cannot be avoided as it is a high intensity tool that empowers teachers and learners to do new things and existing things and more efficiently.

Even though many countries are struggling to embrace ICT in teaching, in the developing countries, there are no enough evidences of how successful this integration is. The available studies show poor applications of ICT as a pedagogical tool among secondary school teachers. For instance, the study in Kenya by Nyarusy (2006) focused on the application of ICT in teaching and learning in private secondary schools. It was found that lack of financial resources

- the extent to which the audio resources are employed in the English classroom for the development of the four skills (reading, writing, speaking, listening)
- teachers' interest in the audio resources and motivation to use them
- To ascertain any changes in the use of English (listening, speaking, reading and writing) by students and teachers.

English teaching

Overall, observed teachers seemed to be using their English skills during the lessons in a confident manner. It needs to be remembered that, at this level of primary education, English teaching is conducted at national level through the appropriate local languages. Monitoring activities aimed at capturing classroom practice in this respect in order to examine possible changes with the introduction of the audio resources. In Kwara, during both observations, it was recorded that around two thirds of the teachers used English most of the time and the other third did sometimes. Use of English observed in Jigawa was lower during the first observations with almost 20% of teachers using English only occasionally or never. By the time of the second observation, more than half of the Jigawa teachers were using English most of the time. This level of use of English in each state coincides with reported levels of confidence.

Confidence in using English was reported by the observers for the majority of teachers most of the time especially in Kwara. In Jigawa observers indicated a lower frequency of confidence and a higher mix of English and mother tongue use. The importance of examining confidence here is that it can be linked, on the one hand, to teachers' competence, and on the other hand to enjoyment and interest. Both competence and level of enjoyment and interest are factors related to their level of motivation.

Another aspect observed was the enjoyment of teachers using English during their lessons. Evidence gathered shows an increased level of teacher enjoyment in both states after the intervention. Unsurprisingly, this information matches perceived levels of confidence in using English, which were lower in Jigawa. Linked to signs of enjoyment and interest, observers recorded many positive attitudes and behaviours in teaching practices. Teachers were described as happy, enthusiastic, friendly and interested. Observers also commented on teachers' professional commitment, encouraging attitudes to pupils (including praising), attempts to make learning interesting, interactive and participatory (such as role plays).

Classroom observations also noted that more than 90% of the teachers used additional materials such as flashcards, posters, pictures, charts, poem books and textbooks to support activities with the LP audio resources. This practice reflects a successful mix of their traditional teaching resources and the new audio content. In addition, an observer in Jigawa noted an improvised and creative use of stones and crop seeds. However, it was also pointed out that in a few cases there was a need for more materials during the English lessons. Again, it seems that some teachers need support with resource use and integration.

The following were highlighted in the data as noticeable aspects of the teaching practices among the group of teachers who were monitored:

- Teachers show creativity in the use of resources.
- Teachers encourage pupils to learn and involve them in the lesson.
- Teachers make learning interesting using English in an interactive and effective manner.
- Teachers look happy, committed and enthusiastic.

How much of this can be attributed to the project activities is hard to confirm with the limited data but there are definitively positive signs of engagement with and enjoyment of the new audio resources by the teachers.

1.1.1 English learning

Students' use of English, their level of confidence in using English, as well as the English skills they can develop in the classroom, were also monitored.

A comparison of the data collected during the first and second round of observations shows a noticeable increase in the number of students actively using English in both states. However, in around a quarter of the schools visited, only a few students seem to be using English during their lessons. In both states, classroom opportunities to use English are centred on writing, reading and speaking practice with less emphasis on listening.

An encouraging sign is the fact that observers noticed in both states a higher percentage of classroom activities where students had a chance to speak in English. This was a clear difference with the findings in the baseline study where speaking was recorded as the most challenging skill. There is, however, evidence that a few pupils, especially in Jigawa, never practice their speaking (Figures 21 and 22).

Figure 1: Frequency of students in Kwara speaking English during the lesson (Monitoring observations)
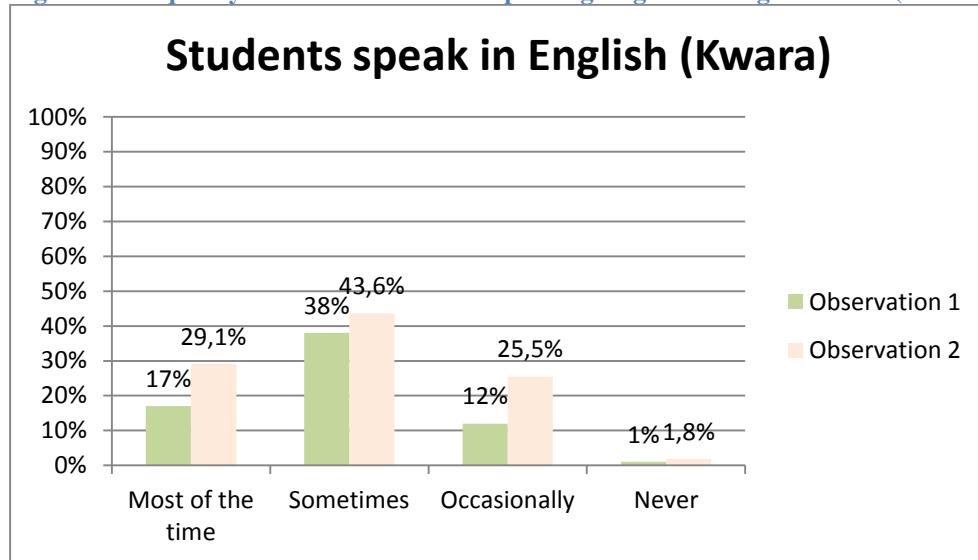
Figure 2: Frequency of students in Jigawa speaking English during the lesson (Monitoring observations)
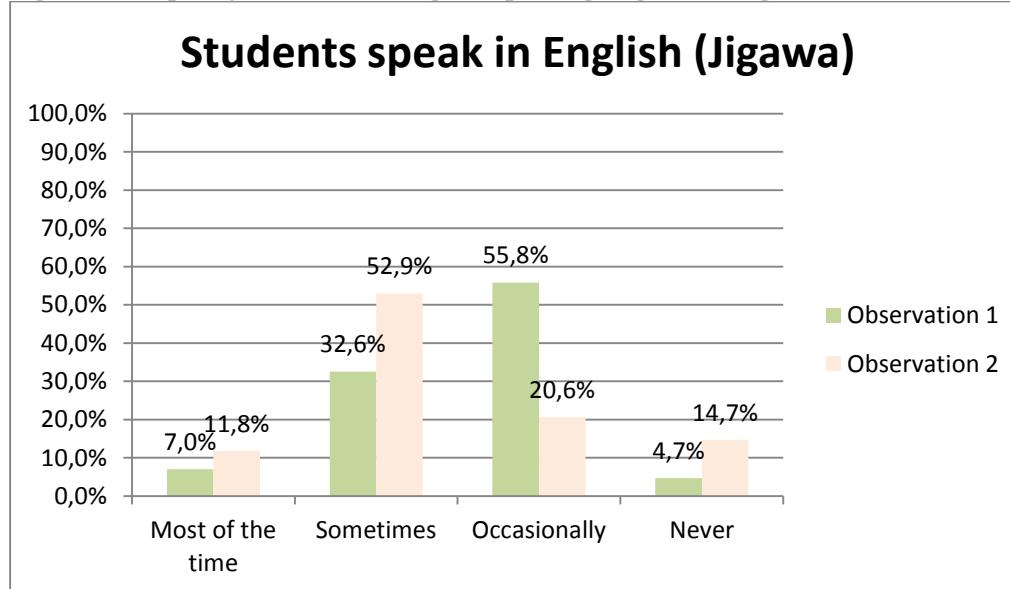
Pupils' reported level of confidence in using English was very similar in both states. Classroom observations indicated a slight increase in the confidence level of the students from the first to the second round of observations. Results show that almost a quarter of the students seem confident most of the time and that around half of the students feel confident using English sometimes, the remaining quarter of students were only confident occasionally with a minority who never seemed confident.

Classroom observers and teachers in both states mentioned a number of positive aspects apparent in students' experiences of and attitudes towards learning English in the LEAP schools:

- Pupil participation is encouraged and seems to be increasing.
- Pupils are eager to imitate the teacher's and audio resources pronunciations.
- Pupils are happy, active, interested and enthusiastic during the lesson (e.g. they dance and sing along).
- Pupils show signs of improvement in their speaking and listening skills.
- Pupils are eager to learn and are learning faster.
- Pupils are responsive and ask questions about the audio resources.

A positive indicator about the learning experience was that the vast majority of the teachers consulted over the phone suggested that they perceived a high level of student enjoyment when using the LP resources. Observers confirmed that the great majority of students appear to enjoy using English most of the time or sometimes. However, about 10%

of students were reported enjoying English only occasionally and around 3% not enjoying it at all. Consultation with pupils during the evaluation process was an attempt to find out directly from them their preferences and experiences learning English particularly with the LP.

1.2   Findings from final evaluation

In this section, there is a discussion of the findings from the final evaluation activities. These activities focused on subsets of the intervention and control groups in each state. As has already been explained, Head teachers and pupils were also consulted in the evaluation process in addition to teachers.

1.2.1   Use of audio equipment (Life Player)

By the end of the project, researchers noted that three quarters of teachers in Jigawa and 88% of teachers in Kwara were using the LP and that in most instances the LP worked fine during the lessons (81% in Jigawa and 92% in Kwara). The two main problems reported from those not using the unit were that the LP was malfunctioning (13 teachers) or the materials were not relevant for the lesson (12 teachers).

When teachers were asked about frequency of use, the great majority was making a daily or weekly use of the LP in class, only four teachers in Jigawa admitted to not using it at all. From their responses to the dialogues all seem to need more training but it is worth noting that two of them were new teachers.

During the evaluation process observers noticed teachers' different levels of familiarity with and use of the recording functionality of the LP. These were overall quite good. The level of confidence in teaching with the LP perceived by observers was higher in Kwara, where three quarters of the teachers seem confident using the device while only 65% of the teachers in Jigawa. One observer commented, for instance, on the quality of the audio resource produced by a teacher using the LP explaining that "the teacher's self-recording was loud and clear". However, when teachers were asked how confident they felt, the results were higher. They showed that 10% more of the teachers in each group declared to be confident using the LP. But, at the same time, 15.7% of Jigawa teachers and 8.3% of Kwara teachers admitted not feeling confident at all.

During the interviews, a few Head teachers from each state felt that teachers needed more training on how to use the LP and that, perhaps, some extra sessions should be organised for them. This coincided with the comments from a few researchers with respect to teachers' confidence navigating and operating the unit. One aspect that researchers had noticed was that only a minority of teachers in Jigawa and a third of teachers in Kwara were recording students during their lessons. One researcher advised that "teachers need more support on how to operate and use the machine especially recording from radio". When teachers were asked about the difficulties they are experiencing with the LP, the main problems highlighted were charging it, navigation, level of sound and recording. Some of these problems are related to training and user confidence but others to the malfunctioning of the devices. Interestingly, all teachers in Kwara and 90% of teachers in Jigawa consider that the training on how to use the LP was enough to start using it but the majority of them suggested that they need further technical and pedagogical support. , On the one hand, those teachers who requested more support, explicitly mentioned more technical support in how to repair the LP, how to navigate it, how to make recordings (39% of teachers in Jigawa and 22.4% in Kwara). On the other hand, teachers also mentioned that they need pedagogical support in using the resources and designing new activities, how to make teaching more interactive and effective as well as understanding pronunciation of some words (44.4% of teachers in Jigawa and 45% in Kwara). A few teachers referred to the useful support they have received from the SSOs when problems with the LP arise.

Observers logged the following technical problems: the sound not being loud enough, the recording facility not working, and faulty charging options. One Head teacher from Kwara indicated that "the LP needs to be supported by a loudspeaker to address large audiences". A bit worrying was the comment of one Head teacher from Kwara who referred to having had a replacement that was also faulty.

Finally, it should be stated that there was a lot of interest among those (control) schools without the Life Player. Head teachers and teachers suggested that other teachers and schools should have the LP. At the same time, a few teachers also mentioned other devices they already use and made suggestions about what they would like to use in their teaching. Currently, along with the Life Player, a few intervention teachers —some of whom are not confident using the LP— claim to be using a variety of devices already for listening skills, including their mobile phones, radios and tape recorders. The eLearning Africa 2012 report highlighted that the radio is currently "the most widely accessible ICT option across Africa […] continues to play a vital role in the provision of good education" (Kamlongera and Yasin, 2012:36). A few control teachers also referred to using audio CDs and computers.

Actual use of these technologies will be better understood by looking at the extent to which audio resources are exploited in the classroom. In terms of what technology they would like to use, intervention teachers from both states

mentioned the radio, phones and whiteboards as most desirable, in that order, and above computers and televisions, while control teachers wish to have radios, computers and tape recorders.

1.2.2   Use of audio resources

As in the baseline study and the monitoring observations, the evaluation paid attention to the use of specific learning resources in the English literacy lesson.

Classroom observations revealed that more than half of the teachers in Jigawa and more than three quarters in Kwara are using additional materials to support English learning activities. During interviews with Head teachers and from the notes of the observers, it became clear that in terms of English teaching resources the majority of schools have books (textbooks and dictionaries), around half of them also enjoy notebooks and visual materials such as flashcards and charts, and only a few schools also have some posters, and other basic stationary to support learning. Heads highlighted that teachers would benefit from having more teaching aids. In this respect it is important to point out that observers in Kwara noted a higher diversity of teaching aids during the English literacy lessons of the intervention group. In addition to the mentioned common resources, teachers were seen using a hoe, flowers, leaves, a toothbrush, and other real life objects. Bringing in this variety of resources could be linked to the teaching methods and ideas explored during the LEAP training.

More specifically, the evaluation studied the use of audio resources. More than 90% of the teachers in the intervention groups acknowledged that the LP audio resources were useful for their lessons and they like them. In fact, the great majority of teachers in the control group were interested in having some audio resources and being trained in how to use them. In particular, they mentioned having audio files of stories, songs, poems, radio programmes, but also being able to produce their own recordings. This is exactly the type of content and functionality that the LP can provide. However, when intervention teachers were asked whether the audio content provided was relevant to their context, a third of teachers in Jigawa and a few in Kwara disagree or were not sure. A teacher in Kwara commented that some topics are not relevant for rural areas but no specific information was collected about which particular resources were unsuitable.

Other difficulties with respect to the audio resources were logged in the data collected for the evaluation of the project. Researchers noted that the LEAP audio resources seem challenging for many of the English teachers in Jigawa (43%) and a few of the teachers in Kwara (13%). Similarly, these researchers indicated that during the lessons observed, the resources seemed too difficult for many students, for around 48% of the students in Jigawa and for 23% for students in Kwara. When teachers were asked about this, half of Jigawa teachers concurred with the observers' perception of difficulty for students while Kwara teachers believed that they were not as challenging. In relation to this, one researcher in Kwara commented that, for many pupils, difficulty in understanding the audio resources translated into not paying attention when the LifePlayer was used. One of the difficulties highlighted was the intonation and accent of the English voices in the audio recordings. Although the majority of teachers and learners could cope with the level of difficulty of the audio resources provided, this is clearly an aspect that requires attention. In this respect a few suggestions were made by Head teachers and teachers as well as classroom observers. Head teachers pointed out that they are aware of some of these difficulties. For instance, one Head in Kwara stated that "some of the songs in the Life Player are not clear and understandable. You have to provide your own songs to suit the lesson". In fact, this is what many teachers are already doing; they are using the recording facility to produce their own materials which they feel are more accessible to their pupils. Teachers also made references to the audio resources that were in Hausa and Yoruba and explained how these complement and support the English materials very well. Researchers indicated that there is room for adding more Nigerian voices to those resources. Some teachers indicated that pupils can get used to the voices with their additional explanations, although it was also suggested that it would be helpful to have practical complementary demonstration of stories on video.

Final observations noted a contrast between teachers with the Life Player and those who did not have the device and the audio materials. Use noted in the observations reflects a clear increased use of audio resources by intervention teachers and emphasises the lack of these for those not participating in the LEAP programme (Figure 23). When control teachers were asked about this, more than 70% of them from both states confirmed that they never use audio resources in their lessons (see also baseline data, Figure 3).

Figure 3: Proportion of teachers never using audio resources (Evaluation observation)
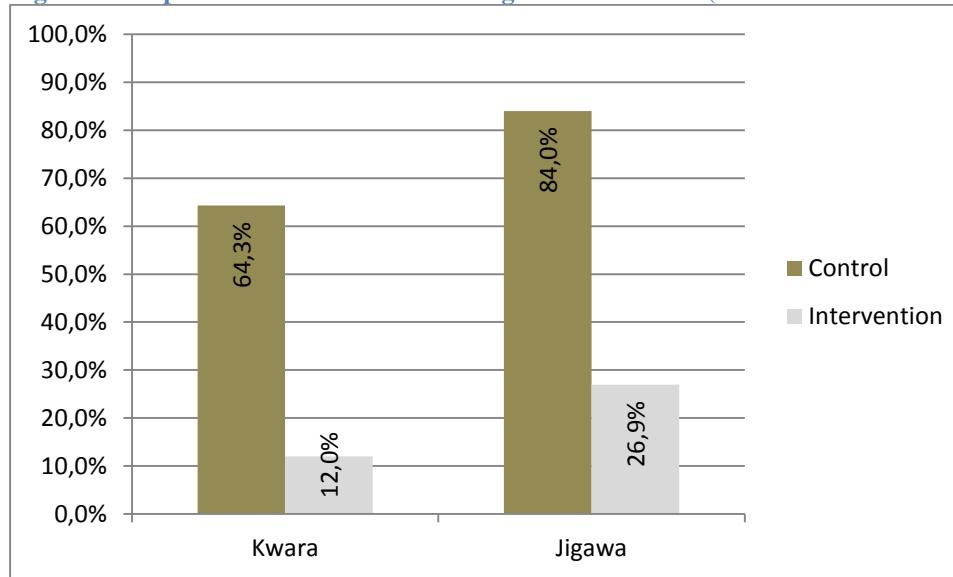
The evaluation of the project looked precisely at the extent to which the language skills were practised using the audio resources provided. Classroom observations recorded a noticeable difference in the use of the LEAP audio resources in each state (Figures 24-27). While observers in Jigawa noted consistently higher levels of exploitation of every audio resource for the development of each of the language skills, in Kwara, observers indicated a more limited use of the audio resources, focusing on the practice of listening and speaking skills with no obvious links to reading and writing. It should be noted that the evaluation was based on one observation of a subset group and that evidently, activity development would vary in the whole teacher population and from lesson to lesson.

Figure 4: Teacher use of the audio resources to develop listening skills (Evaluation observation)
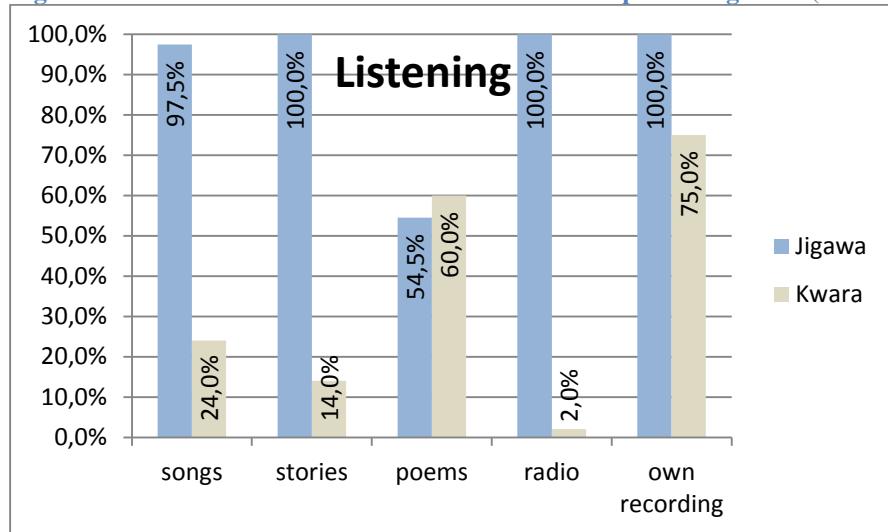
Figure 5: Teacher use of the audio resources to develop speaking skills (Evaluation observation)
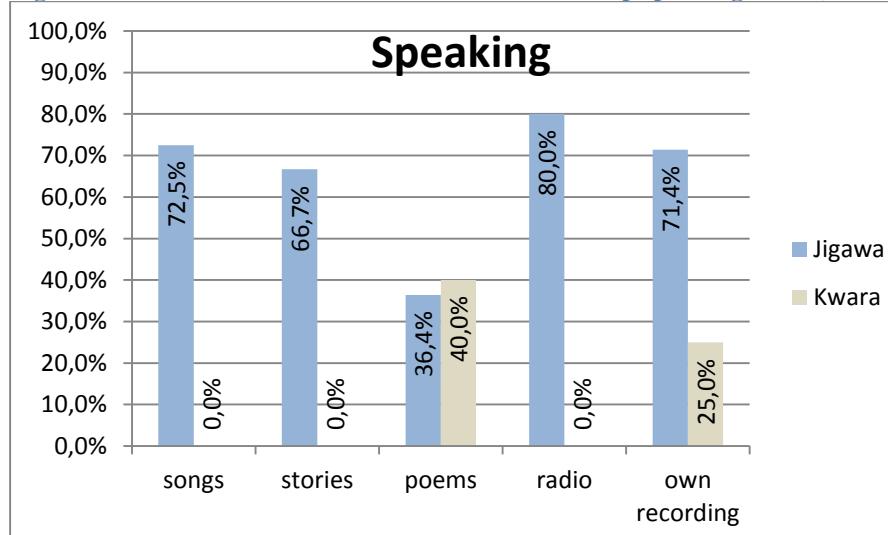
Figure 6: Teacher use of the audio resources to develop reading skills (Evaluation observation)
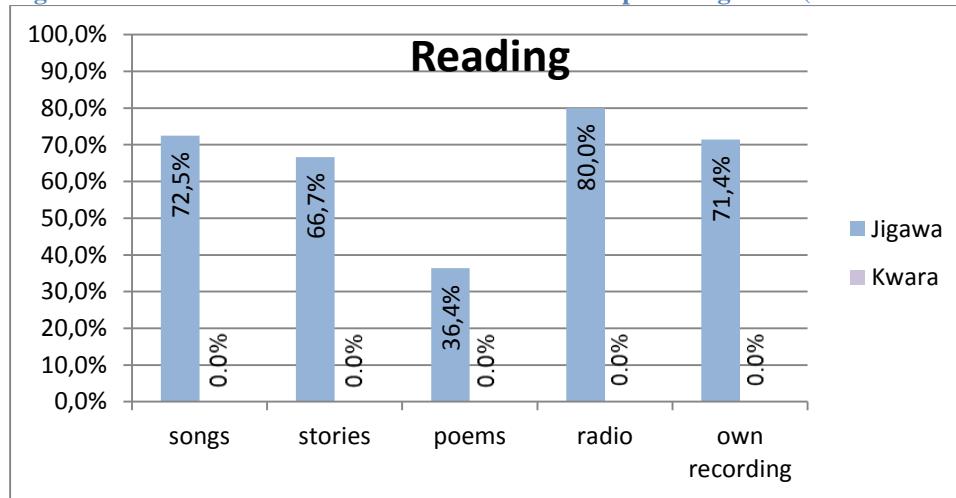
Figure 7: Teacher use of the audio resources to develop writing skills (Evaluation observation)
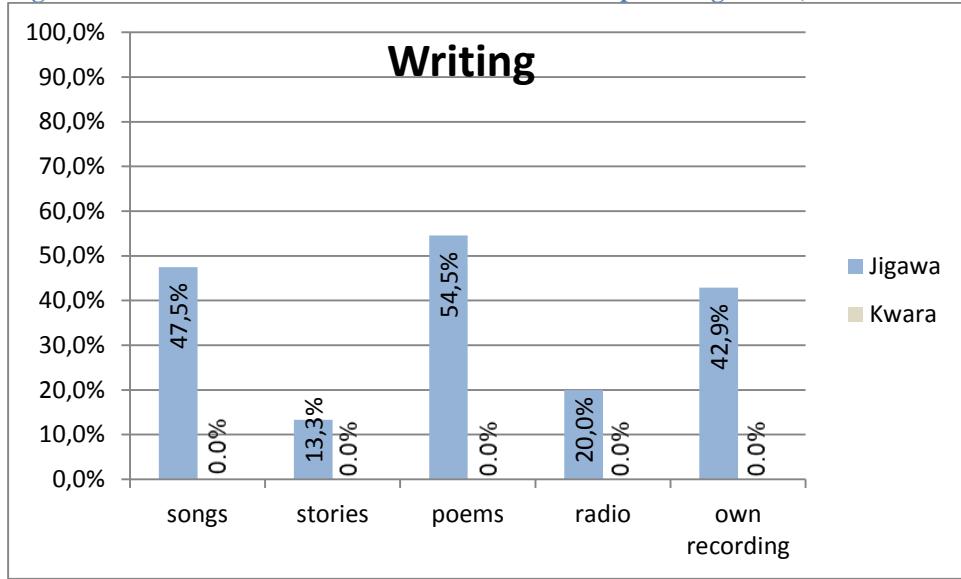
Nevertheless, observations noted that the great majority of students have opportunities to speak, write and read in English during the lesson at least sometimes, so all skills are practised but not necessarily with the use of the audio resources. What is worth noting from the data is the level of student engagement. In both states, observers indicated higher numbers of children from the control groups not engaging in these activities at all.

1.2.3   English teaching

The evaluation results suggest that, in general, English literacy teachers are confident teachers. Only a minority of Head teachers were unsure about this, or thought that the teachers were not confident. More specifically, one Head from Kwara attributed teachers' confidence to the LEAP project. Classroom observers indicated very high levels of confidence, particularly in Kwara were English is much more used as a teaching medium than in Jigawa. In Jigawa, more than 10% of the teachers in the control group were perceived as lacking confidence. In both states, half of teachers lacking confidence were neither using additional resources with the LP nor stimulating interaction beyond whole-class work.

In fact, teachers' levels of confidence noted by observers correspond with the levels of enjoyment teachers displayed during the lessons. The effects of this motivation should not be underestimated. The research literature argues that motivated teachers have a positive influence on learners and learning, while low morale teachers could impact negatively on them. Classroom observations confirmed results from another study about a high proportion of Nigerian teachers being intrinsically motivated (Christopher, 2012). This research indicated that in most primary school, teachers are motivated and are creating an environment that is also motivating and engages students in active learning. Indeed, motivation also affects attitude, which in turn, is crucial for the acquisition of new knowledge and skills and affects performance and teaching behaviour. For instance, in our investigation, most teachers from all groups seem to be eliciting students' knowledge of the topic, a sign that they are opening up to a dialogic pedagogy. Many of the teachers were also described by observers as happy, friendly and enthusiastic. In particular, some control teachers were described as communicating in interesting ways with learners such as telling them jokes, clapping after right answers, showing them how to write in the air or the sand. But, at the same time, researchers' notes from control schools suggest more instances of teaching through repetition and copying rather than by interacting. Several researchers described this type of teaching as teacher-centred, one wrote down that teaching "focused on chanting after the teacher and memorization" echoing the findings of other studies in primary education in Nigeria that confirm "the pervasive use of teacher-led recitation, rote and choral response" (Hardman et al. 2008:61).

In relation to this, intervention teachers indicated that the LEAP training motivated them and, except for a few teachers in Jigawa, they all said that they enjoyed using the LP resources. For some teachers this motivation could be linked to their awareness of how the materials are supporting their own professional development. For instance, a few of them articulated the benefits of the project for their own performance such as competence in pronunciation, understanding other accents, expanding knowledge of unknown stories, or being more confident with technology. In their own words,

"I gained some knowledge from the LifePlayer on how to teach pupils to pronounce alphabets"

"I understand more on how to teach in the class and I trained other teachers on how to use the LifePlayer. I practice at home before coming to school."
"Some of the topics in the lesson plans were difficult for me before but with the arrival of the life player, I find them easy."
"It enlightens me on the use of other appliances apart from the life player"

Teachers believe that the LEAP training also helped them to make the class more interactive, however observations did not register any noticeable difference with the control groups. For all teachers, there is evidence of some variations in the class dynamics, although the great majority of the classroom activities are centred on whole-class work, which is typical of this context (Abd-Kadir and Hardman, 2007; Adekola, 2007). In addition to whole-class work, observers reported that around half of the teachers were also doing individual work, with small group and pair work being much less common. Less than a quarter of teachers were doing activities with all these types of arrangements, and most of those who did, were observed including games in their English literacy lesson. Although the use of the LP resources does not seem to affect variety of grouping arrangements, only notes from observations of intervention schools included comments about pupils performing role-plays and acting out stories and songs. These activities relate to the teaching methods practised during the LEAP training.

Figure 8: Whole class practising listening skills using the LifePlayer, Kwara

Head teachers believe in general that the LP resources can support teaching. Some teachers themselves reported being able to prepare more effectively before teaching with the help of the LEAP resources. This finding has a special significance as other studies have reported the lack of preparation by primary school teachers before their lessons (Adekola, 2007). In fact, part of the LEAP training was directed to the preparation of lesson plans. Still, the data collected for the evaluation shows some confusion among teachers and Head teachers about available guidance on the content and the lesson plans. It seems that some of them were not aware of the contents of the LP manual and the information that suggests how to link the audio materials with ESSPIN lesson plans. Kwara researchers reported that some teachers did not seem to know how to blend LP lesson plans with ESSPIN lesson plans. Some teachers and Head teachers claim not to have seen those. It seems that around 20% of the teachers did not make this connection. Researchers made a specific reference to the importance of referring to the lesson plans when teaching letters and sounds. The result, as they point out in their logs, is that teachers "are teaching the LifePlayer lesson and English lesson separately". Researchers suggested that all available supporting materials should be distributed and perhaps further training is needed. It seems that this is one aspect of the cascade training that was not completely successful.

1.2.4 English learning

With respect to student learning, observers described learners in all the groups as being interested, eager to learn, attentive and responsive overall. This was also emphasised by Head teachers and teachers from both states who noted that pupils have an interest in learning English and the great majority seem confident with the progress they saw pupils were making at school. In particular, they mentioned that they could appreciate pupils' development when they see that they are able to participate in the lessons by speaking, singing, and interacting in English, and read simple sentences on their own. Moreover, they described other successful initiatives in schools that help to promote English such as getting pupils involved in district school competitions or encouraging the use of English across the school.

Pupils' comments on the type of activities they like to do in their English class were not dissimilar between the groups (control and intervention) within each state. There were more noticeable differences between responses from students from Jigawa and Kwara (Figures 29 and 30). In Jigawa almost half of the pupils in each group specified that they did not like when their teacher talked, although more than three quarters liked other listening activities such as listening to stories (around 88%) and almost all of them (around 93%) enjoyed writing activities. In Kwara, on the other hand, the great majority of pupils (more than 92%) indicated that they enjoyed listening to their teacher, but the activity that attracted more likes from them (98%) was reading books. At the same time, most of these Kwara pupils indicated that they liked responding to the teacher (99%) and listening to stories (92%). Speaking and interactive activities such as learning with peers overall were much less liked in Jigawa than in Kwara, although Kwara pupils rate less highly playing games.

Figure 9: Extent to which pupils like activities in their English literacy lessons (Evaluation student visual questionnaire, Jigawa)
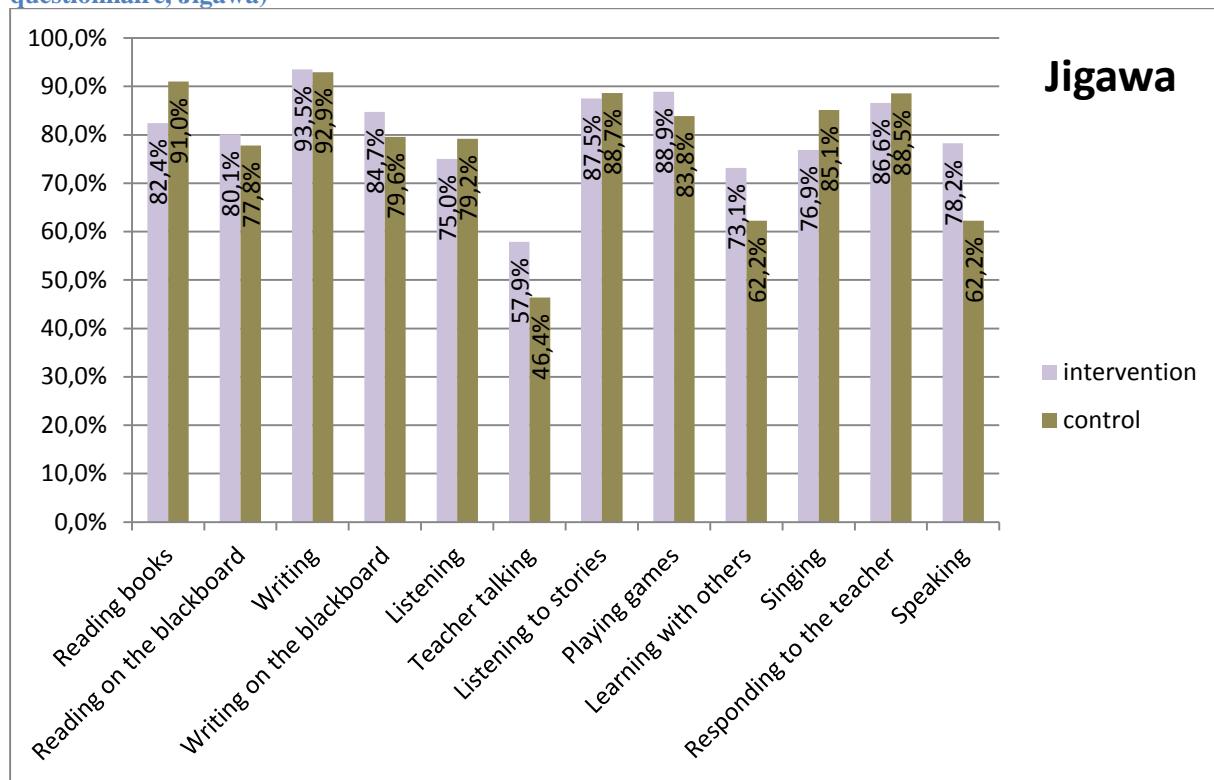
Figure 10: Extent to which pupils like activities in their English literacy lessons (Evaluation student visual questionnaire, Kwara)
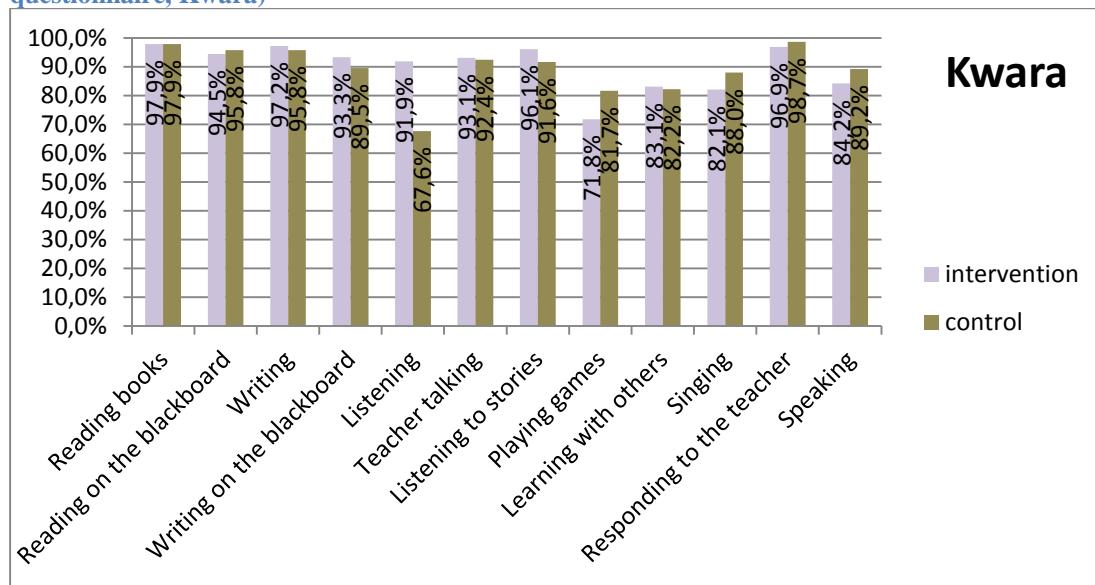
In fact, half of the teachers suggested that the most difficult skill for pupils is speaking. Evidence from the observations during the evaluation process reveals that by the end of the project, there was an increase in the frequency of pupils speaking English in class together with an indication that all were speaking at least occasionally. In Jigawa, however, although more pupils were identified as speaking in English most of the class time, there is still a similar number that were identified as never speaking in English during the lesson. In control groups, frequency of speaking in English was in similar pupil numbers, although percentages of pupils not speaking in English at all were slightly higher and of pupils speaking most of the time were slightly lower. So there is an indication that overall intervention students are speaking more. One aspect of the speaking ability by the pupils using the LEAP resources was highlighted by one Head teacher in Jigawa who commented that the audio is helping them with pronunciation, "Before now, pupils had no understanding of pronunciation of words but now it has improved".

Figure 11: Number of students using English during English literacy lessons (Evaluation classroom observations, intervention groups)
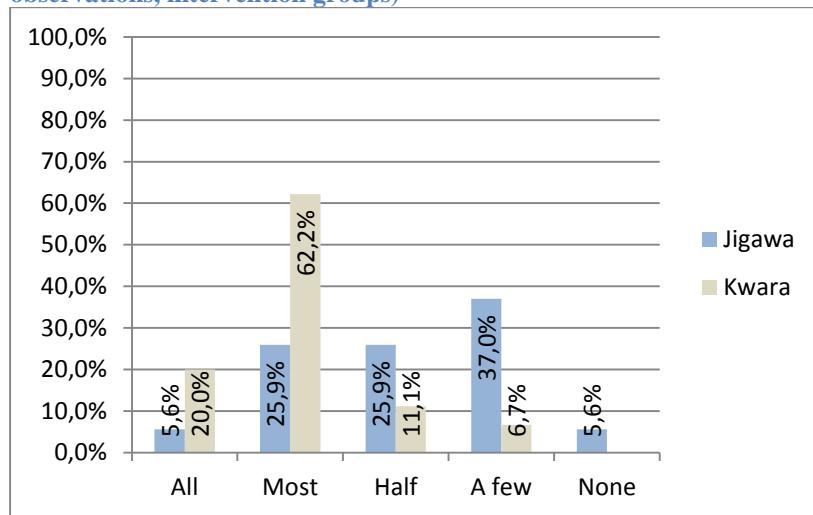
When pupils were asked to rank their preferred activities in their English class, by far the most popular activity for pupils from both states was reading books. This preference is quite surprising considering that English textbooks have been identified as too difficult for the children in various national studies of classroom teaching and school-based research and of development programmes (Adekola, 2007). In fact this preference makes sense when we look at the opinions of Head teachers and teachers. Heads from both states and Kwara teachers agreed about reading being by far the most important skill pupils need to develop, and it seems that they are probably transmitting this message to them.

A recent study by Okebukola et al. (2013) on Nigerian primary school children's motivation to read highlights the decisive role of teachers. They also mention previous research that suggests a number of motivational strategies such as reading aloud, reading for enjoyment, discussing aspects of the book and the narrative but also engaging in storytelling. In fact, all this links very well with the development of listening, speaking and writing. Only teachers in Jigawa ranked speaking as most important. Significantly, very few Heads and teachers suggested all skills were equally important and complementary, and most of them were in Jigawa.

In Jigawa, the second most preferred activity by pupils was listening to audio resources in English. In Kwara it was more specifically listening to stories as well as speaking in English through singing (in the case of the intervention group) but writing on the blackboard (in the case of the control group). Interestingly, Kwara Head teachers and teachers indicated that speaking and writing were also somehow important, but that listening was much less so. LEAP pupils who indicated a dislike for listening activities tended to be from specific class groups. They did not choose any of the listening activities as a preferred option which suggests that their teachers could benefit from training in the development of listening skills. The literature on language skill development suggests that there is a perception of listening as a passive activity. Teachers should understand the importance that listening plays in teaching and learning. Perhaps this is an aspect of the training that could have been emphasised more. Research has indicated that "if the teacher pays attention to helping the child to listen better, what he/she would be doing inadvertently would mean strengthening the ability of the child to learn better" (Obiweluozo and Melefa, 2013: 265). What is worth noting here is that Heads in LEAP schools still consider listening as the least important of all the skills despite the fact that the great majority of them had a positive view about the project and believed that it could make a difference for teachers and pupils.

In the results from the pupils consultation there are no significant differences between the perceptions of the pupils in classrooms with the LP (intervention group) and those who do not have it (control group) with respect to the language skills they like or dislike. There are more marked differences between the preferences of the pupils from each state. It seems that as far as students are concerned, their classroom experiences are very similar with the audio resources and without them. The only remarkable result was found in the data from Kwara where listening activities were indicated as something they did not like by almost a third of students from the control group, compared to only 6% of those in the intervention group. So in this state, a difference appears in the listening experience of those who have access to the LP resources and those who don't. Pupils using the LEAP audio showed a higher level of satisfaction in developing their listening skills.

More specifically, the great majority of the intervention teachers believe that their pupils enjoy listening to the LEAP audio resources and many of them perceived a feeling of happiness in the pupils particularly when they sang the songs. One researcher from Kwara reported on this by explaining that the pupils and the teacher were happy and confident singing songs together when played with the LifePlayer. The positive effects of songs in language learning are actually well documented in the literature. Studies have explained that songs can stimulate pupils making the learning experience more enjoyable (Millington, 2011), increase their confidence (Parker, 1969), and foster "a relaxed but motivating and productive classroom atmosphere" (Fonseca-Mora et al., 2011: 109). A teacher from Kwara claimed that the audio resources help children's interest and motivation and to keep them alert, "pupils do not sleep in class during the use of the LifePlayer". Heads from intervention schools also made references to the benefits of the LEAP initiative for both teachers and pupils. Some Heads claim that it increases their interest, enjoyment and motivation. Heads in Kwara agreed with teachers in that students are attentive and are actively contributing during the use of the LP in the lesson, and that the resources encourage them to attend their lessons regularly. Control teachers also indicated that students seem to enjoy learning English, but evaluation observations recorded a higher level of student enjoyment of the English lessons in the intervention groups.

Figure 12: Teacher singing outdoors with her class using the LEAP resources, Kwara

Moreover, teachers using the LP resources commented that these have helped produce changes in the attitude of pupils, in particular, that pupils feel they can participate more. When asked, all intervention teachers in Kwara and three quarters of the teachers from Jigawa confirmed that students are able to join in the English activities. Interaction was repeatedly mentioned by these teachers as an evident positive change, although observations confirmed that this is mostly whole-class or individual to teacher interaction rather than actual peer interaction. Indeed, one teacher from Kwara explained that when the audio resources are used, pupils "pay attention and are aroused [sic] and ask questions about who is speaking in the LifePlayer, what is been said etc.", another one stated that learning was happening because "when I ask pupils what they have learnt from the life player, they tell me some new words".

Finally, pupils in the intervention groups were identified by observers as using English more and being slightly more confident most of the time and with fewer pupils never looking confident (Table 12).

Table 1: Perceived level of pupil confidence using English (Evaluation classroom observations)

	Kwara		Jigawa	
	intervention	control	intervention	control
Most of the time	56.0%	48.3%	16.7%	7.7%
Never	4.0%	6.9%	13.0%	34.6%

Nevertheless, teachers, Head teachers and researchers also pointed out that these pupils are still quite young and easily distracted, do not have access to or support with English outside school and this is just their initial contact with the English language.

2   Conclusions and recommendations

2.1.1   Recommendation 4 –Develop a platform for the exchange of audio resources and practical activities around them

There are indications in the findings of this project that some teachers are keen to use a wider range of resources and that they believe that audio and audio-visual materials could enhance their teaching and thus their pupils learning experience. In fact, LEAP teachers have been creating audio for teaching purposes with the recording facility in the LP as well as with their own mobile phones.

It would seem pertinent that local resources produced are captured and shared. At the moment, the focus is on the use of resources provided by the BC and on individual production of audio and activities for English teaching. The BC and ESSPIN could help teachers build a platform for experimentation with cooperative audio material and activity

production among clusters of teachers. This could initiate a move from working in isolation to learning from each other fostering a culture of peer support and sharing. It will be important to create an appropriate space (physical or digital as appropriate) where the teaching outputs and ideas can be deposited by teachers.

Although these exchanges could be initiated very locally within a state, they could be later transformed into a national network of teaching resources created by teachers and for use by teachers, and eventually move on to a cross-national audio resource bank in Sub-Saharan Africa. Involving teachers actively in the development of these resources will contribute directly to the teacher standards of professional engagement set out by the National Commission for Colleges of Education (Kuiper, 2010).

2.1.2 Recommendation 5 –Extend the LEAP activities to other grades

LEAP schools in Jigawa and Kwara should explore the possibility of allowing English literacy teachers in grades 4-6 to make use of the LP. In some schools, it might be possible to start making an optimum use of the LP unit by a sharing system where various teachers of different grades can have access to the device. Such a productive full use of the available technology would imply a number of adjustments:

- The BC together with ESSPIN and, if possible with some grade 4-6 teachers, should identify available audio resources, map them to the appropriate curriculum levels and distribute them among the relevant teacher population.
- Current LEAP teachers would need to train upper grade teachers in their school on the use of the LP.
- Current LEAP teachers, with the support of the SSOs or SSITs as appropriate, could mentor upper grade teachers in their school on the pedagogies around the use of the audio resources and the design of lesson plans. Teachers of upper grades should observe lower grade teachers on how to use the audio resources in class.
- Current guardian agreements for the LP should be transferred from being the responsibility of the teacher to being kept by the Head teachers as part of the general school equipment.

Integrating audio in other grades would ensure that LEAP pupils go through the educational system with a more consistent experience of the development of their listening skills.

2.1.3 Recommendation 6 –Extend the LEAP activities to other public schools

There is no doubt that there is a need in Nigeria for training and use of audio materials for English literacy lessons. The BC and ESSPIN should consider ways in which it will be feasible to facilitate a progressive roll-out of the LEAP project activities to other public schools within the states of Kwara and Jigawa as well as in other states. The success of a national programme that supports audio resources in the classrooms will depend on the factors highlighted in this report. Before such an expansion of the programme takes place, it is advisable to consider and work on the five previous recommendations as those activities will constitute a solid ground for sustainable and effective operations.

For influencing the teaching of English at such a large scale it will also be appropriate to focus on pre-service teachers by coordinating with the appropriate training programmes to ensure that newly qualified primary teachers are trained in the effective introduction of audio resources.

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Modeling Vocational Blended Learning Based On Digital Learning Now Framework

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Abstract

The flexibility of blended learning in implementation makes it compatible to various models of the education system, as well as applied to the learning system of vocational education. Politeknik Negeri Bali (PNB) is a vocational institution in Indonesia. The research had purpose to develop a Vocational Blended Learning (VBL) model in PNB based on Digital Learning Now framework. Research and development approach implemented in this study. Data collection tools were interview, observation and focus group discussion with selective participants. Data analysis was done by data reduction, data display and conclusion drawing. On exploratory stage, the existing learning method was full face to face learning. 78,75% courses in PNB used e-learning as supported media. Development stageredesigned the learning method into Vocational Blended Learning model. Focus group discussion and experts assessment was done in evaluation stage. The research found the considerations for determining the appropriate instructional models for VBL. VBL model required resources, infrastructure and curriculum as inputs.It can be concluded that vocational education can organize blended learning with VBL by applying rotation instructional model and supported by teacher-developed content. For further research, it can measure the student interest level and the effectiveness of VBL implementation for the summative evaluation.

Moving Educational Preparation Programs To Authentic Settings: Lesson Learned From The Field

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Abstract

Preparing educators to face the challenges of today's K-12 classrooms requires collaboration and partnerships with local education agencies. The Council for the Accreditation of Educator Preparation (CAEP) requires evidence of effective partnerships and high-quality clinical practice in order to ensure teacher preparation programs are producing competent and compassionate educators,

The authors will describe the collaborative process created between a university and local school district to construct a mutually beneficial clinical partnership. The results of this partnership will be analyzed through the perspective of multiple stakeholders. This includes university personnel, preservice teacher candidates, cooperating teachers, and K-12 students. This information is intended to assist other university personnel in creating effective partnerships, identifying critical variables for success, and addressing potential obstacles for implementation. The qualitative data analysis will include information from stakeholders from multiple program areas including middle level and AYA social studies, mild/moderate intervention specialists, moderate/intensive intervention specialists, and adolescent and young adult language arts.

The Study

The objective of this study was focused on the design and implementation of a school-based youth mentorship initiative in an urban school district. Stakeholders researched the program impact on mentees' academic performance and socio-emotional attitudes? Drawing from the theoretical framework provided by Foster and Nosol (2008) university faculty designed and implemented a school-based youth mentorship initiative that mobilized community organizations to meet the needs of some our nation's most academically vulnerable youth. In this model, Foster and Nosol (2008) identify the benefits of placing well trained education majors into Pk-12 schools to help our nation's most vulnerable students and to lend support to the extra-ordinary efforts of urban teachers working in some our most disadvantaged schools. Foster & Nosol (2008) assert this model not only benefits Pk-12 students, teachers, and administrators but provides an authentic and meaningful laboratory in which university faculty can work alongside teacher candidates in teacher preparation.

In the academic year 2016-17, a school-based youth mentorship collaborative was implemented to target academically vulnerable students, as identified by the school district, in grades 5, 7, 8, 10, 11, & 12. Start-up funds were provided by a competitive state grant focused on bringing schools serving a high percentage of economically disadvantaged youth together with trained and committed community mentors from local nonprofits, the faith-based community, and the business community (Ohio Department of Education, 2015). Outside of these funds, partner organizations leveraged and committed additional resources into this project by helping to recruit, process, and train mentors, provide instructional resources and supplies, and in helping to ensure the overall success of the collaborative. This project was designed and organized according to research-based practices in all phases of establishing and maintaining effective youth mentorship initiative (MENTOR, 2015). Community-based mentorship centered on promoting five research-supported principles amongst academically vulnerable urban youth. These principals included: Goal setting, building character, developing multiple pathways to achievement, building a sense of resiliency, and believing in a positive future.

Goal setting is commonly regarded as an important success strategy that affects individual performance and enhances achievement. Having the experience and skill set to appropriately set goals can lead to higher achievement, better performance, higher levels of self-efficacy, and stronger ability to self-regulate (Moeller, Theiler & Wu, 2012). Students who set their own goals and evaluate their own progress perform at higher levels than students who are not actively engaged in the process (Moeller et al., 2012). In this youth mentoring program, mentors were oriented and acclimated on the SMART goal process to help their mentees create their own college and career goals, and support them as they work towards goal fulfillment (Rhodes, Spencer, Keller, Liang & Nolan, 2006).

Character is a set of abilities, skills or strengths that can be taught, practiced and learned (Tough, 2012). Once learned and ingrained, they become traits, or behaviors that a person engages in automatically. Some examples of these character traits are self-control, willpower, motivation, conscientiousness, self-discipline, perseverance, determination, and optimism (Duckworth, Peterson, Mathews & Kelly, 2007; Ivcevic & Braccett, 2014; Tough, 2012).

Strong mentoring programs work with students to identify positive character traits that are needed for student success and then help youth work toward developing those traits (Goldner & Mayseless, 2008). Mentors can impact students' lives by simply showing them that someone believes in them and believes that they are capable of more, of having strong character and of being successful (Goldner & Mayseless, 2008; Rhodes et al., 2006).

Youth participating in this school-based mentorship initiative were surrounded by accomplished and successful adult mentors that were committed to mentee academic success and personal wellbeing. Trained mentors were required to meet and communicate with their mentees weekly to build strong and supportive relationships. Mentors were asked to share their personal journeys and stories of determination, perseverance, willpower, and discipline as they worked to overcome challenges in meeting their own goals. These personal examples of determination helped model to students those qualities essential to success when confronted with challenges. As youth encountered challenges, they were encouraged to reach out to their mentors for assistance in successfully overcoming obstacles.

Adolescents are faced with making many important life decisions on a daily basis. The choices they make about school, career plans, drug use, peer pressure, truancy, sexuality, pregnancy and other risky behaviors can strongly affect their ability to have a successful future (Nota & Soresi, 2004; Tough, 2012). Being able to think critically, solve problems, and make good decisions are essential skills for success throughout the life span. Research has shown these skills lead to better decisions, greater innovation, goal achievement, opportunity recognition, mistake avoidance, and higher productivity (Tough, 2012). Strong mentorship programs prepare mentors to assist youth in thinking through different models or processes for problem solving and decision-making, and help youth identify and employ a model most suited to their needs (Marin & Halpern, 2011).

Resiliency refers to the ability to bounce back after adversity and to not be defined by negative circumstances. Resiliency helps individuals cope with the highs and lows of life and respond to stress in a healthy manner. It is achieved through gradually developing social, emotional, cognitive, and other competencies and is important in the early development of key behavioral health processes such as self-regulation and self-efficacy. These processes greatly influence youth learning and achievement in life (Schunk & Zimmerman, 2007). Increased youth resiliency is directly correlated to an increased sense of self-mastery, self-esteem, and a sense of belonging as well as the capacity to cope with adversity (Institute of Medicine, 2009). The Search Institute's Framework of Developmental Assets identifies factors that mentors can influence that contribute to healthy development, such as: support, empowerment, boundaries and expectations, constructive use of time, commitment to learning, positive values, social competencies, and positive identity (Search Institute, 2013).

While many children and adults living in poverty exhibit remarkable resiliency (Seccombe, 2002), nurturing resiliency is especially important among our most vulnerable populations. The social and emotional stressors of poverty not only increase the risk for substance abuse in our young people, but also affect behavioral health outcomes (Institute of Medicine, 2009). In addition, poverty has been correlated with several other negative effects including increased risks for mental health issues, violent behaviors, crime, and suicide (Evans & Kim, 2007). Research conducted in the fall of 2013 demonstrated the success well-trained University of Akron education majors had on fostering resiliency, academic mastery, self-esteem, and a sense of belonging and community when they mentored, tutored, and taught at-risk 10th grade students (Maguth & Deevers, 2014; Maguth, 2017).

Students need to believe that if they work hard and make good decisions there is a positive future awaiting them. For a student to believe in a positive future they need knowledge about opportunities and confidence in their abilities. If students do not have these important traits and dispositions, it is very difficult for them move forward to a successful future (Tough, 2012). Goldner and Mayseless, (2008) reported the significance that one person can have in changing a child's path and putting them on the road to success simply by making that child feel valued. A mentor can be that person that listens, shares personal experiences, and gives positive reinforcement for small things (Schwartz, Lowe & Rhodes, 2012). Strong mentoring programs include time for the mentor to get to know the student and methods for the mentor to open the students' world to opportunities that can lead to a positive future (Rhodes et al., 2006; Schwartz et al., 2012).

At the heart of this mentorship project lies making academically vulnerable youth, and their unique learning needs and interests, more visible. Research indicates that at-risk students surrounded with consistence, supportive, well-trained mentors benefit academically and socially (Bruce & Bridgeland, 2014). However, important questions remain about the effectiveness of youth mentorship programs and the conditions required to optimize benefits to youth participants (DuBoise, Portillo, Rhoes, Silverthorn, & Valentine, 2011).

The School-Based Community Mentorship Model

Ninety-four adult community mentors were recruited, trained, and participated in a wide school-based youth mentoring initiative. All mentors were required to successfully complete an application, submit background checks, and attend a required training. All mentors were recruited and categorized into one of three different tiers:

- Tier 1 (18 mentors and 36 mentees): Education majors, nearing graduation, enrolled in a identified undergraduate or graduate field-based instructional methods course in either middle or high school social studies, high school language arts, or middle school special education. Mentors were only required to mentor during scheduled course time (two times a week for up to two hours)
- Tier 2 (61 mentors and 101 mentees): Education majors, nearing graduation, enrolled in an identified undergraduate or graduate field-based instructional methods course in either middle or high school social studies, high school language arts, or middle school special education. Outside of mentors being required to mentor during scheduled class time (two times a week for up to two hours), mentors also committed to mentoring up to 30 hours over the course of the semester to meet with their mentee(s) at least an additional hour a week before/after school, during lunch or study hall, or during approved mentorship events.
- Tier 3 (15 mentors and 15 mentees): Adult volunteers from a local faith-based organization, non-profit, or businesses that volunteered to mentor 1-2 youth. Mentors committed to meeting with their assigned mentee an hour a week. However, unlike the other tiers, mentors only met with their mentees before/after school, during lunch or study hall, or during approved mentorship events for an entire academic year.

Tier 1 & 2 mentors (all education majors) were placed inside classrooms, and matched with academically vulnerable youth, that corresponded to their licensure area and content specific methods course. These methods courses come 1-2 semesters before pre-service teachers enter a semester long student teaching experience. University methods courses are embedded within the school district. Course times are in direct alignment with the school's bell schedule. While on site over the course of the semester methods students are expected to plan and implement personalized and differentiated instructional units, working in teams, and under the direct supervision of their cooperating teacher and professor. They are also required to work in small groups or individually with their assigned mentees during class time. Outside of working with their mentees in class, Tier 2 mentors have committed to meeting with their mentee for an hour a week outside of class.

Adult mentors affiliated with a local faith-based organization, non-profit, or businesses also volunteered to serve as community mentors (Tier 3 mentors). These mentors were not enrolled in any university courses, but were required to complete training. All prospective mentors were informed of what their participation necessitates includes: submitting a BCI and FBI background check, attending mentor training, mentoring match youth at least once a week for an hour, submit weekly reports, and completing evaluation activities. Tier 3 mentors were matched to academically vulnerable students in either the 10th or 12th grade based upon the completion of an interest inventory. All mentors were expected to enter their "mentee logs" after each mentor session using an online mentor portal. This portal also included additional mentor resources, tools, and activities to support their mentorship efforts. A grant coordinator helped maintain communications between mentors, mentees, and program records.

Research Methods & Data Analysis

A mixed methods case study design was selected were the case was designated as mentees' academic performance and attitudes towards school and the mentorship program. Johnson and Onwuegbuzie (2004) finds that mixed methods research is ideal for, "…the use of induction (or discovery of patterns), deduction (testing of theories and hypotheses), and abduction (uncovering and relying on the best of a set of explanations for understanding one's results)" (p. 17). This mixed methods study used mixed-model research that integrated qualitative and quantitative approaches across the stages of the research process to draw conclusions. Quantitative measures on student academic performance and attitudes informed the qualitative focus group protocol. Data collection and analysis timeline is included below:

To better understand the academic performance and attitudes of academically vulnerable urban youth being mentored the researchers collected the following data: Quarter and annual grade point averages (GPA) in 2015-16 and 2016-17; quarter course grades and attendance (for middle and high school students in Social Studies or English/Language Arts) in 2016-17; online session logs entered by mentors for each mentoring session in 2016-17; Modified Youth Mentoring Survey (Harris & Nakkula, 2010) completed at the end of the year (assesses quality of mentor-mentee relationship) in 2016-17; Mentor Survey completed at the end of each semester in (gauges program impact on mentor, challenges and supports, program improvement) in 2016-17; cooperating teacher focus group and survey.

This study analyzed data collected from a large Midwestern high school (gr. 9-12) and middle school (gr. 4-8), located in one urban school district in the United States. The school district enrolled 3,733 students, with the following

demographics: 77.7% Caucasian, 12.6% African American, 7.2% Multiracial, 1.8% Hispanic, and .50% Asian. Approximately 75.8% qualify for free or reduced lunch, and 19.9% qualified for special education services. Student data were obtained from the school after IRB approval, parent/guardian consent provided and school district approval.

Findings

Mentors accrued over 3,320 hours of mentoring in academic year 2016-17. These hours included 1,274 one to one mentoring hours that took place outside of class and 2,046 reported as "group mentoring" hours that took place in class during university students' required and scheduled methods course periods. After participating in a school-based mentorship program the following six findings emerged on the impact the program had on mentee academic performance and socio-emotional attitudes:

1. Mentors focused on the core principle of developing *multiple pathways to achievement*, which aligns with the needs of the mentee population who was purposefully selected as being most "at risk" academically (Table 3).
2. Mentees perceived improvements in their problem-solving skills
3. Mentees self-reported their participation in the mentorship program helped them improve their academic motivation, adaptive academic behaviors, and perception about their future self.
4. Mentees perceived their mentors helped them improve in their academics
5. Youth mentored by Tier I & II mentors demonstrated increases in subject specific quarterly GPAs, while youth mentored by Tier III mentors improved their overall GPA .10 grade points on average, from 2015-16 AY to 2016-17.
6. Youth mentored demonstrated a statistically significant decrease in annual attendance rate

Table 3

Core Principle Alignment

Community Connector Core Principle	Mentor Sessions Reported Frequency	Focusing on Core Principle Percentage
Developing pathways to achievement	752	46.71
Building character	588	36.53
Believing in a positive future	496	30.81
Preparing for the 21st century success	320	19.88
Building resiliency	270	16.77

Note. Frequencies do not sum to the number of mentor sessions and percentages do not sum to 100%. Frequencies and percentages were computed for each core principle out of the 348 sessions logged during period 3.

Mentees self-reported perceived improvements in their problem-solving skills on the Youth Mentoring Survey. The average adaptive problem-solving score for mentees was statistically significantly higher after participating in the program ($M = 2.69$, $SD = .62$) compared to before participating in the program ($M = 2.50$, $SD = .61$), $t = 3.65$, $p < .001$. The magnitude of this improvement was small to moderate yielding a Cohen's d of .41 indicating the students' improved by .41 standard deviations. No significant differences were observed across the three Tiers ($F_{2, 77} = .187$ $p > .05$) or subject area mentors (social studies, ELA, SPED, community) ($F_{3, 79} = .366$, $p > .05$). This finding supports that, on average, the mentees reported responding to problems in an improved adaptive way after participating in the program. Noteworthy is that the mentees' scores remained on the lower end of the scale at the end of the year, indicating they need improvement in adaptive problem-solving strategies to increase their degree of resiliency.

Mentees self-reported on the Youth Mentor Survey their participation in the mentorship program helped them improve their academic motivation, adaptive academic behaviors, and perception about their future self. A total of eighty-two

mentees responded to seventeen statements on the Youth Mentoring Survey asking whether they felt the mentorship program helped them improve a lot, a little, or not at all in four areas: socio-emotional (α = .888), academic motivation/adaptive academic behaviors (α = .932), relational skills (α = .853), and perception of their future self (α = .842).

The cooperating teacher focus group interview results corroborated with the mentees' self-reporting in these areas. When asked what changes the teachers observed in students, the teachers shared that the students are "more focused and less distracted with an adult next to them," "nicer and more respectful towards teachers," are "more mature," and "grew up a little bit" after participating in the mentorship program. The teachers shared that the in-class mentoring provides for more group work and less individual work, which they explained provided more individual attention within groups lead by the mentors, resulting in students being "more focused." It is possible that this increased amount of group work explains their improved relations.

The teacher focus group interview results corroborated with the mentees' self-reporting of improving in adaptive academic behaviors as well. For instance, the middle school teachers shared that the students were "more focused on their work when an adult was next to them", "participated more," "raised their hands more," and "were more likely to answer questions" during class. The teachers also shared that they observed the community mentors developing more of a personal relationship with the students that helped the students socially, emotionally, and to develop "long-term life skills." They described the community mentors as "more future-focused" than UA mentors in that they focused on planning or preparing for college, ACTs, and a future career. The teachers described the UA mentors as developing more short-term relationships where they developed a rapport with students but more focused on academics (e.g., "encouraged students to complete work in school, and care about completing school"). Having a university mentor to connect with who was not an authority figure and who served as a facilitator to provide for more small group work to take place within the classroom setting were major advantages of the university mentors shared by the teachers.

On a Youth Mentoring survey mentees were asked to rate how true it was that their mentors helped them with the different subject areas (social studies, ELA, math, and science). The percentage of mentees who agreed it was true their mentor helped them improve in the subject they were mentored in are summarized in Table 4 below:

Table 4

Mentee Agreement with Academic Statements

Mentor Type	Subject Area	Agreement Reported
Tier 1 & 2 Mentors	Social Studies Mentees	96% agreed their mentor helped them improve in social studies
	English Language Arts Mentees	82% agreed their mentor helped them improve in ELA
	SPED Mentees	90% agreed their mentor helped them improve in social studies
		77% agreed their mentor helped them improve in ELA, math, and science
Tier 3 Mentors	Community Mentees	80% agreed their mentor helped them improve in social studies and math
		86% agreed their mentor helped them improve in ELA
		73% agreed their mentor helped them improve in science

The mentees' ratings indicate that three-quarters or more of the students felt their mentors helped them in the subject area they were being tutored in by Tier 1 & 2 mentors in the classroom. Also, about three-quarters or more those mentored by community (Tier 3) mentors reported their mentors as helping them improve in social studies, math, ELA, or science. This latter result indicates that community mentors also focused on assisting students with improving their academic performance.

Grade Point Averages

Youth mentored by tier I & II mentors demonstrated increases in subject specific quarterly GPAs, while youth mentored by Tier III mentors improved by their overall GPA .10 grade points on average, from 2015-16 AY to 2016-17. The overall GPA's for the 2015-16 AY and 2016-17AY for the total sample of mentees is broken down in the Table 5 by tier and subject area mentored in during the 2016-17AY.

Table 5

Students' Grade Point Average by Tier and Subject Area Mentored In for 2015-17 Academic Years

| | *n* | Cumulative GPA | | 2016-17 Quarterly GPA | | | |
		2015-16	2016-17	Q 1	Q 2	Q 3	Q 4
Overall Sample	105	2.58 (.82)	2.59 (.79)	2.80 (.90)	2.63 (.95)	2.64 (1.0)	2.63 (.95)
Tier 1	22	2.51 (.89)	2.53 (.83)	2.80 (.92)	2.65 (.96)	2.35 (.99)	2.44 (1.0)
Tier 2	66	2.65 (.80)	2.65 (.76)	2.77 (.93)	2.65 (.93)	2.72 (1.02)	2.67 (.96)
Tier 3	14	2.46 (.92)	2.56 (.86)	2.97 (.75)	2.54 (1.08)	2.70 (.91)	2.73 (.79)
By Subject Area Mentor							
Social Studies	50	2.64 (.83)	2.63 (.79)	2.75 (.96)	2.57 (1.0)	2.69 (1.04)	2.58 (.97)
ELA	38	2.43 (.81)	2.51 (.75)	2.82 (.85)	2.69 (.87)	2.52 (.92)	2.52 (.92)
SPED	9	2.64 (.83)	2.63 (.79)	2.95 (.90)	2.75 (.96)	2.88 (.95)	2.79 (1.14)

Repeated measures analysis showed no statistically significant change in cumulative GPA from 2015-16 AY to 2016-17 AY, $t_{105} = .310$, $p > .05$. The mentees' remained the same with only a .008 difference in cumulative GPA between last year and this year. A repeated measures analysis showed no statistically significant change in cumulative GPA from 2015-16 AY to 2016-17 AY, $t_{105} = .310$, $p > .05$. The mentees' remained the same with only a .008 difference in cumulative GPA between last year and this year.

Repeated measure analyses showed that those mentored by Tier 3 community mentors improved by .10 grade points (2.46 to 2.56), on average, from 2015-16 AY to 2016-17 AY, $t_{13} = 2.54$, $p = .024$. The mean difference yielded a moderate effect size of .67. This change in GPA raised the mentees' cumulative to above 2.50, on average, for the 2016-17 AY. No statistically significant change was observed in cumulative GPA for Tier 1 ($t_{23} = -.266$, $p > .05$) or Tier 2 ($t_{66} = -.037$, $p > .05$). No statistically significant change was observed for those mentored in ELA or social studies, $p > .05$. The sample size was too small to test for statistical change for those mentored by a SPED mentor.

Attendance rates

A repeated measures analysis showed a statistically significant decrease in annual attendance rate, $t_{107} = -3.93$, $p < .001$. The mentees' attendance rate decreased in the 2016-17 AY by 2.49%, on average, which yielded a small effect size of .38. Noteworthy is the large standard deviations or spread of data for attendance for the total sample and sub-samples. The decrease in attendance rate from last year to this year was statistically significant for those with a Tier 2 mentor ($t_{68} = -4.09$, $p < .001$) but not for those with a Tier 1 mentor ($t_{23} = -1.23$, $p > 05$). Those with a Tier 2 mentored decreased in attendance rate by 2.32%, on average, yielding a .49 or medium effect size. The sample size was too small for Tier 3 mentees to test for statistically significant change although the pattern was consistent with the other sub-groups in that the attendance rate decreased from last year to this year.

Table 7

Students' Attendance Rates for the 2015-17 Academic Years

| Sample | *n* | Cumulative Attendance Rate | | 2016-17 Quarterly Attendance Rate | | | |
		2015-16	2016-17	Q 1	Q 2	Q 3	Q 4
Overall Sample	105	92.45 (6.80)	89.97 (8.72)	91.88 (9.30)	86.89 (10.33)	89.08 (11.42)	89.89 (11.28)
Tier 1	24	91.12 (7.59)	88.85 (10.22)	92.45 (9.10)	86.94 (11.98)	87.00 (13.41)	86.16 (15.74)
Tier 2	69	92.47 (7.01)	90.15 (7.87)	91.17 (9.83)	86.77 (9.89)	89.54 (10.03)	91.27 (8.37)
Tier 3	15	94.51 (3.56)	90.92 (10.26)	94.52 (6.20)	89.77 (9.62)	90.37 (14.56)	89.27 (14.30)

Subject Area

Social Studies	50	92.22 (7.56)	89.42 (9.54)	91.88 (9.96)	85.90 (10.43)	87.43 (12.74)	90.00 (11.24)
ELA	38	91.90 (6.93)	89.01 (8.98)	90.93 (9.72)	86.24 (11.20)	88.94 (11.33)	87.96 (13.01)
SPED	9	93.85 (3.97)	92.42 (4.01)	93.00 (6.40)	89.67 (7.35)	92.42 (5.69)	92.86 (6.22)

In terms of attendance rates by subject area, there was a statistically significant decrease in attendance for those mentored in social studies (t_{49} = -3.10, p < .01) and those mentored in English Language Arts (t_{38} = -2.30, p < .05). Both groups had about a 2.80 decrease in attendance rate from the 2015-16 AY to the 2016-17 AY. The decrease was lower for the SPED mentees; however, the sample size was too small to test for statistical significance.

Conclusion

This study provides insights into an under theorized, yet, significant area of inquiry in the area of designing, implementing, and researching meaningful school-based urban youth mentorship initiatives that improve mentees academic performance and socio-emotional attitudes (Black, Grenard, Sussman, & Rohrbach, 2010; DuBoise & Karcher, 2014; Howard, Tunstall, & Flennaugh, 2016). Research demonstrates that youth with consistent access to well trained and engaged mentors do better academically and socially, become less involved in criminalized activity, and are less likely to have socio-emotional challenges (Bruce & Bridgeland, 2014). For the most part, findings in this study suggest mentee participation in this community based mentorship initiative, which drew from three different tiers of mentors, had a somewhat favorable impact on mentee academic performance and attitudes. Findings of this study may have implications in the design and implementation of community-based youth mentorship initiatives that benefit academically vulnerable youth, their school, and the larger community. As evidenced in the results of this study, mentees that participated in this program perceived improvements in their problem-solving skills, felt their matched mentor improved their academic motivation and overall academic performance, and demonstrated gains in either their content-area quarterly GPA (Tier 1 & 2 in social studies or language arts) or improved their overall GPA (tier 3). Mentees seemed to have benefited from mentor efforts and commitment to keep their mentees on track academically. A finding of importance is while Tier 1 & 2 mentors' mentees demonstrated statistically significant gains in quarterly content area GPA during the quarters in which they were being mentored, records indicate these gains were lost once youth lost access to their adult mentor. Additional research is needed on ways these gains can be sustained.

Furthermore, this study did find that youth being mentored demonstrated decrease in their annual attendance rate while being mentored. In particular, for youth being mentored by tier 2 mentors, this annual decrease was statistically significant. When asked about disparities in a focus group, cooperating teachers (in social studies, language arts, and special education) noted that tier 1 & 2 mentors actively push their mentees to turn-in work and stay engaged in class activities and assignments. This large "all hands-on deck" and "press" may at times be perceive by mentees as "nagging" and influence attendance rates. Additionally, tier 2 mentors were mostly matched with the most "academically vulnerable" youth; most of whom consistently struggle with attendance. To address this issue the leadership team plans to explore additional mentee and mentor incentives in an attempt to bolster students' attendance rates. Also, as recommended in the cooperating teacher focus group, additional rapport and team building activities should be used to offset mentee sentiments of being "nagged" by their mentee. Overall, this study and its findings present an effective model in which community organizations can bring together academically vulnerable students, their parents, schools, communities, faith based organizations and businesses in designing and deliver a mentorship program that promotes increased academic performance and attitudes.

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On the Anxiety of Vocational School Students

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Abstract

The test anxiety research has been practiced helping to cleared up on the negative things of test anxiety on papering routine and these fears with the advance of a variation of duty methods. Test anxiety, a commonly used classification, means to the set of purposeful and communication rejoinders that go with fear about possible negative values or disaster on a pauperization. Mostly low answer beginning for anxiety in analysing conditions, way to show test conditions as generally hostile are characterized by test anxious persons. These persons way to answer with general bad manner, rational incompetence, strain, and purposeful encouragement when visible to paper conditions (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016; Lixin Renjennifer L. Greenwendy M. Smith, 2016). Test anxiety is often go with by maladaptive perceptions such as threat observations, state of mind of concentrated self-worth.

In this study, it is anlaysed gender modification in arithmetic and trait anxiety mid university students, as modifications in the school feat. Applicants resituated 136 students from marketing department of Kocaeli vocational school in Kocaeli university, all of whom done procedures of arithmetic anxiety, and trait anxiety.

Keywords: school achievement, vocational school, arithmetic and trait anxiety

Introduction

The duty of test anxiety would assistance from the bid of the self-motivated progression models of present-day stress theory (Eysenck, 1992). Test anxiety research has prospered making tests and the lengthy-stretch ideals substantial edifying, societal, and quantifiable problems payable to the decreasing students level of test conditions for people in contemporary culture. According to these research team, test anxiety records flagrantly as one of the basic problem types in the enduring performance surrounding psycho-educational testing. Many students can do well on papers but complete ailing because of the sapping points of anxiety. Test anxiety possibly will also institute a foremost font of test bias, in that uneasy notes possibly will perform a lesser amount of well than the capacity and assistances (Lixin Renjennifer L. Greenwendy M. Smith, 2016; Linnenbrink, 2007). Most of the test anxiety pauperization over the seventy years span has been made to help on the negative possessions of test anxiety on note repetitive (Eysenck, 1992).

Some papers on test anxiety has intensive on gender modifications, it presence continually noted that masculine students practice complex points of test anxiety than do female participants (Betz, n.e., 1978). But, there is not much studies about whether these modification between female participants' and female participants' conveyed points of anxiety may bearing on the school feat. The high level of test anxiety registered by female participants is not generally attended by lower routine scores (Hembree, 1988). It needs to reflect the issue of test anxiety to understand students' school advance, which can be well-defined as a circumstances-explicit trait pigeon-holed by the penchant (Hodapp, Glanzmann, & Laux, 1995). According to Zeidner, test anxiety is the set of purposeful, and communication rejoinders that go with fear of possible negative values of fiasco on an paper (Zeidner, 1998).

This study focused the following objectives:

- To study gender modifications in trait and arithmetic anxiety,
- To reconnoiter gender modifications in school feat by scrutinizing female students and masculine students' ratings in an open-question and a several-special paper.

Research method

Participants resituated 136 marketing department in Kocaeli vocational school from Kocaeli University all of whom resituated put your name down in a pauperization strategies passage in the 2016-2017 school year. The trial covered 82 women, mean age of 19.50 years and 54 men, mean age of 20.30 years. Applicants resituated run the ensuing gauges and feedback form (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016):

- Arithmetic anxiety rating scale - mars (Betz, N.E., 1978): this utensil procedures arithmetic anxiety by donating 15 state of affairs (Cronbach's alpha = .87). The plaintiff must signpost the level of anxiety connected with separately element using a five-point Likert-type scale affixed by 1 (no

anxiety) 2 (slightly anxiety) 3 (fairly anxiety) 4 (very anxiety) and 5 (high anxiety). The totality of the element nicks vintages a total score for arithmetic anxiety, exhaling flanked by 15 and 75 (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016).

Arithmetic anxiety questionnaire

Please hostile the questionnaire by considering how often you experience each of the items described below. Make sure you think thorough the hostiles. It is very important to hostile the all items (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016).

	No anxiety	Slightly anxiety	Fairly anxiety	Very anxiety	High anxiety
1. I usually have been at ease in arithmetic classes.					
2. I see arithmetic as a subject i will rarely use.					
3. I'm no good at arithmetic					
4. I'll need arithmetic for my future work.					
5. Generally, i have felt secure about attempting arithmetic.					
6. I'd be happy to get good grades in mathematics.					
7. I don't think that i could do advanced arithmetic.					
8. It wouldn't bother me at all to take added arithmetic courses.					
9. For some reason, even though i study, arithmetic seems unusually hard for me.					
10. My mind goes blank and i am unable to think clearly when working in mathematics.					
11. Knowing mathematics will help me earn a living.					
12. Arithmetic has been my worst subject.					
13. I think i could handle added difficult mathematics.					
14. I'm not the type to do well in mathematics.					
15. Arithmetic doesn't scare me at all.					

- State-trait anxiety inventory - STAI (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). The STAI is a 40item rule used to portion municipal (STAI-s) and trait (STAI-t) anxiety. Trait anxiety echoes a general and quite constant inclination to answer with anxiety. Only the STAI-t subscale, Cronbach's alpha = .91, was applied in the search. The STAI-t subscale take in 20 announcements unfolding changed passions, and defendants must hostile by seeing how they feel ''in general'' (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016). The sentences are hosteled on a four-point Likert-form rule, from 0 (almost never) to 3 (almost always).

All the tests resituated applied in seminar room conditions by the scientists, who administered accomplishment and only if required funding the minute it was compulsory. Data resituated collected from students as part of a voluntary activity. At the end of the course, students take the weight off your feet two papers: one relating open interrogations and another with a four-option several-special presentation. Off beam hostiles in the several-special test resituated disciplined -0.25 to daunt arbitrary conjecturing (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016).

Findings

Gender modifications resituated analysed by spread over self-determining t-tests to all procedures placid (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016): the anxiety measures, the test-circumstances interrogations, and the ending papers. On the anxiety measures, female students resituated give to statement higher points of arithmetic anxiety (t(130) = 3.13, p = .003) and trait anxiety (t(130) = 2.61, p = .017), as compared with female students (table 1).

Table 1. T-tests for anxiety measures by gender and means, standard deviations, p-value

Anxiety measures	Female students	Female students	T-test	P
Arithmetic anxiety	61.19 (12.17)	52.43 (15.33)	3.13	.003
Trait anxiety	23.13 (7.53)	19.07 (8.87)	2.61	.017

In direction to homework gender modifications in arithmetic anxiety in added point, it was applied dispersed t-tests for separately mars item (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016). As given away in table 2, female students and masculine students differ in the hostiles to items 1, 5,9 and 14 and ($t(130) = 2.41$, p = .006; $t(130) = 2.57$, p = .021; $t(130) = 3.97$, p = .008 and $t(130) = 3.73$, p = .005 respectively), with men commentary a complex rate of existence of the state of affairs designated in these objects.

Result and discussion

The object of this homework was to determine modifications between female students and female student's vocational school students in the conveyed neck and neck of arithmetic, and trait anxiety, as well as the anticipated neck and neck of anxiety when confronted with explicit types of test conditions.

As for the procedures of anxiety, female student conveyed complex points of arithmetic, and trait anxiety than did female students. These grades are constant with some pauperization on gender modifications in arithmetic anxiety and trait anxiety and in the concepts of this study, the gender modification have not been practical. An added complete study of the grades naked that female students conveyed complex points of anxiety definitely for test state of affairs relating open interrogations, said appearances, and intention or arithmetic problems (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016). Correspondingly, no gender amendment in anticipated anxiety points be situated initiate in kin to the several-special test circumstances.

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On the Math Anxiety of Vocational School Students

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Abstract

With the general approach, anxiety studies means to determine some sociological and personal behavioral perspective which research studies focused on important ways of them that cause negative aspects and give back to student some negative results an examination. Usually minimum level ideas coming from students for their anxiety situation are not searching context for their reason which all of them are characterized by test anxious persons. The student that are at maximum level anxiety points shows some negative reaction, mental function fast level changes of tension problems at the times some exams or social position.

In this paper, we examine gender differences in math and trait anxiety of our school students and determine their school performance. The data consist 112 students from Accounting and Task Department of Kocaeli Vocational School in Kocaeli University, who are finished fully of math anxiety, and trait anxiety.

Keywords: math and trait anxiety, academic achievement, accounting and task department,

Introduction

Test anxiety research has prospered for test application and other exam activities caused some real educational personal and social problems because of their high level anxyty effects for people in modern society (Kassim at all., 2008Núñez-Peñaa at all. 2016; Aydın S., Of M., Kılıçaslan İ., Akça Ü., Kahraman K., Mutlu C. 2017; Lixin at all. 2016; Spielberger, C. D., Gorsuch, R., Lushene, R., Vagg, P. R., & Jacobs, G. A. 1983)

According to these research team, test anxiety figures prominently which is the most efficient problem types in many different clinical test studies (Kahraman, K., Of, M. and Tola, Y. 2018).Many students can do well on exams but perform poorly because of their debilitating levels of anxiety. Test anxiety may also constitute a major source of test bias, in that anxious examinees may perform less well than their ability and skills (Linnenbrink, 2007; Núñez-Peñaa, M.I., Suárez-Pellicionic, M. and Bonoa, R. 2016.; Lixin at all. 2016; Spielberger, C. D., Gorsuch, R., Lushene, R., Vagg, P. R., & Jacobs, G. A. 1983). Clinical studies in these study area since the old times to today applied to present positive effect on the bed results of the test or other exam anxieties (Aydın S., Of M., Kılıçaslan İ., Akça Ü., Kahraman K., Mutlu C. 2017; Núñez-Peñaa, M.I., Suárez-Pellicionic, M. and Bonoa, R. 2016.; Kahraman, K., Of, M. and Tola, Y. 2018; Kahraman, K., Of, M. and Tola, Y. 2018; Lixin at all. 2016 Eysenck, 1992).

Some papers on test anxiety has conducted on gender differences showing that there are important differences according to high level of female students anxiety (Alexander, & Martray, 1989; Núñez-Peñaa, M.I., Suárez-Pellicionic, M. and Bonoa, R. 2016.; Lixin at all. 2016). But, there is not much studies that if the percentage level of males' and females' registered levels of anxiety could effect on students social and school life. The big percentage of test anxiety showed by female students a few times resulted with bad level exams points (Hembree, 1988; Núñez-Peñaa, M.I., Suárez-Pellicionic, M. and Bonoa, R. 2016; Aydın S., Of M., Kılıçaslan İ., Akça Ü., Kahraman K., Mutlu C. 2017). We are focusing anxiety results of our students to understand their academic development, defined by the research with the specific level of anxiety position (Hodapp, Glanzmann, & Laux, 1995; Kahraman, K., Of, M. and Tola, Y. 2018).

Method

Participants were 112 Accounting and Task Department students in Kocaeli Vocational School from Kocaeli University that participated to lectures composed for this research study during the 2016-2017 academic year. 65 women (mean age of 18.21 years) and 47 men (mean age of 19.35 years) are the sample of this study. the following scales and questionnaires were applied to our students (Aydın S., Of M., Kılıçaslan İ., Akça Ü., Kahraman K., Mutlu C. 2017; Aydın S., Of M., Kılıçaslan İ., Akça Ü., Kahraman K., Mutlu C. 2017; Spielberger, C. D., Gorsuch, R., Lushene, R., Vagg, P. R., & Jacobs, G. A. 1983).

<u>Math Anxiety Rating Scale - MARS</u> (Betz, N.E., 1978; Núñez-Peñaa, M.I., Suárez-Pellicionic, M. and Bonoa, R., 2016.; Lixin at all. 2016): This device measures math anxiety by having 15 situations (Cronbach's alpha = .87). The items should deal the level of anxiety associated with each item using a five-point Likert-type scale denoted by 1 (no anxiety) 2 (slightly anxiety) 3 (fairly anxiety) 4 (very anxiety) and 5 (high anxiety). The sum of the item scores yields a total score for math anxiety, between 15 and 75 (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. and Bonoa, R. 2016; Lixin at all. 2016).

<center>Math Anxiety Questionnaire</center>

Please answer the questionnaire by considering how often you experience each of the items described below. Make sure you think thorough the answers. It is very important to answer the all items (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. and Bonoa, R. 2016; Spielberger, C. D., Gorsuch, R., Lushene, R., Vagg, P. R., & Jacobs, G. A. 1983; Of M., Şeneldir O., Tola Y., Koparan B., Kahraman K. 2017;. Lixin at all. 2016)

<u>State-Trait Anxiety Inventory - STAI</u> (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983; Núñez-Peñaa, M.I., Suárez-Pellicionic, M. and Bonoa, R. 2016; Lixin at all. 2016). According to these authors "The STAI is a 40item scale used to measure state (STAI-S) and trait (STAI-T) anxiety. Trait anxiety reflects a general and relatively stable tendency to respond with anxiety". Only the STAI-T subscale, Cronbach's alpha = .91, was used in this study. According to them "The STAI-T subscale have 20 statements describing different emotions, and respondents must answer by considering how they feel "in general"". Items are answered on a four-point Likert-type scale, from 0 (almost never) to 3 (almost always) (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. and Bonoa, R. 2016; Koparan, B., Akça, Ü., Köş Aydin, F. and Aydin, S. 2018 ; Lixin at all. 2016).

All the tests were applied in accounting and task department classrooms by the researchers and they managed the environment and gave required help when it was necessary. Data were collected from students as part of a voluntary activity. At the end of the course, students were applied two exams: First exam have open questions and another with a four-option multiple-choice format. Wrong answers in the multiple-choice test were extracted -0.25. (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. and Bonoa, R. 2016; Lixin at all. 2016; Spielberger, C. D., Gorsuch, R., Lushene, R., Vagg, P. R., & Jacobs, G. A. 1983).

Findings

Student gender differences were analyzed by applying independent t-tests to our data coming the students: the anxiety questionnaire, the test questions, and the final exams. On the anxiety result, female students were observed to report higher levels of math anxiety (t(108) = 3.56, p = .007) and trait anxiety (t(108) = 2.85, p = .023), as compared with male students (Table 1) (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. and Bonoa, R. 2016; Spielberger, C. D., Gorsuch, R., Lushene, R., Vagg, P. R., & Jacobs, G. A. 1983 Lixin at all. 2016).

Table 1. t-tests for anxiety measures by gender and means, standard deviations, p-value

Anxiety measures	Female students	Male students	t-test	p
Math anxiety	60.45 (13.65)	52.43 (16.25)	3.56	.007
Trait anxiety	25.25 (8.08)	19.07 (9.11)	2.85	.023

In order to study gender differences in math anxiety in more detail, it was applied separate t-tests for each MARS item. As shown in Table 2, male and female students differed in their answers to items 2, 6,10 and 13 and (t(108) = 2.48, p = .006; t(108) = 2.02, p = .011; t(108) = 4.12, p = .07 and t(108) = 2.43, p = .015 respectively), with females reporting a higher frequency of occurrence of the situations described in these items (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. and Bonoa, R. 2016; Lixin at all. 2016).

Result and Discussion

As a result, we can say that female students presented much levels of math, and trait anxiety against to male students. These results are the same with some research on gender differences in math anxiety (e.g., Hembree, 1990), and trait anxiety (e.g., Zalta & Chambless, 2012) and in the none of this study, the gender differences have not been observed. A more detailed study of the results pointed out that female students reported much level of anxiety for test exams and open questions, Also, it has not been observed gender differences for anxiety levels (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. and Bonoa, R. 2016; Spielberger, C. D., Gorsuch, R., Lushene, R., Vagg, P. R., & Jacobs, G. A. 1983 Lixin at all. 2016)

This math examination proved that reported levels of math anxiety were higher for female vocational students than for male students. And, this situation does not reflect to their school academic level.

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On the Students' Trait and Mathematics Anxiety Level

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Abstract

The test anxiety research has been practiced helping to cleared up happening the bad belongings of examination anxiety happening examinee presentation and these anxieties with the growth of a diversity of valuation approaches. Test anxiety, a widely used definitions, means to the group of communicational and physiological answers which attend anxiety about probable non-positive values or disappointment on an examination. Mainly low answer beginning for anxiety in different conditions, way to show test conditions as generally intimidating are characterized by test anxious persons. These persons incline to respond by wide concern, cerebral inefficiency, tautness, and physical stimulation when bare toward exam circumstances (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016). Examination anxiety remains frequently accompanied through maladaptive thoughts such as danger insights, spirits of abridged self-efficacy.

In this study, it is anlaysed gender differences in math and trait anxiety amongst college participants, in addition to changes in their academic attainment. Members were 94 participants from office management department of Kocaeli vocational school in Kocaeli university, all of whom finished events of math anxiety, and trait anxiety.

On the finish of the sequence in which they remained registered, participants remained measured finished a multiple-choice and an open-question examination. Likened by the male complements, female participants stated advanced levels of mathematics, and trait anxiety, in addition to better predictable anxiety in three of the four examination circumstances careful. Though, ladies did not demonstration inferior academic attainment than male participants in whichever the open-question or the multiple-choice examinations.

Keywords: academic achievement, vocational school, math and trait anxiety

Introduction

The valuation of examination anxiety would advantage after the request of the lively procedure replicas of modern pressure philosophy (Eysenck, 1992). Test anxiety research has prospered doing tests and the long-term significances effective instructive, social, and clinical difficulties due to the increasing personal salience of test situations for people in modern society (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016; Kassim At All., 2008). According to these research team, examination anxiety figures conspicuously by way of one of the basic problem types in the continuing play nearby psycho-educational challenging. Many participants can fix healthy on examinations nonetheless do poorly owing to their incapacitating levels of anxiety. Examination anxiety might too establish a main basis of examination prejudice, in which nervous examinees might do fewer healthy than their aptitude and services (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016; Linnenbrink, 2007). Most of the test anxiety study on the past sixty years has been operated to go on the non-positive actions of test anxiety on exam presentation (Eysenck, 1992).

This paper focused the next aims:

- *To analyse gender differences in trait and math anxiety,*

Research method

Participants were 94 office management department students In Kocaeli Vocational School From Kocaeli University all of whom remained registered in a investigation projects sequence throughout the 2016-2017 academic year. The example included 61 females by a mean age of 18.90 years and 33 men by a mean age of 19.55 years. Members remained managed the next balances and surveys (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016):

- Math Anxiety Rating Scale - Mars (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016; Betz, N.E., 1978): this instrument events mathematics anxiety through giving 15 circumstances (cronbach's alpha = .87). The defendant necessity designates the level of anxiety related by each article by a five-point likert-type gauge fastened through 1 (no anxiety) 2 (slightly anxiety) 3 (fairly anxiety) 4 (very anxiety) and 5 (high anxiety). The amount of the article notches harvests a entire notch aimed at mathematics anxiety, reaching between 15 and 75 (Lixin Renjennifer L. Greenwendy M. Smith 2016; Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016).

Math anxiety questionnaire

Please answer the questionnaire by considering how often you experience each of the items described below. Make sure you think thorough the answers. It is very important to answer the all items (Lixin Renjennifer L. Greenwendy M. Smith 2016).

	No anxiety	Slightly anxiety	Fairly anxiety	Very anxiety	High anxiety
1. I usually have been at ease in math classes.					
2. I see math as a subject i will rarely use.					
3. I'm no good at math					
4. I'll need mathematic for my future work.					
5. Generally, i have felt secure about attempting math.					
6. I'd be happy to get good grades in mathematic.					
7. I don't think which i could do advanced math.					
8. It wouldn't bother me at all to take more math courses.					
9. For some reason, even though i study, math seems unusually hard for me.					
10. My mind goes blank and i am unable to think clearly when working in mathematic.					
11. Knowing mathematic will help me earn a living.					
12. Math has been my worst subject.					
13. I think i could handle more difficult mathematic.					
14. I'm not the type to do well in mathematic.					
15. Math doesn't scare me at all.					

- <u>State-Trait Anxiety Inventory - Stai</u> (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). The stai remains a 40item gauge used to amount state (stai-s) and trait (stai-t) anxiety. Trait anxiety reproduces a overall and comparatively steady propensity toward reply by anxiety. Only the stai-t subscale, cronbach's alpha = .91, was applied in this paper. The stai-t subscale comprises 20 declarations telling dissimilar feelings, and defendants necessity response through seeing in what way they texture "in general". Substances remain replied happening a four-point likert-type gauge, from 0 (almost never) to 3 (almost always).

Findings

Gender changes remained analysed through smearing self-governing t-tests to altogether events calm: the anxiety measures, the test-situation queries, and the last examinations. Happening the anxiety events, female participants remained originate toward bang advanced levels of mathematics anxiety (t(88) = 4.22, p = .005) and trait anxiety (t(88) = 2.74, p = .010), as related with male participants (table 1).

Table 1. T-tests for anxiety measures by gender and means, standard deviations, p-value

Anxiety measures	Female participants	Male participants	T-test	P
Math anxiety	48.19 (12.10)	46.43 (15.00)	4.22	.005
Trait anxiety	23.00 (7.12)	20.17 (8.22)	2.74	.010

So as to study gender changes in math anxiety in additional part, it was applied distinct t-tests aimed at all mars article. By way of exposed in table 2, male and female participants varied in the responses to items 2, 6,11 and 15 and (t(88) = 3.11, p = .006; t(88) = 2.88, p = .016; t(88) = 3.20, p = .007 and t(88) = 3.35, p = .006 correspondingly), by ladies journalism a advanced incidence of incidence of the circumstances labeled in these substances.

Table 2. Means, standard deviations (in brackets), and t-tests for items 1, 5,9 and 14 by gender.

Mars items	Female participants	Male participants	T-test	P

Item 2	2.41 (1.80)	2.82 (1.74)	3.11	.006
Item 6	2.25 (1.25)	2.41 (1.86)	2.88	.016
Item 11	2.10 (1.56)	2.25 (0.66)	3.20	.007
Item 15	2.25 (1.70)	1.96 (0.60)	3.35	.006

Result and discussion

First, we need to note that the goal of this paper remained to determine changes between female and male vocational school participants in the stated level of mathematics, and trait anxiety, in addition to the predictable level of anxiety when confronted by exact kinds of examination circumstances.

Gender changes were not experiential in real presentation in last examination marks. Male participants didn't outdo the female aristocracies in whichever the open-question or the multiple-choice examination. An earlier appearance on participants' multiple-choice responses exposed which female participants did not vary after males in whichever the amount of successes or mistakes, though they inclined toward permission additional queries unrequited than did their male complements. Female participants remained additional careful once replying the multiple-choice queries, while male participants might must remained additional bold, even if incorrect responses in the multiple-choice examination remained punished with minus point.

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On the Vocational School Students' Math and Trait Anxiety

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Abstract

The test anxiety study has been practiced helping to cleared up at the non-positive impacts of test anxiety on investigate presentation and the attentions with the progress of a kind of evaluation procedures. Test anxiety, a broadly applied characterizations, means to the group of functional and social answers which company attention about probable non-positive values or loss on an examination. Mostly low answer dawn for anxiety in special conditions, inclining to observe test conditions as individually intimidating are categorized by test anxious peoples. The participants tend to respond with widespread concern, mental ineffectiveness, tension, and practical awakening that presented to examination conditions. Test anxiety is frequently attended by incompatible perceptions such as risk observations, feeling of lowed self-efficient positions (Lixin Renjennifer L. Greenwendy M. Smith 2016).

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In this study, it is anlaysed gender differences in mathematics and trait anxiety in university participants, a difference in the school accomplishment. Persons were 108 participants from accounting and task department of niğde social science vocational school in Niğde Ömer Halisdemir University and 103 participants from accounting and task department of social science vocational school in Gümüşhane university and so, totally 211 participants. All of them finished questionnaires of mathematics anxiety, and trait anxiety.

Keywords: school accomplishment, vocational school, mathematics and trait anxiety

Introduction

The evaluation of test anxiety would profit by the making of the effective procedure models of "contemporary stress model" (Eysenck, 1992). Test anxiety study has prospered making tests and the long-term values educational, public, and clinical problems due to the increasing participant salience of test conditions for people in modern society (Kassim At All., 2008). According to the study team, test anxiety figures importantly as one of the basic problem types in the continuing play containing psycho-educational testing. Many participants can make good examinations but accomplish weekly as of the enervating levels of anxiety. Test anxiety could also create a main basis of test prejudice, in which anxious investigates could accomplish less well than the capability and skills (Linnenbrink, 2007). Many of the test anxiety study over the past sixty years has been made to help on the non-positive impacts of test anxiety on investigate presentation (Núñez-Peñaa at all. 2016; Lixin Renjennifer L. Greenwendy M. Smith 2016; Eysenck, 1992).

This study underlined the next objectives:

- *To give gender differences in trait and mathematics anxiety,*

Methods

Persons were 108 participants from accounting and task department of Niğde Social Science Vocational School In Niğde Ömer Halisdemir University and 103 participants from accounting and task department of social science vocational school in Gümüşhane university and so, totally 211 participants. All of them were joined in a study plan lecture during the 2016-2017 school year. The sample included 116 females, a mean age of 19.10 years and 95 men, a mean age of 20.05 years. The persons were managed the next scales and questionnaires in Kocaeli vocational school (Núñez-Peñaa At all. 2016; Lixin at all. 2016):

- Mathematics anxiety rating scale - MARS (Betz, N.E., 1978): this tool questionnaires mathematics anxiety by giving 15 conditions (cronbach's alpha = .87). The answers must show the level of anxiety related with each element using a five-point likert-type scale fastened by 1 (no anxiety) 2 (slightly anxiety) 3 (fairly anxiety) 4 (very anxiety) and 5 (high anxiety). The totality of the piece points produces a full point for mathematics anxiety, extending between 15 and 75 (Núñez-Peñaa at all. 2016; Lixin at all. 2016).

Mathematics anxiety questionnaire

Please answer the questionnaire by considering how often you experience each of the items described below. Make sure you think thorough the answers. It is very important to answer the all items.

	No anxiety	Slightly anxiety	Fairly anxiety	Very anxiety	High anxiety
1. I usually have been at ease in mathematics classes.					
2. I see mathematics as a subject i will rarely use.					
3. I'm no good at mathematics					
4. I'll need mathematics for my future work.					
5. Generally, i have felt secure about attempting mathematics.					
6. I'd be happy to get good grades in mathematics.					
7. I don't think which i could do advanced mathematics.					
8. It wouldn't bother me at all to take more mathematics lectures.					
9. For some reason, even though i study, mathematics seems unusually hard for me.					
10. My mind goes blank and i am unable to think clearly that working in mathematics.					
11. Knowing mathematics will help me earn a living.					
12. Mathematics has been my worst subject.					
13. I think i could handle more difficult mathematics.					
14. I'm not the type to do well in mathematics.					
15. Mathematics doesn't scare me at all.					

- State-trait anxiety inventory - STAI (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). The STAI is a 40-sentences scale used to questionnaire the student's level (STAI-s) and trait (STAI-t) anxiety. Trait anxiety replicates a wide-ranging and comparatively constant propensity to answer with anxiety. The STAI-t subscale, cronbach's alpha = .91, was applied in the study. The STAI-t subscale contains 20 statements unfolding different feelings, and defendants should response by presenting how students feel "in general". Objects are responded on a four-point likert-type scale, from 0 (almost never) to 3 (almost always) (Núñez-Peñaa at all. 2016; Lixin at all. 2016).

Findings

In this part of study, gender differences were analysed by relating independent t-tests to all questionnaires composed: the anxiety questionnaires, the test-condition questions, and the last examinations. On the anxiety questionnaires, female participants were registered to present higher levels of mathematics anxiety (t(205) = 3.15, p = .006) and trait anxiety (t(205) = 2.41, p = .010), as compared with male participants (table 1) (Núñez-Peñaa at all. 2016; Lixin at all. 2016).

Table 1. T-tests for anxiety questionnaires by gender and means, standard deviations, p-value

Anxiety questionnaires	Female participants	Male participants	T-test	P
Mathematics anxiety	61.19 (12.57)	52.43 (15.30)	3.15	.006
Trait anxiety	26.13 (7.03)	20.07 (8.81)	2.41	.010

Analyising gender differences in mathematics anxiety in more deeply, it was applied "separate t-tests" for each mars piece. As present in table 2, male and female participants varied in the answers to items 1, 5,10 and 14 and (t(205) = 2.51, p = .007; t(205) = 2.50, p = .031; t(205) = 3.07, p = .007 and t(205) = 3.23, p = .007 respectively), with female students recording a higher level of existence of the conditions defined in the pieces (Núñez-Peñaa at all. 2016; Lixin at all. 2016).

Table 2. Means, standard deviations (in brackets), and t-tests for items 1, 5,9 and 14 by gender.

Mars items	Female participants	Male participants	T-test	P
Item 1	2.37 (1.58)	1.82 (1.70)	2.51	.007
Item 5	1.45 (1.23)	2.11 (1.83)	2.50	.031
Item 10	1.50 (1.36)	1.19 (0.78)	3.07	.007
Item 14	1.42 (1.78)	1.46 (0.97)	3.23	.007

So, we underlined gender differences on the accomplishment questionnaires. In this analyse, group differences were not determined in either the "open-question" or "multiple-choice" examination marks at all accomplishment questionnaires which hits, errors and unanswered questions, respectively (Núñez-Peñaa at all. 2016; Lixin at all. 2016).

Result and discussion

In this paper, we tried to find variances between female and male vocational school participants in the registered level of mathematics, and trait anxiety, and the anticipated level of anxiety that encountered with special kind of test conditions. (Núñez-Peñaa at all. 2016; Lixin at all. 2016).

Finally, this examination presented which although registered levels of mathematics anxiety were up level for female vocational participants than for male participants. And, this condition does not seem to affect the school accomplishment, since the final point were similar with the of the male friends (Núñez-Peñaa at all. 2016; Lixin at all. 2016).

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On the Vocational School Students' Test Anxiety

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Abstract
Test anxiety, a widely used definitions, means to the context of functional and developmental answers that complement anxiety about potential negative significances or disaster on an examination. Principally low answer inception for anxiety in meaningful conditions, way to show test conditions as individually intimidating are characterized by test anxious persons. These persons way to respond with widespread uneasiness, mental incompetence, tension problems, and functional habits when showing to exam conditions. Test anxiety is frequently convoyed by unusual thoughts, for example, warning insights, approaches of condensed personal habits.
In this study, it is anlaysed gender variances in test anxiety between university participants, as for variances in the school success. Contestants were 125 participants from business department of Kocaeli vocational in Kocaeli University, all of whom finalized trials of test anxiety. The participants were also inquired nearby the likely level of anxiety when met with the detailed test conditions:
Keywords: test anxiety, school achievement, vocational, business department

Introduction

Test anxiety research has prospered building tests and the long-term values important instructive, communal, and experimental difficulties due to the increasing personal salience of test conditions for persons in contemporary culture (Kassim at all., 2008). According to these research team, test anxiety numbers blatantly as one of the basic problem types in the current theater adjacent psycho-educational testing. Many participants can go on assessments moreover accomplish way because of the enervating levels of anxiety. Test anxiety could also create a key cause of test unfairness, in that concerned examinees could make less well than the capability and helps (Linnenbrink, 2007; Castellano, M., Stringfield, S., Stone, J, Lewis, M. 2002). Lots of the test anxiety exploration since the last seventy years has been made to model on the negative things of test anxiety on examines act (Eysenck, 1992).

- *To survey gender differences in test anxiety,*
- *To search gender differences in school achievement by analyzing male and female participants' grades in an open-question and a multiple-choice exam.*

Research method

Participants were 125 business department in Kocaeli Vocational Vocational from Kocaeli University all of whom were sign up in an exploration plans development thru the 2016-2017 school year. The model contained 74 women with a mean age of 19.22 years and 51 men with a mean age of 19.86 years. Contestants were administered the succeeding gages and opinion poll:

- Test Anxiety Questionnaire – Caex (Núñez-Peñaa, Suárez-Pellicionic And Bonoa, 2016). This questionnaire measures test anxiety by describing 14 possible conditions, likert-type ruler, vacillating from 0 (practically on no occasion) to 5 (practically always), to indicate how often they skill each of the conditions, that we were only involved in the intellectual characteristics of test anxiety, those associated to fear and apprehension when fixing for or while deskbound an assessment steadfastness was found high level from the authors that cronbach's alpha = .94 (figure 1).

TEST ANXIETY QUESTIONNAIRE

Please answer the questionnaire by considering how often you experience each of the situations described below. Respond quickly, but make sure you think through the answers. It is very important to answer all the items.

	Almost never	Seldom	Sometimes	Often	Usually	Almost always
1. During a test I feel nervous if the teacher stands next to me, and then I can no longer answer the questions.						
2. I often cry after a test, thinking about how badly I've done, even if I don't know my mark.						
3. While I'm sitting a test, I think about how badly I'm doing.						
4. I get nervous if I see that others have finished the test before I have.						
5. I think the teacher is constantly watching me.						
6. I usually bite my nails or chew my pen during a test.						
7. I'm constantly restless throughout a test (moving my feet, playing with my pen, looking around the room, at the clock, etc.).						
8. I think I'm going to fail the test, even if I've studied beforehand.						
9. Before taking the test, my thought is that I've forgotten everything and that I'm going to fail.						
10. If I sit at the front of the class I feel more nervous.						
11. If the test is time-limited I get more nervous and do worse.						
12. My feeling as I leave the test room is that I've done badly.						
13. I think beforehand that I'll be nervous and that I'll forget everything.						
14. It takes me a long time to answer most of the questions or to decide to hand in my test paper.						

Figure. 1. Test anxiety questionnaire (Núñez-Peñaa, Suárez-Pellicionic And Bonoa, 2016i

Findings

Gender variances were analyzed by rub on autonomous t-tests to all trials poised: the anxiety trials, plus every of the CAEX objects and the test-situation questions, and the final exams. On the anxiety processes, female participants were exposed to a model that higher levels of test anxiety ($t(119) = 2.25$, $p = .009$), as linked with the manlike aristocrats. The equal shape of results was start when cramming gender variances in likely levels of anxiety when confronted with detailed kinds of test conditions. As publicized in table 1, female participants testified a sophisticated likely level of test anxiety than made the manlike matching part for uttered demonstrations ($t(119) = 2.11$, $p = .020$), multiple-choice test ($t(119) = 0,86$, $p = .014$), open-question test ($t(119) = 2,25$ $p = .036$), and tests involving calculations ($t(119) = 2.80$, $p = .008$).

Anxiety measures	Female participants	Male participants	T-test	P
Test anxiety	21.16 (12.04)	18.20 (9.13)	2.25	.009
Oral presentations	4.65 (2.04)	4.19 (1.80)	2.11	.020

Multiple-choice test	3.15 (1.75)	1.89 (1.62)	0.86	.014
Open-question test	2.72 (1.74)	2.23 (1.56)	2.25	.036
Test involving calculations	2.53 (1.30)	2.42 (1.65)	2.80	.008

Table 1. T-tests for anxiety measures by gender and means, standard deviations, p-values

Result

First we note that the intention of the training was to govern variances between female and male vocational participants in the testified level of test anxiety, moreover the likely level of anxiety at the time met with detailed kinds of test conditions.

Moreover, the elucidations were projected to explanation for gender variances in test anxiety (Núñez-Peñaa, Suárez-Pellicionic and Bonoa, 2016; Calabrese, R., Goodvin, S., Niles, R. 2005)

- To give participants to the unlike common persons gave to male and female. The reason of which is female students are at the bigger burden to flourish mentally than are male participants and students have much anxious of inadequate in a test conditions,
- The research findings propose that male have much apologetic according to female at the time it depends to disclosing anxiety.

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Paradigm Shift In Teacher Training Education Programs and Its Consequences On Human Capital Development In Nigeria

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Abstract

Teacher training education programs in Nigeria have been undergoing structural reforms following societal pressures and policy preferences among stakeholders in education. Teacher training programs had been structured to pass potential teachers through Teachers' Training Colleges (TTC), Advanced Teachers' Colleges which later metamorphosed into Colleges of Education, and then Universities. This study was motivated by declining pedagogy among teachers following the collapse of Teacher Training Colleges and the institutional neglect of Colleges of Education with its attendant reduction in value chain production in the education sector. A questionnaire, "teacher quality evaluation questionnaire", was used to generate data from 380 respondents saddled with teaching at different levels but only 350 were returned (150 from universities, 80 from colleges of education, 60 each from secondary and primary schools respectively) which were used in the analyses. The results showed that pedagogical skills among teachers had declined with the collapse of the TTC. Most respondents are of the opinion that some university graduates do not see teaching as a viable profession while the colleges of education are not endowed to meet the human capital needs of the country. The paper among others, recommended that a rejuvenated TTC program should be reintroduced and made component of the Senior School Certificate program to equip learners with teaching skills prior to entry into colleges or university. Also, special incentives and monetary allowances should be given to trainees on teacher education, while colleges of education should be rejigged to attain appreciable level of training students for enhanced human capital development in the country.

Key words: *Paradigm shift, teacher training institutions, human capital development.*

Introduction The socio-economic development of any nation depends on how much of its resources are deployed into the functional education of its citizens and the extent it is acquired by the latter. Functional education is that which strives at discovering the potentials in people and then designing teaching and learning experiences that would develop such potentials into skills and aptitudes that would enhance the quality of life and nation building. Hence education is the bedrock for socio-economic and technological development in societies.

Education and teaching are the flip sides of the same coin, with the quality of education depending largely on the quality of its teaching workforce. It is therefore expected that for education to play the fundamental role of social change the educational system should have within its rank and file, an aggregate of teachers with sound intellectual and professional capacities to teach learners. Unfortunately teacher education has not been able to realize this goal in Nigeria because the quality and quantity of teachers produced over the years have fallen short of national expectations and needs (Orakpo, 2018).

Teacher education in Nigeria was modeled to equip teacher-trainees with relevant pedagogy and aptitudes necessary for effective teaching and learning. In pre-independence Nigeria, teacher – trainees were schooled in specialized institutions, the Teachers Training Colleges. Precisely, teacher training education in the country started with the establishment of St. Andrew Teachers' College, Oyo, in 1896, followed by Baptist Training College Ogbomosho (1897), St. Paul's Training College Awka (1904), Oron Training Institute (1905), Wesleyan Training Institute (1928), and St. Charles Training College, Onitsha (1929). Similarly there were Teachers Training Colleges in Kastina and Toro (Adesulu, Orakpo, Youdeowei and Uwandu (2016). Graduates from these teachers' colleges were conferred with Teachers Grade II certificate.

The Grade II teachers were described as professionals with very deep knowledge of their subject matter, possessed impressive teaching skills, good work ethics, efficiency and commitment to the teaching profession. They prepared their lesson notes, related pupils progress to parents and abhorred every form of examination fraud and immorality

with students (Adesulu, *et al*., 2016). Graduates from teachers colleges formed a good base for producing teachers at higher levels of Nigeria Certificate of Education (NCE) and Degree.

Paradigm shift by way of structural reforms in education that ultimately gave birth to Colleges of Education dates back to the recommendations of the Ashby commission in 1859. The National Policy on Education in 2004 later prescribed that the NCE would be the lowest teaching qualification to teach in Nigerian primary schools and junior secondary schools. Following the shift in conceptual framework for education, funding for teachers' colleges by respective state governments were tacitly withdrawn, thereby pushing them into oblivion.

Successive governments in Nigeria have failed to give education a lift. Orakpo (2018) had documented that you can damage any sector of a country and it would still pull itself up, but the damage to education is the greatest harm that can be brought upon any nation. She concluded that Nigerian political and military elites have failed a whole generation.

Comparatively, the education sector has failed to receive the needed financial boost to develop the human capital that would uplift the nation from poverty and underdevelopment. Rather, it had been perennially underfunded by successive governments both at the federal and state levels. In 2018, the national budget allocated N102.907bn (about 7% of the budget) to education. Previous years budgets had followed similarly trends of low capital investment in the education sector viz: 2015 (9.5%), 2014 (10.6%), 2013 (8.70%) and 2012 (10.00%) as reported by Ige (2016), who equally lamented that education is further bedeviled by late release of funds to institutions. In the words of Utomi (2018), these allocations barefacedly fell short of the United Nations budgetary recommendation on education of 20 percent and above.

Consequently, teacher education in every state of the country is grossly enmeshed in pervasive decay of sorts. While most of the teachers exhibit contagious level of illiteracy, not being able to read the UBE books sent to them in Sokoto State, others in Edo State have notable discrepancies in their service records as filled in by them (Orakpo, 2018). The decay in teacher education reports lack of learning accommodation (classroom) and functional laboratories, decline in gross enrollment at all levels and production of teachers whose quality and quantity fall short of national expectations as well as failure of pre service teachers to successfully translate science concepts into vernacular, the common language of instruction in most public primary schools (Soyibo, 1992).

There is scarcity of competent teachers. UNESCO classifies Nigeria as one of 29 countries facing severe shortage of teachers (UNESCO Institute of statistics 2012) and will need to recruit an additional 375,479 primary teaching by 2015 in addition to the existing 300,000 so by extrapolation to 2018, Nigeria primary schools might be needing up to 1,300,000 teachers.

The structural reforms in the education sector has left teachers in very pitiable conditions. Fundamentally, most of the colleges of education have their curriculum not in primary education but on secondary education (Orakpo, 2016), with exceptions being in Early Childhood Care Education and Primary Education Development respectively. Consequently, most of the NCE teachers cannot cope in primary schools because the curriculum is not tailored towards the primary schools. She further asserted that NCE holders can only teach in secondary schools. As opposed to this, the status of teachers in the training colleges was sound as they were equipped with the capacity to deliver quality education to their learners in primary schools (Adesulu, *et al.*, 2016).

Further consequences of paradigm shift in education is that the self-esteem of the Nigerian teacher today is low and he falls short of all indices for enhanced self-worth; he works in classrooms crowded with pupils, without decent office/classroom accommodation and furnishings, lacking in portable water, electricity and conveniences. In addition to the catalogue of woes for the Nigerian teacher, his take-home pay cannot really sustain his wage bills for medicals, utilities, children's school fees, dependent siblings and aged parents. In the middle of these challenges, he is expected to perform optimally and churn out the country's great leaders and technocrats. Adewulu, *et al.,* (2016), noted that Nigerian teachers work in an environment that is least friendly and hazardous, coupled with poor welfare packages including meager and irregular salaries.

Today there is high graduate unemployment in the country because graduate employees have inadequate technical knowledge, deficient proficiency in English and lack of critical thinking coupled with high technological drive of most organizations in response to tougher competition in the competitive labour markets (Orakpo, 2018).

Professor Olu Adesulu *et. al.,* (2016), regretted that "the day we abrogated Grade II teachers colleges in Nigeria was the time we killed teacher education and subsequently education in Nigeria."

Problems of the study:

The quality of graduate teachers churned out by educational institutions in Nigeria for possible recruitment by potential employers have recently fallen short of expected levels of competence in terms of pedagogy skills and ability to effectively teach prescribed categories of learners without compromising standards. Consequently, most graduate teachers find it difficult to meet the benchmarks set by employers.

Aims and objectives:

Specifically, the paper seeks to :-

- ➢ Generate information on the causes of decline in the acquisition of competent teaching skills by most graduate teachers.
- ➢ Elucidate on the disposition of government towards sustainable education culture in Nigeria.
- ➢ Suggest measures to boost the self-worth of the Nigerian teachers.

Population and sampling

The study population consists of all Nigerian teachers spread across Universities (U), Colleges of Education (C), Secondary schools (S) and Primary schools (P). The sample consists of a total of 380 respondents , randomly selected from 4 universities (2 each from Northern and Southern Nigeria), 4 colleges of education, 6 secondary schools and 6 primary schools all from southern Nigeria.

Instrumentation for the study

The research instrument was a 13-item questionnaire designed on a five-point rating scale, Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D) and Strongly Disagree (SD), to generate information on the consequences of paradigm shift on teacher quality in Nigeria. It was face validated by a research colleague and pilot-tested twice on the respondents. A reliability co-efficient of 0.85 was established.

Administration of research instrument

The questionnaire was deployed to the respondents and retrieved with the help of a teacher in each institution used in the study. Data were analyzed using summations and percentages.

Results and Discussion

From Table I, there were diverse opinions to the belief that Grade II teachers deployed diverse teaching methodologies during lesson presentation. While teachers in the universities (66.67%), disagreed with this position, teachers from colleges of education (75.00%), secondary schools (75.00%) and primary schools (66.67%) affirm that teachers from training colleges deploy diverse teaching methodologies during lesson presentation in primary schools for better teaching and learning. Substantial number of respondents in all categories agreed that teachers from teacher colleges were more resourceful and creative with respect to their jobs (Table I[ii]). Furthermore, teacher-trainees from universities acquire and exhibit lesser drills on pedagogy during employment service. Paradigm shift has facilitated inadequacy in infrastructure and facilities in colleges of education (Table I [iv]) as emphasis was placed on university degrees. Colleges of education were poorly funded and existing facilities suffered from lack of maintenance. In addition, interest of admission seekers into colleges waned and the craving for university education increased. Today, colleges of education face low students enrolment nationwide (Table I, [iv]).

From Table II, university teachers were divided on the opinion that most teacher-trainees in universities prefer job opportunities outside the classroom as represented by 53.34 percent who disagreed as opposed to 46.67 percent who affirmed their agreement (Table II, [i]). All the respondents agree that cut-off marks for admission into colleges of education and education disciplines were lower than those of humanities and technology based courses in both polytechnics and universities (Table II, [ii]). Furthermore there was general agreement that teachers have low professional motivation (Table II,[iii]), coupled with low self-esteem (Table II, [iv]).

Table I: Paradigm shift on teacher's quality

S/N		SA (%)	A (%)	U (%)	D (%)	SD (%)	TOTAL	
							A %	**D%**
i	Grade II teachers deploy diverse teaching methodologies during lesson in primary school (U)	10(6.67)	40(26.67)		70(46.67)	30(20.0)	**33.33**	**66.67**
	(C)	20(25.00)	40(50.00)		10(12.50)	10(12.50)	**75.00**	**25.00**
	(S)	25(41.67)	20(33.33)	5 (8.33)	10(16.67)	-(-)	**75.00**	**16.67**
	(P)	30(50.00)	10(16.67)	-	10(16.67)	10(16.67)	**66.67**	**33.33**
ii	Teachers from teachers colleges are more resourceful and creative (U)	50(33.33)	40(26.67)	5(3.33)	30(20)	25 (16.67)	60.00	36.67
	(C)	40(50.00)	15(18.75)		15 (18.75)	10 (12.50)	68.75	31.25
	(S)	35(58.34)	15(25.0)		5 (8.33)	5 (8.33)	83.33	16.66
	(P)	40(66.67)	20(33.33)		- (-)	-(-)	100.00	-
iii	Teacher-trainees from universities have lesser drills On pedagogy (U)	60 (40.00)	30 (20.00)	10 (6.67)	30 (20.00)	20 (13.33)	60.00	33.33
	(C)	50 (62.5)	20 (25.00)	-	10 (12.50)	-	87.5	12.50
	(S)	30 (50.00)	15 (25.00)	-	15 (25.00)	-	75.00	25.00
	(P)	45 (75.00)	10(16.67)	-	5 (8.33)		91.67	8.33
iv	Colleges of Education in Nigeria face decay in facilities and infrastructure (U)	80 (53.33)	20 (13.33)	10 (6.67)	25 (16.67)	15 (10.00)	66.66	26.67
	(C)	70 (87.5)	10 (12.5)	-			100.00	-
	(S)	25 (41.67)	18 (30)	-	10 (16.67)	7 (11.67)	71.67	28.34
	(P)	22 (36.67)	16 (26.67)	-	10 (16.67)	12 (20.00)	63.33	36.67
V	College of Education face low Students' enrolment in Nigeria (U)	90 (60.00)	50 (33.33)	-	10 (6.67)	-	93.33	6.67
	(C)	50 (62.5)	30 (37.5)	-	-	-	100.00	-
	(S)	20 (33.33)	30 (50.00)	-	10 (16.67)	-	83.33	16.67
	(P)	15 (25.00)	33 (55.00)	-	12 (20.00)	-	80.00	20.00

Table II: Teachers' professional integrity.

S/N		SA (%)	A (%)	U (%)	D (%)	SD (%)	TOTAL A%	D%
i	Most teacher-trainees in U universities prefer job C opportunities outside the S primary classroom P	60(40.00)	10(6.67)	-	40(26.67)	40(26.67)	46.67	53.34
		40(50.00)	30(37.5)	-	10(12.50)	-	87.5	12.50
		20(33.33)	30(50.00)	-	10(16.67)	-	83.33	16.67
		25(41.67)	20(33.33)	5 (8.33)	10(16.67)	-	75.00	16.67
ii	Admission cut-off marks for U colleges of Education/ C education disciplines in S universities are lower P	100(66.67)	50(33.33)	-	-	-	100.00	-
			-	-	-	-	100.00	-
		80(100.00)	30(50.00)	-	-	-	100.00	-
			15(25.00)	-	5 (8.33)	-	91.67	8.33
		30(50.00)						
		40(66.67)						
iii	Nigerian teachers have low U professional motivation C S P	90 (60.00)	35 (23.33)	-	20 (13.33)	5 (3.33)	83.33	16.66
		36 (45.00)	20 (25.00)	-	15 (18.75)	9 (11.25)	70.00	30.00
		25 (41.67)	24 (40.00)	-	11 (18.33)		81.67	18.33
		20 (33.33)	40 (66.67)	-	-		100.00	-
Iv	Nigerian teachers have Low self-esteem U C S P	60 (40.00)	55 (36.67)	-	15 (10.00)	20 (13.33)	76.67	23.33
		40 (50.00)	30 (37.5)	-	5 (6.25)	5 (6.25)	87.5	12.5
		25 (41.67)	15 (25.00)	5 (8.33)	10 (16.67)	5 (8.33)	66.67	25.0
		30 (50.00)	10 (16.67)	-	10 (16.67)	10 (16.67)	66.67	33.34

From Table III, it was noted that apart from primary school teachers (66.67 percent), other respondents from universities (66.67 percent), colleges of education (62.50 percent) and secondary schools (83.34 percent) affirmed that most teacher-trainees in universities enroll merely to acquire a university degree (Table III [ii]). There was a general notion among the respondents that most graduate teachers from universities have poor job output quality (Table III, [ii]), but disagreed that NCE holders refuse teaching jobs in primary schools (Table III, [iii]). The consensus is that NCE holders are not even offered government paid teaching jobs (Table III, [iv]).

Table III: Worth of teaching certificate

		SA (%)	A (%)	U (%)	D (%)	SD (%)	TOTAL A %	D%
i	Most teacher-trainees in universities enroll merely to acquire a university degree — U C S P	40(26.67)	60(40.00)	-	40(26.67)	10(6.67)	66.67	33.34
		20(25.00)	30(37.5)	-	20(25.00)	10 (12.50)	62.50	37.50
		25(41.67)	25(41.67)	-	10(16.67)	-	83.34	16.67
		10(16.67)	10(16.67)	-	30(50.00)	10 (16.67)	33.34	66.67
ii	Most graduate teachers from universities have poor job output quality in teaching — U C S P	5 (3.33)	15(10.00)	10 (6.67)	80 (53.33)	40 (26.67	13.33	80.00
		30 (37.5)	40 (50.00)	-	10 (12.50)	-	87.50	12.50
		26(43.33)	10(16.67)	-	20 (33.33)	4 (6.67)	60.00	40.00
		30(50.00)	25(41.67)	-	5 (8.33)	-	91.67	8.33
iii	NCE holders refuse teaching jobs in primary schools — U C S P	-	-	-	100 (66.67)	50 (33.33)	-	100
		-	10 (12.5)	-	30 (37.5)	40 (50.00)	12.50	87.50
		-	-	-	30 (50.00)	30 (50.00)	-	100.00
		-	-	-	40(66.67)	20 (33.33)		100.00
iv	Most NCE holders are not offered government paid teaching jobs — U C S P	80 (53.33)	50 (33.33)	-	15 (10.00)	5 (3.33)	86.66	13.33
		50 (62.5)	30 (37.5)	-	-	-	100.00	-
		40 (66.67)	10 (16.67)	-	5 (8.33)	5 (8.33)	83.34	16.66
		45 (75.00)	15 (25.00)	-	-	-	100.00	-

The result suggested that holders of Teachers Grade II certificates deployed different methods of teaching in order to capture and sustain learners' interest and be able to effect positive learning among pupils in primary schools. This is because they had deep knowledge of subject matter, prepared lesson notes and had impressive teaching skills as reported by Adesulu, *et. al.*, (2016), unlike teachers that merely passed through universities without grade II background.

The study also noted that some colleges of education and primary schools were groaning under decay in facilities and infrastructural deficiencies. Education has continued to be paid lip service by several governments as evident from low budgetary provisions, delayed release of funds for capital development as reported by Ige (2016) and Soyibo (1992). Most institutions of learning lack basic classroom accommodation and conducive working environment for staff who are sometimes owed several months of salary arrears. The general lack of incentives for teachers coupled with poor regard for them has affected enrolment patterns into colleges of education reaching an all-time low in recent years. Nobody wants to take a course that cannot guarantee a sustainable future.

Teaching in Nigeria suffers from low professionalism while the teachers have low professional motivation. As a result of low professionalism, graduates of other disciplines take up teaching jobs as an alternative to lack of viable jobs. This accounts for teachers' doing their work with lack of enthusiasm, dedication and pride as a large proportion of them have notable quality deficiencies. Professionally qualified teachers are demotivated by poor funding of the sector, meager, irregular salaries in arrears and general lack of morale-boosting working environment. This is why the self-esteem of the average Nigerian teacher is low, falling short of all indices for enhanced self-worth.

The study also recorded that most students in education disciplines merely desire to earn a university degree without desiring to take up vocations in teaching. This could be ascribed to poor remuneration and job satisfaction in the classroom as well as low self-worth of the teacher in the society. The study equally noted that some teacher-trainees from universities have lesser pedagogy skills and so are most likely to manifest some deficiencies in relevant teacher quality, in agreement with Okebukola in Orakpo, (2018), who posited that many teachers have shallow knowledge of their teaching subjects and worse still, shallower knowledge and skills in entrepreneurship to positively influence their students. It was further reported that NCE holders do not refuse teaching jobs in primary schools but rather they are not employed even though they are to teach in primary schools as prescribed by law. Adesulu *et.al*, (2016) had reported that Government still prefer the university graduates.

Paradigm shift in Nigerian education was intended to reposition the sector and increase the capacity for human capital development. However, the legal framework for professionalizing teaching was not tenaciously implemented to its logical conclusion. As a result teacher education was scattered in colleges of education, universities and some polytechnics with total eradication of Teacher Training Colleges. Admission of students ought to give the best brains to education but what we have is a situation where admission cut-off marks are lowered for education programmes thereby making education the vocation for the below average and poor in intelligence and yet were expected to produce the country's future leaders and technocrats. Okebukola in Orakpor, noted that through this process the academically weak and emotionally unwilling are admitted into teacher education programmes, and with low self-esteem and minimum motivational propelling power, the teacher trainees are corralled like sheep through the machinery of teacher preparation process and come out ill-equipped and ill-suited to meet the challenges of 21st century teaching in a developing economy. With the total eradication of Teacher Training Colleges, the foundation for grooming teachers for the basics was destroyed and pedagogy eliminated to the fringe of teacher education in colleges and universities.

Paradigm shift in education required that funding would be adequate for infrastructure, facilities and manpower development. However, on the contrary, the Nigerian education sector is funded below the UNESCO mandate of 20% and above of National budgets for education and continues to grapple with notable deficiencies in program implementation and quality assurance.

Recommendations

1. A modified paradigm shift is suggested whereby Teacher Training Programmes should be made part of the Senior School Certificate curriculum. So that potential teachers would acquire basic teaching skills before going into either colleges of education or universities.

2. The self-worth of the teachers should be restored and they be given the place of honour they deserve, through prompt payment of descent wages coupled with dignifying working environment. This will encourage the best brains to seek vocations in education.

3. Remuneration of teachers should be based on their qualification and experience rather than on the institution they teach. This will encourage horizontal mobility of qualified teachers from primary, secondary and tertiary institutions and vice versa.

4. NCE and university graduate teachers who are not trained to teach in primary schools should be retrained, especially those who studied non-teaching courses but had eventually found their way into teaching. Further use of teaching as a dumping ground for the unemployed job seekers should be stopped through registration and licensing of qualified teachers and potential teachers by the Teachers Registration Council of Nigeria (TRCN).

5. Recruitment of teachers should not be based on their certificates alone. Selection should be based on performances on aptitude tests as well as tests on subject matter content. Furthermore, selected teachers should be constantly monitored to ensure compliance to prescribed quality and standards.

6. Colleges of education should be rejigged financially and in infrastructure to attain and sustain appreciable level of training of students for enhanced human capital development in the country.

Conclusion

Paradigm shift in education in Nigeria for enhanced quality service delivery was fraught with dearth of infrastructure and policy inadequacies. Phasing out of the TTC and making NCE the baseline qualification for teaching in primary school contributed to the destruction of the education sector from grassroots by conferring on it an elitist status that is alien to the practitioners. Education will improve and provide the needed boost in human capital development if all the parameters dignifying the teaching profession are restored and the honor of teachers placed above those of lawyers, doctors, engineers and politicians.

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ROLES OF THE TEACHER IN THE DEVELOPMENT OF INNOVATIVE THINKING IN GOVERNMENT SECONDARY SCHOOLS FROM THE PERSPECTIVE OF STUDENTS

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ABSTRACT:

The current research aims to identify the role of teachers in the development of innovative thinking among students in government secondary schools in the Emirate of Sharjah. A random sample was selected, including (6) government secondary schools, where the questionnaire of "Innovative Thinking" was applied to (280) male students of whom (140) had scientific [specialization], (140) had literary, and (280) female students of whom (140) had scientific [specialization], (140) literary. The number of valid returned questionnaires was (530) of up to 37% of the total number of students in the schools that were selected. The results revealed that the obstacles to innovative thinking came in first place with great approval, which confirms the presence of a variety of obstacles that limit the innovative thinking of the students. These obstacles including the school's curriculum, teachers, teaching methods, examinations, and expectations of the students' families.

The role of the school environment in the development of innovative thinking among students came in second place with great approval, which confirms that there is concerted effort in schools to help students in innovative thinking. Then, the role of the classroom environment in the development of innovative thinking among students came in third place with moderate approval. The role of the teacher in the development of innovative thinking came in last place with moderate approval, as the role of the teacher in the development of both intellectual flexibility and intellectual fluency attained moderate approval, while the role of the teacher in the development of intellectual originality attained less approval.

Furthermore, it turns out from the results that there are no statistically significant differences at the level ($p \leq 0.05$) in reality of the contribution of teachers to the development of innovative thinking among students with its three dimensions: fluency, flexibility and originality; that are attributed to the variable of gender. There are no statistically significant differences at the level ($p \leq 0.05$) in regards to the contribution of the school environment in the development of innovative thinking among students attributable to the variable of specialization, as there are no statistically significant differences at the level ($p \leq 0.05$) in regards to the contribution of teachers in the development of intellectual flexibility among students that are attributed to specialization.

There are statistically significant differences at the level ($p \leq 0.05$) in the contribution of the classroom environment to the development of innovative thinking among students attributable to specialization in favor of scientific specialization. There are statistically significant differences at the level ($p \leq 0.05$) in the contribution of teachers to the development of intellectual flexibility among students attributable to the variable of specialization in favor of scientific specialization, and in the development of intellectual originality among students attributable to the variable of specialization in favor of the literary.

ROLES OF THE TEACHER IN THE DEVELOPMENT OF INNOVATIVE THINKING IN GOVERNMENT SECONDARY SCHOOLS FROM THE PERSPECTIVE OF STUDENTS

INTRODUCTION:

Innovative thinking is one of the necessities of life in contemporary schools. It is represented in the development of the student's ability in lateral or free thinking, which enables him/her to reformulate the elements of experiences or situations in new patterns. This reformulation is achieved by providing the largest possible number of alternatives or appropriate solutions to the problem or situation, characterized by originality and interest for both the student and the community. Contemporary educational literature attaches great importance to the development of innovative thinking among students in schools, where psychology research confirms that innovative thinking is growing through practice and training. There are various inputs and strategies through which the teacher can develop innovative thinking among students.

The teacher is one of the most important inputs of the educational and learning process, and has the most serious impact in the preparation and education of young people. Furthermore, the teacher is one of the most effective factors in the development of innovative thinking among students in schools. The development of innovation depends on the teacher's professionalism and the extent to which he/she has effective teaching skills – skills that are based on the fact that the learner is the center of the educational process. It is further contingent upon the teacher's awareness of the elements and importance of innovation and innovative thinking, and his/her ability to apply teaching methods that enhance innovative thinking, as well as his/her decisive role in the effective management of the classroom environment.

The teacher is crucial to providing an environment conducive to innovative thinking, as the classroom climate should encourage students to provide ideas and solutions. These ideas and solutions should be stimulated, whatever their kind and extent of their peculiarity. The classroom should be modeled on the concept of interactive human relations, in which the teacher shows his/her appreciation of all new ideas articulated by students for situations and problems in the classrooms. The development of innovative thinking among students is possible, but it should not be left to chance. It is a process that primarily needs a teacher, who practices his/her role in a highly professional manner.

RESEARCH PROBLEM:

The development of innovative thinking among students represents one of the most important objectives of education in contemporary schools. Contemporary life is subject to constant change and the skills and knowledge required by individuals in the future may be unknown at the present time. This requires students to be given the ability of innovative thinking. In the future, innovative thinking will produce new ideas contributing to their adaptation to the renewed reality. They will be able to find creative solutions to the problems that they face – now

and in the future – preparing them for lives in a fast-changing and rapidly -renewing knowledge society.

However, the reality of education in schools in most countries of the world suffers from the prevailing school model – the factory model - in which work is divided on the basis of specialization. Subjects are divided according to the specializations, and then distributed to the school staff. As is the case in factories, students carry out specific tasks and duties, which are inspected by supervisors (teachers). The supervisors/teachers pressure the students into completing these tasks through threats and intimidation. Over time, the administrative model of the "school - factory" is turned into the "school – prison." School are turned into fortresses, surrounded by high walls and closed metal doors. Managers and teachers roam the premises, screaming and threatening anyone who is tempted to go outside of the system, a system that kills creativity and innovative thinking (Al-Khatib, 2006).

Schools established in the nineteenth century were founded on a set of assumptions of knowledge and how to acquire knowledge, as well as on a set of beliefs about the best ways to ensure students memorize information, and therefore become good citizens. Schools are modeled as factories, places where education is legalized. Teachers can deliver information to students in the form of well-known facts. Knowledge is fixed and teachers hold knowledge in their area of specialization, and their role is to transfer that knowledge to the students. Given that knowledge is fixed, schools regulate what is known as the curriculum for all students. Success in school is measured by the quantity of information that students memorize from the curriculum according to the achievement tests. This is a long way from the development of innovative thinking among students in schools (Arendz, 2005).

Therefore, we can say that the educational process in schools is largely based on educational theories, strategies, and beliefs, which do not develop innovative thinking among students. The facts and ideas are provided ready for students, relying on traditional teaching methods emphasizing memorization on the one hand, and logical and sequential methods of thinking emphasizing a single intellectual line on the other hand. They are practices that, in essence, impede innovation and innovative thinking processes. In these schools, students spend very little time learning the art of lateral thinking, which is quite different from the typical modes of thinking, and fosters innovative thinking. Al-Anzi's study (1994) confirms the above, where it concluded that what is provided in schools in the Arab Gulf States does not develop innovative thinking among students.

Since the psychology research confirmed that thinking grows through practice and training and that there are various outputs, strategies, and methods through which the teacher can develop innovative thinking among students, the current research aims to identify the roles of the

teacher in the development of innovative thinking from the perspective of students in government secondary schools by answering the following main questions:

- What is the reality of teachers' contribution to the development of innovative thinking from the perspective of students in government secondary schools in the Emirate of Sharjah?
- What is the reality of the school and classroom environments' contribution to the development of innovative thinking from the perspective of students in government secondary schools in the Emirate of Sharjah?
- Are there any statistically significant differences in the reality of the contribution of teachers, the school environment, and the classroom environment to the development of innovative thinking among students in government secondary schools in the Emirate of Sharjah, which are attributed to gender or specialization?
- What are the obstacles to the development of innovative thinking from the perspective of students in government secondary schools in the Emirate of Sharjah?

RESEARCH OBJECTIVES:
The objectives of the current study are determined in the following points:
1- Identifying the roles of teachers in the development of innovative thinking among students in government secondary school in the Emirate of Sharjah.
2- Identifying the contribution of the school and classroom environment to the development of innovative thinking among students in government secondary schools in the Emirate of Sharjah.
3- Identifying the most important obstacles to the development of innovative thinking among students in government secondary schools in the Emirate of Sharjah.

RESEARCH LIMITS:
The scope of the current research is limited to the study and analysis of the roles of teachers and the school and classroom environment in the development of innovative thinking, as well as to the analysis of the most important obstacles to the development of innovative thinking among students in schools through a sample of government secondary schools in the Emirate of Sharjah, UAE, in the year 2016/2017.

RESEARCH APPROACH:
In the current study, the descriptive and analytical approach is used to describe and analyze the educational practices of teachers and secondary schools' administrations. This approach is used in the development of innovative thinking, and to analyze the most important obstacles limiting students' innovative thinking in these schools.

RESEARCH TERMINOLOGY:

The researcher adopted the following procedural terminology:

Innovative Thinking: is a flexible mental activity which deals with the issues, situations, problems and phenomena by analysis, interpretation, and consideration of multiple perspectives in order to reach new ideas regarding them.

Teacher's Role: everything done by the teacher in regards to student performances, whether inside or outside the classroom, which contribute to the development of innovative thinking among students.

Theoretical Literature:

Students represent the human capital of any society. Their upbringing on innovative thinking prepares them for a future in which innovation is vital. Community progress and development depend on creative and innovative minds that are prepared and cared for in schools. Thus, the role of schools is growing in regards to the preparation of innovative students able to creatively solve problems facing society. These students should have the skills and abilities to help them think about various and new alternatives to overcome the renewable issues and problems they face in society.

The upbringing of students on thinking with its wide meaning in a broad sense means raising them on the search for meaning in situations, experiences, and issues at stake. Thinking is divided into two types. The first type is sequential logical thinking, which is achieved according to a specific methodology, and takes approximately 98% of human time. The second type of is lateral or horizontal thinking, which is similar to drilling in various areas. It does not proceed in a logical or sequential manner, but in varied directions. Lateral or horizontal thinking takes 2% of human time.

The upbringing of students on innovative thinking includes, in addition to the search for meaning in situations and experiences, the trend towards thinking of new concepts or ideas about such situations or issues at stake, which were not known before. This is lateral and comprehensive thinking dealing with issues from a variety of aspects. It does not depend the logical sequence. It involves overlapping cognitive, emotional, and moral elements, which together constitute a unique mental constitution that sees the familiar in an unfamiliar way. Through this unfamiliar way, the innovative mind reaches new ideas that can have future application, serving society and humanity as a whole.

The professional responsibilities of the teacher in contemporary educational literature are illustrated through helping students to participate in the learning process, providing opportunities for them to understand the difficulties and frustrations they face, and focusing on experiences and activities in order to build their knowledge. The teacher also strives to provide continuous feedback to students, in addition to providing students with a positive trend towards error; as the learner is making meaningful progress when analyzing aspects of the error and learning from

failure. The teacher further provides an effective and stimulating classroom environment that raises the students' motivation and helps them to take initiatives, be positive, and formulate ideas. Teachers should foster an environment where students feel psychological security, respect for their views, and appreciation of their achievements, and positive recognition for anything new they present, no matter how strange (Stephenson & York, 1998).

Contemporary educational literature stresses that the teacher needs to realize that he/she bears new professional responsibilities. These responsibilities are based on a clear teaching philosophy, in which he/she reduces the time spent on recitation and cramming information in the minds of students, and increases the time dedicated to students' activities and meaningful learning processes. Thus, the teacher becomes reactant, negotiator, facilitator, mentor, researcher, adviser and commander of the students, who encourages them to engage in common work, dialogue, and scientific debates. The teacher should utilize various teaching methods that plant seeds in the minds of students about matters or issues at stake. These teaching methods include brainstorming, observation, discovery, problem solving, inquiry and conclusion; as well as other methods that feed students' curiosity and develops their ability to construct meanings and produce new and innovative ideas.

The development of innovative thinking requires a teacher who encourages students to produce the greatest number of new ideas related to innovative solutions for the problems at stake. Fostering innovation in the classroom further requires a teacher who encourage students to adopt a variety of responses different from pre-identified mental patterns; responses that emphasize novelty and uniqueness. A teacher should educate students on the fact that one problem has more than one solution; and should accept and appreciate all the students' solutions, ideas and perspectives. The teacher who assumes the task of innovative thinking development, must be characterized by innovation and possess the skills that enable him/her to sail with his/her students in tours of imagination, whether fantasy mixed with reality or even far away from reality. It assists students to sometimes live in the imagination; as the first stages of innovative thinking involve the imagination. Therefore, the responsibility of the teacher is essential in the development of innovative thinking among students in schools.

There are a variety of teaching strategies that can be used by the teacher in the classroom. They are effective in the development of innovative thinking among students. The most important of these strategies are the following: (Olive, 1987) and (Solomon, 1999).

Synectics strategy: is a teaching strategy based on the link between different elements that do not seem to include a link or association. This strategy seeks to make the familiar strange and the strange familiar. It is based on mental processes such as analysis, generalization, and similarity; i.e. searching for a model. In this strategy, meaning is not the mere pursuit of strangeness. Rather, it is a conscious attempt on the part of the individual that allows him/her a

new vision for the world, life, and ideas. Mesaieed's study (2005) refers to the effectiveness of the synectics strategy in the development of innovative thinking as a whole, and in the development of each of the fluency skills, originality, and flexibility, in tenth grade students in Amman, Jordan.

Brainstorming strategy: Studies show that the brainstorming strategy is the most effective strategy in the development of innovative thinking (Al-Kandari 0.2012) and (Al-Sherbini 2012). The brainstorming strategy is based on the raising of a problem to students, and then asking them to provide a greater number of ideas to solve this problem with a commitment to the principles of brainstorming. The most important principle of brainstorming is that quality is more important than quantity.

In order to access creative ideas, the existing ammunition of traditional ideas must be exhausted. The evaluation of ideas must be deferred until sufficient opportunity is given, as much as possible, for seeding ideas. In order for this method to succeed, it is necessary that students be aware of the problem for discussion, ideas, and relevant information. The role of the teacher in the brainstorming session shall be neutral to a large extent; as he/she shall lead the session and encourage the sowing of ideas.

Role-playing strategy: is a strategy based on the teacher identifying, with the students, the subject matter or problem while the students themselves develop the script. In this scenario, it is not required to commit to memorizing a specific text. The freedom shall be left to the student to act and be immersed in the role he/she plays. The best student performance in the role play is when his/her ideas are new and strange. This strategy helps students to practice what they learn and to delve deeper into the meanings of situations they have studied. Role play allows students to express themselves and to choose from the roles what suits them. This strategy encourages students to positively participate in the formation of their ideas and opinions.

Problem solving strategy: is a strategy strongly linked to the development of innovative thinking. The essence of innovation is based on the perception of new relationships and connections between the dimensions of the situation or problem. The training of students on the provision of non-typical solutions according to certain scientific methodology, is helpful to them in regards to the development of innovative thinking, which leads them to find new and innovative solutions to the problem.

Despite the importance of innovative thinking and its necessity for the future of the students and the community, there are obstacles limiting innovative thinking among students in schools. Saeedi & Balushi's study (2005) found that the family came in first place as an obstacle to innovative thinking. Awareness of the importance of innovative thinking is lower in families, in addition to a lack of attention and encouragement in regards to innovation. Students often suffer from family pressures that force them to keep pace with traditional adult views opposed to innovative thinking.

Material capabilities ranked second as an obstacle to innovative thinking among students. Curriculum content came in second place due to the excessive materials contained therein and their lack of relevance to innovative thinking. The teacher came in the last place as an obstacle to innovative thinking. Obada's study (2001) partially agrees with the previous results; where it found that the content of the school curriculum and teacher represent obstacles to innovative thinking in schools.

Al-Musailam and Zainal's study (1992) confirms that the obstacles to innovative activities in secondary education schools in Kuwait are diverse. These obstacles include the students, school environment, school curriculum, and teachers. Al-Malaa and Al-Metawaa's study (1997) concluded that the school curriculum and the teacher are the most important obstacles to innovative thinking among students in schools. Therefore, we can say that there are multiple elements that limit innovative thinking among students in schools. The most important of these is the students themselves; the fearful and hesitant student, who is suffering from cognitive problems, making it difficult for him to exercise innovative thinking.

Furthermore, the school curriculum, which is based on logical sequence and providing turnkey solutions and knowledge as fixed facts, limits innovative thinking. The unsafe classroom and school environment does not stimulate learning, as well as the traditional teaching that dominates the learning process. Traditional teaching is based on memorization by the teacher and receiving and accumulation by the student. The family, which often lacks awareness of innovative thinking and its importance for their children, also presents an obstacle to innovation. Finally, the teacher - who performs his/her role in a traditional and functional manner- stifles innovative thinking. All these elements have a negative impact on the development of innovative thinking among students in schools.

Nour Al-Hadi's study (2012) aimed to identify the extent to which the teacher uses psychological and educational concepts that affect the development of innovative thinking among secondary school students. He applied a questionnaire on a sample of 100 male and female teachers who were selected at random. Results of the study found that the degree of the teacher's use of psychological and educational concepts (promotion, motivation for earning and innovative teaching) are confined between medium and weak, which suggests that the contribution of the teacher to the development of innovative thinking ranges from poor to medium. As it turns out, there are no statistically significant differences between male and female teachers in the development of innovative thinking, attributed to the factor of gender.

Al Ghamdi's study (2009) agrees with the results of the previous study. Al Ghamdi conducted a study to identify the extent of teachers' practice of Islamic education at secondary schools in Mecca, in regards to the development of innovative thinking skills. He applied a note

card on a sample of 30 teachers in (19) secondary schools. Results of the study found that the teacher's practice of innovative thinking skills is weak, which indicates a lack of knowledge on the part of the teachers concerning the necessary skills for the development of innovative thinking among students.

Al-Azmi's study (2009) concluded results different from the results of the two previous studies. Al-Azmi applied a questionnaire to a sample consisting of 140 teachers at secondary schools in Kuwait, in order to identify the teacher's role in the development of innovative thinking among students. Results of the study confirmed that the teacher has an effective role in the development of innovative thinking among students. This role is enacted through daily practices represented in teaching methods helping students to formulate new ideas, and to accept and appreciate new ideas. Teachers practicing an innovative teaching method should respect students' opinions, develop aspects of their discipline, and encourage their participation and completion of work by themselves.

RESEARCH PROCEDURES:
RESEARCH COMMUNITY:
The population consists of students of government secondary schools in the Emirate of Sharjah in the United Arab Emirates.

RESEARCH SAMPLE:
A random sample was selected from (6) government secondary schools, including (3) schools for girls, namely (Wasit School, Zahra School and Al-Qaraen School); and (3) schools for boys, namely (Al-Orouba School, Helwan School and Al-Namouzadjeya School), with a rate of increase of about 28% of the original community. The number of students in the selected schools is (1395) male and female students, including (589) male students of whom (232) have a scientific [specialization], (357) have a literary [specialization] and (806) female students of whom (365) have a scientific [specialization], (441) a literary.

The questionnaire of "Innovative Thinking" was applied to (280) male students of whom (140) have scientific [specialization], (140) a literary [specialization] and (280) female students of whom (140) have a scientific [specialization], and (140) a literary [specialization]. The number of valid returned questionnaires was (530) of up to 37% of the total number of students in the schools that were selected.

RESEARCH TOOL:
The research tool was built by taking advantage of the theoretical literature, writings, and studies on the subject of innovative thinking in schools. The questionnaire consisted of four focuses: first, the teacher and the development of innovative thinking; second, the classroom environment and innovative thinking; third, the school environment and the development of innovative thinking;

and fourth, obstacles to innovative thinking in schools. The previous four subjects included (38) paragraphs.

Tool Validity:

To calculate the credibility of the questionnaire, the researcher presented the questionnaire to a group of professors specialized in education and psychology. The evaluators made several remarks about the wording of a few paragraphs in terms of being reflective of the actual performances of teachers, as well as the suitability of several of the paragraphs to the focuses. After making all adjustments in light of the evaluators' proposals, the questionnaire took its final form in what is known as logical truthfulness .

Tool Stability:

The steadiness of the tool has been calculated using SPSS program, where the value of Cronbach's Alpha has been calculated in approximately 0.79, which is convenient steadiness.

Statistical Treatment:

The questionnaire of "Innovative Thinking" consisted of four focuses; first, the teacher and the development of innovative thinking - including (1) the teacher and the development of intellectual fluency, (2) the teacher and the development of intellectual originality, and (3) the teacher and the development of intellectual flexibility. The second focus was the classroom environment and innovative thinking; the third focus, the school environment and the development of innovative thinking; and finally, the fourth focus, obstacles to innovative thinking in schools.

These focuses have been statistically treated using SPSS program Version 23. The preliminary data has been entered from each questionnaire separately and the focuses have been identified. And then, the relative weights of the phrases and focuses were entered. Several statistical operations were used, such as averages, standard deviations, and "T" test.

Standard governing the degree of content availability of paragraph or focus:

The sample of study is from students answering a questionnaire through Quintet Likert Scale, in which the highest value of the response is 5 and the least is 1. Thus, the following standard has been adopted to judge the average ratio of response; a standard taken by many social and educational studies.

Table (1)

Standard governing the degree of availability of the content of paragraph or focus:

Value	4.2 and more	3.4 to less than 4.2	2.6 to less than 3.4	1.8 to less than 2.6	Less than 1.8
Degree	Very large	Large	Medium	Low	Very Low

Presentation & Discussion of Results:

To answer the research questions, the average and standard deviation of the total responses to the research sample of students to the questionnaire of "innovative thinking" have been calculated. The results of the focuses came as follows:

Table (2)

Average of students' responses to the "innovative thinking" questionnaire's components, in descending order.

Table 2 indicates that the obstacles to innovative thinking came in first place with an average response of (3.81), which confirms the existence of obstacles significantly limiting innovative thinking in schools. The role of the school environment in the development of innovative thinking came in second place, with great approval in the development of

Focuses of Questionnaire	Average
Obstacles to innovative thinking	3.81
School environment and the development of innovative thinking	3.44
Classroom environment and the development of innovative thinking	3.06
Teacher and the development of innovative thinking	2.78

innovative thinking among students, with an average response of (3.44). Then, the role of the classroom environment came in third place with moderate approval in the development of innovative thinking with an average response of (3.06). The teacher's role in the development of innovative thinking came in last place, with an average response of (2.78) and with moderate approval. The following are the answers to the research questions based on the results, in descending order, according to the average response:

First: Obstacles to Innovative Thinking:

A presentation of the answers to the question: "What are the obstacles to the development of innovative thinking from the perspective of students in government secondary schools in the Emirate of Sharjah?"

Table (3)

shows the response of the sample of students to the "obstacles to innovative thinking" focus

Q	Paragraph	Average
32	The time available for study is limited and not commensurate with the practice of innovative thinking.	4.00
29	Textbook content encourages logical thinking that does not generate innovative ideas.	3.98
33	Examinations measure attainment, but do not measure the ability of students to innovatively think.	3.98
35	Teachers provide course material, such as correct postulates, which do not need to be discussed.	3.98
30	Teaching methods used are mostly traditional and do not encourage innovative thinking.	3.92
38	Low family awareness of the importance of developing innovative thinking among children.	3.92

31	The expectations of family and academic pressures on the students to achieve the highest score hinder innovative thinking.	3.75
36	School curriculum lacks subjects that develop the imagination of students and help them to think in an innovative manner.	3.75
34	School administration does not encourage innovative thinking and does not care about innovators.	2.97
37	School environment is devoid of stimuli and incentives for innovative thinking.	2.40

It is noted from Table (3) that the paragraph "The time available for study is limited and not commensurate with the practice of innovative thinking" came in first place with an average response of (4.00). The paragraphs: "Textbook content encourages logical thinking that does not generate innovative ideas"; "Examinations measure attainment, but do not measure the ability of students to innovatively think;" and "Teachers provide course material, such as correct postulates, which do not need to be discussed" - all came in second place with an average response of (3.98).

The paragraphs: "Teaching methods used are mostly traditional and do not encourage innovative thinking" and "Low family awareness of the importance of the development of innovative thinking among children" came in the third place with an average response of (3.92). Obada's study (2001) partially agrees with the previous results. It found that the content of the school curriculum and the teacher represent obstacles to innovative thinking in schools.

The paragraphs: "The expectations of family and academic pressures on students to achieve the highest score hinder innovative thinking" and "School curriculum lacks subjects that develop the imagination of students and help them to innovatively think" came in the fourth place with an average response of (3.75). Saeedi & Balushi's study (2005) found that family came in first place as an obstacle to innovative thinking. The family's awareness of the importance of innovative thinking is low, in addition to its lack of attention and encouragement of innovation; it does not care for innovators.

The paragraph: "School administration does not encourage innovative thinking and does not care about innovators" obtained moderate approval with an average response of (2.97). The paragraph: "School environment is devoid of stimuli and incentives for innovative thinking" came in last place with moderate approval and an average response of (2.40), which indicates that school administrators make concrete efforts in developing innovative thinking among students.

Second: School environment and the development of innovative thinking

A presentation of the responses to the question: "What is the reality of the contribution of the school and classroom environments to the development of innovative thinking from the perspective of students in government secondary schools in the Emirate of Sharjah?"

Table (4)

shows the response of the sample of students to the "School environment and the development of innovative thinking" focus

Q	Paragraph	Average
17	School administration promotes free competition between school classes for the development of innovative thinking.	3.85
19	School administration presents the names and photos of innovative students on the honorary board.	3.85
18	The school administration supports and honors creative students.	3.70
16	School environment supports constructive dialogue and respects the opinions of students.	3.15
20	The school administration holds workshops for teachers regarding teaching methods that develop innovative thinking.	3.08
21	The school administration adopts new ideas for students and provides the capabilities necessary for their application.	3.00

Table (4) shows that the first three paragraphs obtained great approval, which confirms that school administrations care about holding competitions that develop innovative thinking. They also care about creative students, honoring them, and presenting their photos in school. This result is consistent with Abdul Qadir's study (1992), which concluded the importance of the school climate in the development of innovative thinking among students. The rest of the paragraphs obtained moderate approval, which confirms that schools need to give more attention to the adoption of new ideas by students. Schools also need more constructive dialogue with students, and should express appreciation of their views. More workshops should be held for teachers, especially those linked to innovative thinking skills.

Third: Classroom environment and the development of innovative thinking:
Table (5)
shows the response of the sample of students to the "Classroom environment and the development of innovative thinking" focus

Q	Paragraph	Average
22	The teacher provides a safe classroom environment that helps students to express their views without fear.	3.27
25	The classroom environment encourages students to respect the opinions of others and benefit from them, if they are true.	3.24
23	The teacher provides a classroom climate which is congenial, appealing, and exciting for learning and positive participation.	3.08
26	The teacher provides a classroom environment full of psychological security and entertainment, which encourages freedom of thought.	2.92
28	The teacher communicates with students to help them effectively produce unique and new ideas.	2.89
24	The teacher provides opportunities for democratic dialogue to produce the largest number of new ideas.	2.75
27	The classroom environment develops the capacities of individual responsibility and decision-making among students.	2.49

It should be noted from Table (5) that all the paragraphs obtained moderate approval, except for the last paragraph "The classroom environment develops the capacities of individual responsibility and decision-making among students." This paragraph obtained an average response of (2.49) with a lower approval degree, which indicates to the teachers' need to exert greater effort in the classroom to provide a safe, exciting, and congenial classroom environment to students. Such environment helps students to produce original ideas; trains them on intellectual flexibility to help them express their views; increases students' motivation, innovation, and positive participation, and encourages them to respect the opinions of others.

Fourth: Teachers and the development of innovative thinking

A presentation of the responses to the question: "What is the reality of the contribution of teachers to the development of innovative thinking from the perspective of students in government secondary schools in the Emirate of Sharjah?"

Table (6)

shows the response of the sample of students to the "Teachers and the development of innovative thinking" focus

Focuses of Questionnaire	Average
The teacher and the development of intellectual flexibility	3.12
The teacher and the development of intellectual fluency	2.77
The teacher and the development of intellectual originality	2.46

Table (6) shows that the role of the teacher in the development of intellectual flexibility came in first place with moderate approval. The role of the teacher in the development of intellectual fluency came in second place with moderate approval. The role of the teacher in the development of intellectual originality came in last place with low approval. This result indicates the need to reconsider the extent of teachers' contribution to the development of innovative thinking in schools. This result is consistent with Nour Al-Hadi's study (2012) and Al-Ghamdi's study (2009), where they concluded that the teacher's role in the development of innovative thinking ranges from poor to medium. The following is an explanation of the role of the teacher in the development of innovative thinking:

(1) The teacher and the development of intellectual flexibility

Table (7)

shows the response of the sample of students to the "The teacher and the development of intellectual flexibility" focus

Q	Paragraph	Average
12	The teacher encourages me to respect the ideas of others, no matter how strange.	3.68

15	The teacher provides opportunities for dialogue among peers and guides them not to fanatically espouse an opinion without valid evidence.	3.17
14	The teacher encourages me to change my beliefs and assumptions of knowledge through constructive dialogue.	3.08
13	The teacher guides me to provide more than one solution to one issue. There is always one solution that is better than the others.	3.00
11	The teacher provides the instruments that make me more sensitive to problems and encourages me to search for solutions.	3.00

Table (7) shows that paragraph "The teacher encourages me to respect the ideas of others, no matter how strange" came in first place with great approval and an average response of (3.68). The rest of paragraphs obtained moderate approval, which indicates that the teacher contributes with a moderate role to the development of intellectual flexibility among students. So, the teachers must be trained on how to develop the skills of intellectual flexibility among students, through instruments, projects, and teaching methods.

(2) The teacher and the development of intellectual fluency

Table (8)

shows the responses of the sample of students to the "The teacher and the development of intellectual fluency" focus

Q	Paragraph	Average
5	The teacher provides classroom activities that encourages students to formulate a variety of new ideas.	3.45
6	The teacher constantly encourages expression of the same idea in unique and varied ways.	3. 43
3	The teacher adopts the brainstorming method to provide some curriculum subjects.	3.21
4	The teacher provides nontraditional experiences and situations, which help the student to formulate the largest number of new ideas.	2.70
1	The teacher directs open-ended questions to arouse students' thinking in multiple directions.	2.45
2	The teacher presents words from the curriculum and asks students to write whatever comes to mind about them.	2.40

It is noted from Table (8) that the paragraph "The teacher provides classroom activities that encourages students to formulate a variety of new ideas" and the paragraph "The teacher constantly encourages expression of the same idea in unique and varied ways" attained great approval. The paragraph "The teacher adopts the brainstorming method to provide some curriculum subjects" and the paragraph "The teacher provides nontraditional experiences and situations, which help the students to formulate the largest number of new ideas" obtained moderate approval.

The paragraph "The teacher directs open-ended questions to arouse students' thinking in multiple directions" and the paragraph "The teacher presents words from the curriculum and asks students to write whatever comes to mind about them" obtained low approval, which indicates that the teacher has to exert better efforts in developing intellectual fluency among students in the school.

(3) The teacher and the development of intellectual originality

Table (9)

shows the response of the sample of students to the "The teacher and the development of intellectual originality" focus

Q	Paragraph	Average
8	The teacher holds competitions between classroom students, encouraging them to generate new ideas.	3.15
9	The teacher adopts the problem-solving approach to help students formulate unique ideas related to the curriculum.	2.95
7	The teacher welcomes strange ideas presented by students and encourages the students to present more of these ideas.	2.38
10	The teacher provides tasks based on inverse thinking; i.e. thinking about things in a manner opposite of what is normally used.	1.70

It is noted from Table (9) that the paragraph "The teacher holds competitions between classroom students, encouraging them to generate new ideas" and the paragraph "The teacher adopts the problem-solving approach to help students to formulate unique ideas related to the curriculum" attained moderate approval. The paragraph "The teacher welcomes strange ideas presented by students and encourages the students to present more of these ideas" and the paragraph "The teacher provides tasks based on the inverse thinking; i.e. thinking about things in a manner opposite of what is normally used" obtained low approval, which indicates that the teacher must exert more efforts in developing intellectual originality among students in the school.

A presentation of the responses to the question: "Are there any statistically significant differences in the reality of the contribution of teachers, the school environment, and the classroom environment to the development of innovative thinking among students in government secondary schools in the Emirate of Sharjah that are attributable to gender or specialization?"

Table (10)

		Levene's Test for Equality of Variances				
		F	Sig.	t	df	Sig. (2-tailed)
Fluency	Equal variances assumed	16.579	.000	.293	528	.770
	Equal variances not assumed			.293	511.772	.770
Originality	Equal variances assumed	12.075	.001	.506	528	.613
	Equal variances not assumed			.506	501.490	.613
Flexibility	Equal variances assumed	.256	.613	-.856	528	.392
	Equal variances not assumed			-.856	527.902	.392
School	Equal variances assumed	5.441	.020	5.202	528	.000
	Equal variances not assumed			5.199	520.150	.000
Classroom	Equal variances assumed	41.302	.000	3.816	528	.000
	Equal variances not assumed			3.812	483.690	.000

It is noted from the above Table that there are no statistically significant differences at the level (p≤0.05) in the reality of teachers' contribution to the development of innovative thinking with its three dimensions: fluency, flexibility and originality among students – attributable to the variable of gender. This result is consistent with the conclusion of Atiyah's study (2009). However,, there are statistically significant differences at the level (p≤0.05) in the contribution of the school environment and classroom environment to the development of innovative thinking among students, which is attributable to the variable of gender in favor of males.

Table (11)
The indication of average differences in the contribution of teachers, the school environment, and the classroom environment are attributable to the variable of specialization.

	Levene's Test for Equality of Variances				
	F	Sig.	t	df	Sig. (2-tailed)
Fluency Equal variances assumed	2.322	.128	4.076	528	**.000**
Equal variances not assumed			4.074	520.911	.000
Originality Equal variances assumed	63.133	.000	-7.899	528	.000
Equal variances not assumed			-8.060	489.100	**.000**
Flexibility Equal variances assumed	11.824	.001	-.278	528	.781
Equal variances not assumed			-.273	443.830	**.785**
School Equal variances assumed	136.192	.000	.674	528	.501
Equal variances not assumed			.649	323.429	**.517**
Classroom Equal variances assumed	7.342	.007	7.344	528	.000
Equal variances not assumed			7.497	486.902	**.000**

It is noted from the above Table that there are no statistically significant differences at the level (p≤0.05) in the reality of the school environment's contribution to the development of innovative thinking among students - attributable to the variable of specialization. Likewise, there are no statistically significant differences at the level (p≤0.05) in the reality of teachers' contribution to the development of intellectual flexibility among students – attributable to the variable of specialization.

However, there are statistically significant differences at the level (p≤0.05) in the classroom environment's contribution to the development of innovative thinking among students - attributed to the variable of specialization in favor of scientific specialization. Likewise, there are statistically significant differences at the level (p≤0.05) in the contribution of teachers to the development of intellectual fluency among students, which is attributed to the variable of specialization in favor of scientific specialization; and in the development of intellectual originality among students, which is attributed to the variable of specialization in favor of literary specialization.

RESEARCH RECOMMENDATIONS:

In light of the theoretical literature and the findings of the current research, the researcher provides a set of the following recommendations:

1- Include several subjects that develop the imagination of students and help them to think innovatively about the curriculum.

2- Provide training courses for male and female teachers in schools about contemporary teaching methods that develop innovative thinking, such as problem-solving methods, brainstorming, and synectics.

3- Developing a curriculum so as not to directly include ideas and information that are provided to students as ready meals, but rather, includes some subjects that develop innovative thinking among students.

4- Reconsider the examinations so as to include questions that test students' abilities in regards to innovative thinking.

5- Reducing evaluation in schools that only focuses on memorization-based attainment and replace it with the attainment based on innovative thinking.

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School Counselors' Intention To Use Technology: The Technology Acceptance Model

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Abstract

This study assessed school counselors' intention to use computer technology to support school counseling services. A total of 125 school counselors (74.8% female) completed an online questionnaire that assessed the main constructs of the Technology Acceptance Model (TAM). Confirmatory factor analysis and alpha technique results provided evidence of the validity and reliability of this measure. Structural equation modeling provided support for the TAM. Specifically, school counselors who perceived ICT to be easy to use were more likely to perceive ICT as useful and to have a positive attitude about ICT; perceived usefulness also predicted positive attitudes toward ICT; and positive attitudes toward ICT predicted intention to use these technologies. The results are discussed in terms of school counselors' technology acceptance in the Indonesian context.

Serious Leisure Inventory and Measurement: Validity And Reliability Analysis

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For more than 30 years, Stebbins has explored the nature of serious leisure in a broad framework of interdisciplinary components (Gould, 2008). Stebbins has approached leisure under three sub headings of *'serious leisure', 'casual leisure' and 'project-based leisure',* but under the *'*Perspective of Serious Leisure'. Accordingly, 'Serious Leisure' is defined as *"the systematic pursuit of an amateur, hobbyist, or volunteer activity sufficiently substantial and interesting fort he participant to find a career there in the acquisition and expression of a combination of its special skills, knowledge, and experience"* (Stebbins, 1992). Three types of participants compose the serious leisure perspective: amateurs, hobbyists and volunteers. In contrast, 'casual leisure' is an "*immediately, intrinsically rewarding relatively short-lived pleasurable activity requiiring little or no special training to enjoy it"* (Gould et al., 2008).

When the studies performed in our country on this topic were looked through, it was seen that the Turkish literature lacked an original measurement tool. Thus, it was the aim of this research to adapt the Serious Leisure Inventory and Measurement originally named as "SLIM (Serious Leisure Inventory and Measure)" into Turkish and investigate its psychometric qualities. It is thought that bringing in SLIM to national literature, which provides basis to 'Serious Leisure' as a modern and efficient theory within the scope of leisure research, and thus, the application of the original scale on different activity types and groups in Turkey will contribute seriously to the field and fill the gap in the literature.

The validity and reliability studies of the Serious Leisure Inventory and Measurement were carried out on three different research groups. The first group comprised of 343 university students from different faculties of Gazi University. Being founded on the original scale, the students were asked to think about the leisure activities they are engaged in and to indicate one of the activities they are at the very most devoted to, the one that they make the most effort to be involved in, and the one they care the most. The students were told to fill out the gaps that appear on the scale by thinking about that activity. Accordingly, 15 students who did not fill out the gaps and wrote casual leisure activities were excluded from the study. Hereunder, the construct and fit validities and internal consistency analyses of the scale were carried out with the data obtained from 328 university students. The mean age of this group, consisting 153 female (%46.6) and 175 male (%53.4) students, was 21.2. The studies regarding the linguistic equivalence of the scale were carried out on the second group. This group consisted 34 students studying in the preparatory school of the English Language Teaching Department of Gazi University. The third group included into the research for test-retest studies comprised of 112 university students studying in Gazi University. The scale, originally named as "Serious Leisure Inventory and Measure (SLIM)", was developed by James Gould, DeWayne Moore, Francis McGuire and Robert Stebbins in 2008. The scale consisting 72 items and 18 sub-dimensions is a 9-Likert type scale. The shorter form of the scale consists 54 items and 18 sub-dimensions and is a 9-Likert type scale. Back translation was performed during the translation process of the scale from English into Turkish. In an attempt to see in practice whether the translated Turkish form carried the same meaning with the original, Pearson Product-Moment Correlation Coefficient was considered. Confirmatory factor analysis (CFA) was carried out for construct validity of the Serious Leisure Inventory and Measurement.

It was seen that the original and Turkish versions of the scale showed a high, positive and significant relation [r= .82; p< .01]. As regards this result, it can be said that the original and Turkish versions of the scale are equivalent. Many fit indices are used to present the sufficiency of the model tested by CFA. Accordingly, similarity rate chi-square statistics was calculated as $X^2(1224)=2130,70$, P<0.01; root mean square error of approximation (RMSEA) as 0.048; standardized root mean square residual (S-RMR) as 0.045; comparative fit index (CFI) as 0.99; goodness of fit index (GFI) as 0.81; normed fit index (NFI) as 0.97; and relative fit index (RFI) as 0.97. As a result of the confirmatory factor analysis, it can be said that the 18-factor construct of the scale gave acceptable and valid results. In addition, it falls into the same range with the construct in the original scale. Nonetheless, t values of all items were found significant as regards the CFA results (p<0.05). In other words, there was no need to remove any items from the scale. The highest relation was observed between the sub-dimensions of group maintenance and group accomplishments (phi=0,94). The lowest relation was observed between the sub-dimensions of financial return and re-creation (phi=0,13).

The reliability of the scale was examined under the dimension of consistency. The consistency of the scale was looked into by Cronbach alpha internal consistency coefficient. The Cronbach alpha coefficients of the 18 sub-dimensions calculated for the adapted form were .87,
.87, .92, .76, .90, .87, .86, .88, .89, .80, .96, .92, .97, .85, .92, .95, .90 and. 93, respectively. In other words, it ranged between .85 and. 97. The alpha coefficient calculated for the whole scale was .97.

The findings obtained regarding validity and reliability show that Serious Leisure Inventory and Measurement is a reliable and valid tool in order to evaluate how and in which forms individuals make use of their Serious Leisure. In conclusion, it can be said that a measurement tool with sufficient psychometric qualities that could be used to evaluate the forms of serious and casual leisure activities of the individuals was attained with this study aiming at bringing in the SLIM developed by Gould et al. (2008) into Turkish literature.

Keywords: *Serious Leisure; Scale; Reliability; Validity; University Students*

Simulation Of A Building Model By Using Differential Equations in Matlab

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Absract

The analysis of structural vibrations is an important area of civil engineering that involves several steps of computation. For this reason, the use of computational packages is imperative for modeling the response of buildings to perturbations. By another side, differential equations establish relationships between independent and dependent variables with their respective derivatives in order to model dynamic systems. Although Laplace Transform is used to solve ordinary differential equations (ODE), this transformation is a tool to represent an ODE in a graphical way. For instance, a classic block diagram model of a dynamic system consists of blocks and lines, where a block defines a dynamic system in itself. The relationships between each elementary dynamic system in a block diagram are illustrated by the use of signals connecting the blocks. Thus, these graphical representations describe the behavior of complex systems over time by using simulations. In this paper, we use an approach based on ODE, through a set of computational methods that simulate the behavior of any element under the effect of any force. By combining the knowledge of differential equations and materials resistance, together with the programming skills; we implement a seven-story building model in MATLAB language programming. In this computational package, we use Simulink, which is a graphical editor that allows to create and connect instances of block types selected from libraries of block types. This structure represents a system of differential equations, which is visualized in SolidWorks. This software displays the behavior of a structure perturbated by signals that represent seismic vibrations. The system of differential equations outputs the vibration signals in a n-story building structure, which was elaborated based on a seismic analysis of buildings. This computational contribution pretends to be a tool for understanding the potential of differential equations for applications with educational integrating purposes in civil engineering

Söylem Çözümlemesinin Algoritması: Amaç İle Etkinliği

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Son on yılda dilbilimde dahil filolojide modern standartlara, gerekliliklere uygun olarak araştırma yöntemlerinin yenilenip, değiştiği bellidir. Dili okutma sisteminde de aktif ve güncel konu olarak iletişimsel ve pragmatik yöntemler ilk sırada yer almaktadır. Eğitimin paradigmasının değişmesi, bugünkü öğrencileri kültürler arası bildirişime ciddi bir şekilde hazırlama şartını koymaktadır. Bu bakımdan Kazakça'yı ikinci bir dil olarak okutma dershanelerinde söylem çözümlemesi, kendisinin net sonuçlarını verebilmektedir. Bu, öğretim-yöntemsel uygulamada yansıtılmaktadır. Makale yazarı, işlevsel dilbilimin başlıca yönü, söylem çözümlemesine tanımlayıcı genel özetini vermekle okutmanın yeni özelliklerin beyan edecektir. Makalede söylem çözümlemesi algoritmasının örneği sunulup, iletişimsel ve pragmatik yöntemin dil öğretimindeki etkinliği bakılacaktır.

İşlevsel dilbilimin odak noktası, asıl yönü olarak söylem çözümlemesi, son on yılda dünya dilbiliminde özel nesneye dönüşmektedir. Onun sebebini fonksiyonelciler, şekil gerçek hayatta dilin çok sayılı görev neticesinde değişip, sürekli canlanmasıyla açıklamaktadır. Bu sürecin kendisi bile bir söylemdir. Söylemin latincesi, *discursus* "hareket, sohbet etme, konuşma" anlamlarını vermektedir. Disiplinler arası terim olarak söylem ilimde *konuşma, metin, diyalog, stil,* hatta *dil* hakkındaki kavramsal manada da bakılmaktadır.

Araştırmacıların çalışmalarında "söylev (*discours*)" terimi kullanımına göre üç ana gruba bölünerek ele alınmaktadır. Bunlardan ilki, söylev konusunu ilk inceleyenlerden biri olarak Amerikalı bilim adamı Zellig Harris'in eserleriyle bağlantılıdır. Bu ekoldekilerin görüşüne göre, söylev dilsel iletişimi uygulayan konuşma hareketi olarak belirlenir. İkinci ekolün temsilcisi olarak Fransız yapısalcısı Michel Foucault'un ismi anılır. Sistematik olarak yapısal araştırmaları ön plana koyan bu ekolde "söylev" terimi geleneksel tanımdaki "stil", "yazar tarzı" kavramlarına yakın anlamda tanımlanır. Örneğin, *Abay Kunanbayev'in dili*, *Mukağali Makatayev'in dili* ya da *günümüzdeki siyasi söylev*, *Cumhurbaşkanı söylevi* vb.; "Söylev" terimi bu şeklide incelenerek *hangi söylev* ya da *kimin söylevi* gibi soruların cevapı araştırılır. Üçüncü ekol ise, Alman felsefeci Jürgen Habermas'ın eserlerinden etkilenmektedir. Bu ekolde "söylev" kavramı, ilişki kuranların düşünceleri, hareketleri ve eleştirel çözümlemelerini belirten konuşma süreci olarak tanımlanır. Örneğin, televizyon programlarındaki sunucuların eleştirel toplumsal çözümlemeleri. Ele alınan bu kavramların her biri söylevi tanımlamada bir birine yakındır. Yani söylev, dil hizmetinin aktif hareket etmesini sağlayan iletişimsel-pragmatik yönelim olarak tanımlanan bilimsel kavramdır.

"Söylem" kavramının çok anlama sahip olduğu gibi "söylem çözümlemesi" teriminin anlama kapsamı da çok geniştir. L.N. Makarov onun üç şeklinin tanımını şöyle belirtmektedir:

1) Geniş anlamlı söylev tahlili: dilsel iletişim ile onun şekli, hizmeti, durumu ve sosyal-kültürel etkisini göz önünde bulundurarak araştırma;

2) Dar anlamlı söylev tahlili: Birmingham Araştırma Grubu tarafından sunulan dil analizi;

3) «söylev grameri» şeklindeki söylev tahlili: Metinsel dilbilim tahliline yakındır [1; 64-65].

"Kişi-dil-kültür" üçgenini araştıran antropolojik dilbilimi bunların ilkinden geniş ölçüde istifade etmektedir.

İşlevsel dilbilimden adım adım antropoloji ilmine geçen dil paradigmasında (pragmalinguistik ilminde) söylem çözümlemesi algoritmasına şu görünümler dahil edilmektedir:

1. İlişkiler durumunun tanımı (Söylemin sürdüğü yer tespit edilmektedir);
2. Söylem tipini belirleme (Diyalog katılımcılarının dilsel komünikasyonu ile tespit edilmektedir. O, konuşma, sohbet, tartışma, cevaplama, talk show olabilir);
3. Söylem yapısını belirleme (Söylemin yapısı, içinden mikro konulara bölünerek, analiz yapılmaktadır);
4. Konuşma esnasındaki yürüyüşü değiştiren yerdeki iletişimciler (communicant) rolünü açıklama (Söylemin geçmesine iletişimcilerin istekli veya isteksiz oldukları, onların konuşma dili ile tespit edilmektedir)
5. A iletişimcinin söz düzenindeki semantik özellikleri (Diyalogu ilk başlayan iletişimcinin (A) şivesindeki sözel, sözel olmayan işlemlerin rolü, fonksiyonu, aktifliği tespit edilmektedir)
6. B iletişimcinin söz düzenindeki semantik özellikleri (B iletişimcinin A iletişimciyle dilsel komünikasyonundaki konuşma özelliği, onun sözündeki sözel, sözel olmayan işlem aktifliği tespit edilmektedir);
7. İki taraf iletişimcilerin taktiği ile söz stratejisindeki içerimi belirleme (diyalog katılımcılarının konuşma yürüyüşü açıklanmaktadır, yani onların dilindeki netlik, satir, alay, gerçeklik vs. tespit edilmektedir);
8. Bütün söylemin semantik özellikleri (Söylemin başarılı veya başarısız, kolay ya da zor geçtiği, konuşma araçlarının yardımıyla tespit edilmektedir);

9. Söylemin leksiko-gramatik görünümü (Diyalogda kullanılan leksiko-gramatik özellikler açıklanmaktadır) [2, 20; 3, 449].

Araştırmacıların şartlı sınıflandırmasına göre düzenlenmiş söylemsel tahlilin bir örneği olarak "Aldar Köse'nin sihirli kürkü" hikâyesini sunalım:

"Aldar Köse bozkırda giderken çok üşür. Üzerinde delik deşik eski kürk varmış. Aniden önünden ata binen bir kişi çıkmış. Aldar Köse önünde duran ata binmiş kişinin durumuna bakarak bu kişinin zengin olduğu anlar ve hiç üşümemiş gibi davlanır. Yakasını açarak şarkı söylemeye başlar.

1. A. *–Selamualeyküm beyim!*
2. B. *–Aleykümselam. Sen üşümüyor musun?*
3. A. *–Sen üşüyorsun galiba. Benim kürkümü giyen kişi hiç üşümez,diye yanıt verir Aldar Köse.*
4. B. *–Mümkün değil, diyerek zengin kişinin merakı artar.*
5. A. *–Görmüyor musun?!*
6. B. *–Görmeyecek nesi var! Görüyorum: delik deşik kürk!*
7. A. *–Bunun hikmeti delik deşiktedir! Bir delikten giren rüzgâr diğerinden çıkar.Tüm ısı üzerimde kalır.*
8. B. *–Ben yolunu bulup bunun kürkünü mutlaka almalıyım diye düşünür zengin kişi.*
9. A. *–Keşke bu adamın kalın kürküne sahip olsaydım diye hayal eder Aldar Köse.*
10. B. *–Kürkünü bana satar mısın der zengin kişi.*
11. A. *-Satmam, kürküm olmasa üşür ölürüm der Aldar Köse onun sözünü umursamadan.*
12. B. *-Üşümezsin, yerine benim kürkümü alırsın. Hatta üstüne para da vereyim.*
13. A. *–Paran lazım değildir. Paranın yerine atını verirsen düşünürüm.*

Zengin kişi çok sevinerek teklifi kabul eder. Üzerindeki kürkünü ve bindiği atını hemen Aldar Köse'ye verir.

14. A. *–Beyim iyi yolculuklar! – diyen Aldar Köse zengin kişinin kalın kürkünü giyer ve yarış atını binip oradan hızla uzaklaşır.* [4, 15-42].

Söylem çözümlemesi algoritmasına göre,

1. Dilsel iletişim durumunun tanımı. İki tanımadık insan aniden buluşur. Birisi yaşlı ve sosyal durumu iyi kişi. Diğeri ise, genç yaştaki delikanlı.

2. Söylev tipinin tanımı. Bu söylevin tipi komunikatif diyalogtan oluşmaktadır. Bunun yanı sıra söylev hareketleri sohbet, konuşma, tartışma ve cevap verme vb. şekilde de geçebilir.

3. Söylev yapısının tanımı. Örnek olarak sunduğumuz bu söylevin yapısı altı birime bölünerek tahlil edilebilir:

I. Selamlaşma (1-2).
II. Sihirli kürk (3-7).
III. Aldar Köse ve zengin kişinin bir birinin kürküne karşılıklı imrenmesi (8-9).
IV. Pazarlık etmesi (10-13).
V. Aldar Köse'nin zengini kandırması (13-14).
VI. Vedalaşma (14).

4. Konuşma sırasında akışı değiştiren kişilerin tanımı. Söylevde konuşmayı başlayan A kisidir. Ancak olayın gelişmesinde iki kişinin de (A ve B) aynı derecede etkisi vardır. Zira ikisinin amacı aynıdır. Olayın gelişmesine ikisinin amaçları etki eder.

5. A kişisinin konuşma sistemindeki semantik özellikler. A kişisi (ya da Aldar Köse) hedefine selamlaşarak başlar. O, B kişisinin (zenginin) sorusunu ayrıntılı düşünerek cevaplar. Orada onun temel amacı zengin kişinin kürkünü ele geçirmektir. Yani onun temel amacı zengini kandırmaktan öte kendi durumunun iyiliğini sağlamaktır.

6. B kişisinin konuşma sistemindeki semantik özellikler. B kişisinin de söylevdeki rolü ayrıdır. Onun düşüncesi de A kişisinin hedefiye aynı şekilde olarak "kürkü ele geçirmektir". Burada merak duygusu hakimdir. Dolayısıyla o, A kişisiyle konuşmayı soru şeklinde başlar (2), hedefine ulaşmak için pararlık yapmaya hazırdır (10, 12).

7. İki kişi unsurunun yöntemleri ile konuşma stratejilerindeki niyetlerinin tanımı. Bu söylevde iki kişi unsurunun rolü konuşma stratejisinde aynı şekilde aktiftir. Zira amaçları ortaktır. Kendi hedeflerine ulaşmaya çalışmaktadırlar. Diyalogun gelişmesi soru-cevap yöntemiyle başlar. Bu onların konuşma sürecindeki taktiğini göstermektedir.

8. Bütün olarak söylevin semantik özellikleri. Elbette, hedefine göre söylevde dilsel iletişim çeşitli seviyede gelişir. Kişi unsurlarının biri aktiv şeklide söylevi canlandırmaya istekli; diğeri ise tam tersine isteksiz olabilir. Bizim örnek olarak sunduğumuz söylev metnindeki iki kişi unsurunun hedefleri aynı olduğu için diyalog başarılı kurulmuştur. Dilsel iletişim yapan unsurlar olayın gelişmesine etki eder. Hedeflerine ulaşmak için başından sonuna kadar soru cevap yöntemine başvururlar. Diyalogun süreci akıcıdır ve arasında kurnazlık düşüncesi de karışır. Bu A kişi unsurunu temel taktiğidir (3, 5, 7).

9. Söylevin leksikolojik-dilbilgisel yönü. Genel olarak söylevde belli dilsel kurallar aracılığyla uygulanan konuşma süreci ele alınır. Burada dil, iletişimin temel unsuru olarak belirgindir. Dilsel iletişimin amacına göre

belli bir kavram veya düşüncenin gelişmesi çeşitli derecede görülebilir. Bu durumda dilin leksikolojik-dilbilgisel özelliğini tahlil etmenin önemi büyüktür. Örnekte sunulan söylevi leksikolojik yönünden ele alırsak, masal tarzındaki bu anlatımın günlük konuşma sözcüklerinden oluştuğu ortadadır: *kürk, bey, yarış atı, para, vb.* Bunu yanısıra dilbilgisi açısından ele alırsak, bu söylevin yapısı günlük konuşma diline has eksiltilmiş cümlelerden ve elipslerden oluşmaktadır. Örneğin, *Görmeyecek nesi var! Görüyorum: delik deşik kürk! Bunun hikmeti delik deşiktedir! Paran lazım değildir.*

Bu çeşit söylem çözümlemesi örneklerin Kazakça'yı ikinci bir dil olarak okutma metodolojisinde, çeviribilim alanında vs. öğretim-yöntemsel dershanelerde kullanmak, kendi ilmi ve pratik sonuçlarını verecektir. Yani adı geçmiş algoritma sırasıyla söylem çözümlemesi yapmak, öğrencileri sözler ile biçim sözcüklerin canlı fonksiyonuyla çalışmaya, konu üzerinde içini dökerek konuşmaya, onların şahıs olarak oluşmalarına olumlu tesir edecektir.

Dolayısıyla söylem için net, açık şekildeki dilsel hareket, net sözlük bilgi gerekmektedir diye buluyoruz. Bu nedenle sözdizimsel yapıyı bir bütün olarak inceleyerek, önermesini açık analiz yapmak, dil öğretiminde çok etkilidir. Günümüzde Kazakça'yı ikinci bir dil olarak öğretimindeki metni kavramak, sadece ezberlenen konuları söylemekle sınırlı olan dil öğretim metodolojisini sözlü ve yazılı telaffuzları hazırlanmadığı durumlarda dizmek, onu söyleyebilme meselelerinin olumlu çözümünü bulmakta söylem çözümlemesi, önemli bir yön olacaktır.

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Students' Beliefs About Mathematics

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Abstract

Math is extremely linked with many science areas, that it has many applications. According to a widely argue that could teach math and how the math could be taught. The information given in math lecture is used in another lecture. Views that students have with math meaningfully effect on the learning of learnings. We investigated gender differences of views with math coming from vocational school in accounting and task program. The results presented confident views with math in the school program but weren't clear that the information would be operated next period. Moreover, they don't the same idea with the idea of math that being non-classic department.

In the study, it is examined gender differences in accounting and math view among university students. Participants were 86 students from Accounting and Task Department of Kocaeli Vocational School in Kocaeli University, all of whom completed measures of view questionnaire.

Keywords: beliefs, information, math, vocational school

Introduction

Math doesn't operate only to mathematicians being as a source of math theory and a problem-solving instrument. It is firmly linked with the other science areas, that it has many experimental area (Furinghetti and Pehkonen, 2002; Matic, L. J., 2014). These authors pointed out that we, teachers of math, could be notice the application of math in science, social and economics department programs re-designed the teaching of math to students. Also, they added that Teacher could be aware of students' thinks and views with math and teacher could give motivation into the information (Matic, L. J., 2014). We need use two words that views and attitudes, while analyising students' opinions and choices founded on his/her observations and experimental studies. It could be noted a critical approach that many respects of beliefs as a set of views while others categorize a view as one component of beliefs.

According to Poland Karsenty (2003), views are extremely individual, and they are changeable connecting to student's thinks. He stayed that there are many educational w Matic, L. J., 2014). orks that students' views with math and math learning were usually detailed in last decades. Ernes (2003) and Matic, L. J., (2014) defined beliefs as "person's individual data and present the detailed info on the belief of math as a total of information, views, conceptual design, feelings, attitudes".

Ernest (2003) stayed that several research studies have revealed that non-math students in university education often have non-positive figures, views and attitudes to math. If a student doesn't understand the position of math in his/her school studies and later in the future work life, he would not understand that math is useful (Yıldız and Görentaş, 1996; Matic, L. J., 2014). This situation wild go to a weakening of concentration and attention to giving time working on math, and irrespective of which approach to curricula is working, their attention look possible to low position (Flagg et al., 2012). The connection between information and views were analyzed by many authors (Matic, L. J., 2014; Dart et al., 2000; Johnston, 2001; Kember and Wong, 2000; Goldin at al., 2009). In these studies, students were classified as become passive or active learners. In the paper, we focused to examine students' views with math in general.

Method

The participants in the study were 86 Accounting and Task department students (51 Female and 35 Male) in Kocaeli Vocational School form Kocaeli University. The students were plotted applied questionnaires which were managed before the experimental lectures in the basic math lecture. The questionnaires weren't showed before, so students were the students that participated to the experimental lectures. The basic math lecture contains elementary subjects as that numbers, operations, equation, functions with special functions, basic geometry by little emphasize the theoretical aspect and much concentration to algorithm and algebraic operations (Matic, L. J., 2014).

The participants were requested to answer to the belief's sentences, take on a 4-point Likert-type scale, ranging from 1 = strongly disagree, 2 = disagree, 3 = agree to 4 = strongly agree (table 1). The questionnaire tried to be exposing the belief about math and the lecture of math contained at studying program. The impartial choice was misplaced since it was aimed at the students' real assessment (Matic, L. J., 2014).

Findings

The sentences from the questionnaires and the consequences of the students' answers are offered in Table 1. A higher percentage of the female students approved to the sentences 1, 2 and 3 than the percentage of male students, excepting for the sentences 6, that the percentage was the same. The means that significant percentage of students from both genders stayed that math was "important" in social program, with 92% of female students and 75% of male students that approved to the sentence. Moreover, overhead 89% of students from both genders observed that "information" in basic math departments was required for students in the programs. "Understanding" math problem was significant for 88% of female students and 75% of male students. Moreover, the two genders of students had much parallel answers to sentences 1, 2 and 3, a significant difference was registered between the female and male students at the level of 0.05 (p = 0.03, p = 0.01 and p = 0.02 respectively). The shows that the female students present higher self-assured views with the effect of math in the school curricula (Matic, L. J., 2014).

In the sentences 4, 5, and 7, the two genders of students changed- more than half of female students approved that more than half of male students not to have same idea (and strongly disagreed) with the sentences. 53% of female student expressed math as "exciting", and 65% of male students not the same idea with these students. At the time it comes to basic math lectures taken, 61% of female students expressed that elementary math lectures were "interesting", while 59% of male students not the same idea with the sentence. 51% of female students appealed that they learned the section of "function" in the study program, related to 55% of male students who not the same idea with the other participants. At the level of 0.05 op p, a significant difference was registered between the female and male students in sentence 4 ($p < 0.01$) and sentence 5 ($p = 0.02$), which mean that there exists significant difference between the two genders of students in the vocational students (Matic, L. J., 2014).

Table 1. Answers to the belief sentences: percentages, mean, standard deviation

Sentences:	Gender	StDis. %	Dis %	Agr. %	StAgr. %	Mn	SD
1. Everyone who studies social and economic program ought to have information of basic math departments.	F	1	3	40	42	3.42	0.61
	M	1	5	46	34	3.27	0.62
2. Math is a necessary part of social and economic program.	F	2	4	50	30	3.17	0.60
	M	5	14	48	19	2.81	0.83
3. It is important to me not just to be able to solve a problem, but also, to understand the math behind it.	F	1	10	49	26	3.19	0.71
	M	3	17	41	25	2.96	0.85

Results

At the end of the study, the results from the earlier part of the study displayed that the female students viewed that math which was an "important" part of the school curriculum and stated that every student who studies in female work program could keep elementary math information. These students extremely "appreciated" an understanding of math concepts, practicing of the context, and the wasn't completely equivalent with the results in the math questions. Students decelerated math lectures "interesting", but student were separated in the views, basic math concepts would be given and/or in the last part of the math program, by means that the connection between math and female was not noticeable to these students at the end of the first year of semester program (Matic, L. J., 2014).

The male students stated the same views as the female students with math, basic math "information" in the school curricula and the "understanding" of math in problems and this had been with lower acceptation. Moreover, more than half have a view that basic math courses in usually given the school weren't "interesting" different much female students according the registered results. Also, the male students (the female students) weren't certain when the basic math concepts would have application in the other disciplines of the school program (Matic, L. J., 2014).

Finally, male and female student of the vocational school expressed math as a essential part of the school program but it was not clear that the math information would be used later of the school program. Likewise, Goldin et al. (2009) and Matic, L. J., (2014) expressed that the female students thought that math was a related part of the school program but weren't to connect with math and the other school program lectures.

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Students' Beliefs on Accounting and Mathematics

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Abstract

Account with mathematics is highly intertwined by discipline, anywhere he consumes many requests to many areas. There is an ongoing argue who should teach mathematics and account and how this mathematics and account must remain trained. The information increased cutting-edge mathematics and account sequence remains rummage-sale cutting-edge additional sequence. Belief that student has about mathematics and account significantly influence on their learning. We investigated gender differences of belief about mathematics and account coming from vocational school in office management program. The results showed positive belief about mathematics and account cutting-edge their education package nonetheless remained not sure anywhere this information determination remain rummage-sale advanced (Matic, 2014). Though, they don't agree with the perception of mathematics and account as being exciting discipline.

In this study, it is examined gender differences in account and mathematics and account belief among university student. Participants were 78 students from Office Management Department Of Kocaeli Vocational School in Kocaeli University, all of whom completed measures of belief questionnaire.

Keywords: belief, knowledge, mathematics and account

Introduction

Account and mathematics do not work only for accountant and statisticians by way of a foundation of mathematical theory then a problem-solving instrument. He remains firmly intertwined by discipline, anywhere he consumes many requests (Matic, L., J., 2014; Ernes, 2003). These authors pointed out that we, by way of the educators of mathematics and account, must remain conscious of the significance of mathematics cutting-edge science, social then economics department agendas toward remain able to re-design the education of mathematics and account to student. Also, they added that we must remain aware around student' arrogances then belief around mathematics then account and we must become a vision hooked on the information. We need use two words that belief and attitudes, when telling somebody's opinions then choices founded happening his comments and involvements (Matic, L., J., 2014). We note a critical approach that approximately respect a boldness by way of group of belief though others categorize a confidence by way of unique constituent of boldness.

Belief remain extremely personal, then they alteration rendering toward somebody's spirits (Matic, L., J., 2014; Poland Karsenty, 2003;). He stayed that there are many educational studies that student' belief about mathematics and mathematics learning have been a commonly shared cutting-edge previous period. Furinghetti and Pehkonen (2002) defined belief by way of "person's personal information then provided description happening the opinion of mathematics and account by way of a combination of information, belief, conceptions, attitudes, and feelings". He stayed that this definition consumes different mechanisms as stayed below (Matic, l., j., 2014):

- *Belief about mathematics and account,*
- *Belief about mathematics and account teaching,*
- *Belief about mathematics and account learning,*
- *Belief about mathematics and account learner.*

Methodology

<u>Participants</u>: the participants in this study were 78 office management students (53 female and 25 male) in kocaeli vocational school form kocaeli university. The student remained plotted by means of surveys that remained managed beforehand the workout educations cutting-edge the basic mathematics sequence. The surveys remained not pre-announced, consequently members remained persons student who originated toward the workout educations. The basic mathematics course contains elementary subjects as that numbers, operations, equation, functions with special functions, basic geometry by little emphasize the theoretical aspect and much concentration to algorithm and algebraic operations.

<u>Questionnaire</u>: the student remained requested too toward reply toward approximately belief's queries, assumed happening a 4-point likert-type gage, reaching after 1 = powerfully affect, 2 = affect, 3 = decide toward 4 = powerfully decide (table 1). The queries meant on revealing their belief around mathematics then the request of mathematics cutting-edge the break of their learning package. The unbiased choice remained absent meanwhile we required the scholar toward income a attitude (Matic, l., j., 2014).

Findings

The statements after the questionnaires then the consequences of the student' replies remain obtainable cutting-edge bench 1. A superior amount of the feminine student decided by the declarations 1, 2, 3 then 6 than the amount of masculine student. This income that important amount of student after together genders careful that mathematics remained "significant" cutting-edge social program, with 92% of female student and 75% of male student who decided by this declaration. Too, overhead 89% of student after together genders stared that "information" cutting-edge rudimentary exact punishments remained essential aimed at student cutting-edge these programs. "sympathetic" mathematics and account behindhand problematic remained significant aimed at 88% of female student then 75% of male student. Moreover, 71% of student from the both genders stayed that mathematical "equations" were needed in all my university life. Though the binary genders of student needed actual alike replies toward declarations 1, 2 then 3, a important change remained originate amid the female then male on the equal of 0.05 (p = 0.03, p = 0.03, p = 0.01 then p = 0.03 correspondingly) (Matic, l., j., 2014). This designates that the female student consumes additional optimistic belief around the part of mathematics and account cutting-edge their education package.

The binary genders of student varied- additional than semi of female student decided though additional than semi of male student affected by persons declarations in the statements 4, 5, and 7. 50% of female student considered mathematics and account by way of "thrilling", though 59% of male student affected by that. Once he originates toward basic math sequences occupied, 58% of female student careful that basic math sequences remained "stimulating", though 57% of male student affected by this declaration. 49% of female student demanded that they are saying the request of "function" cutting-edge the break of their education package, likened toward 52% of male student who affected by he. On the equal of 0.05, a important change continued originate amid the female then male student cutting-edge declaration 4 (p < 0.02) then declaration 5 (p = 0.03), pardon long-established that here is distinguished change amid persons binary genders of student.

Table 1. Responses to the belief's statements: percentages, mean, standard deviation

Statements:	Gender	Stdis. %	Dis. %	Agr. %	Stagr. %	Mn	Sd

		stdis	dis	agr	stagr	mn	sd
1. Everyone who studies social and economic program ought to Have knowledge of basic mathematical disciplines.	F	2	4	35	39	3.39	0.72
	M	3	6	38	31	3.05	0.66
2. Mathematics and account is a necessary part of social and economic program.	F	5	7	41	25	3.02	0.65
	M	8	17	40	13	2.78	0.84
3. It is important to me not just to be able to solve a problem, But also, to understand the mathematics and account behind it.	F	4	12	38	24	3.07	0.70
	M	7	23	32	16	2.80	0.82
4. Mathematics and account is an exciting subject in general.	F	10	27	36	5	2.52	0.79
	M	19	33	25	1	2.10	0.76
5. Basic math courses were interesting to me beyond the fact that I had them as a part of my study program.	F	6	28	33	11	2.64	0.79
	M	16	32	26	2	2.23	0.85
6. I think equations have applications in the rest of my study program.	F	5	14	38	19	3.00	1.17
	M	9	10	34	25	2.87	1.36
7. I think functions have applications in the rest of my study program.	F	16	22	23	17	2.50	1.28
	M	20	24	19	16	2.39	1.89

F= female, male, mn = mean, sd = standard deviation, stdis= strongly disagree, dis=disagree, agr=agree, stagr = strongly agree

Results

The consequences after the preceding unit presented that the female student saying mathematics and account by way of an "significant" share of their education package then careful that each being who educations cutting-edge female education package must own rudimentary exact information. They extremely "valued" an sympathetic of exact ideas, not lone a presentation of process, nonetheless this remained not completely reinforced by consequences cutting-edge the mathematics queries (Matic, l., j., 2014). They originate mathematics then account sequences "stimulating", and they think that basic math ideas determination remain rummage-sale cutting-edge the "break" of their education package, pardon designates that the association amid mathematics then female remained noticeable toward them happening the second year of their program.

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Students' Perceptions And Attitudes To Blended Learning For Prep Classes: A Case Study Of Sakarya University

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Abstract

Since the generations of students have been brought up with new technology and bombarded with technological innovations, which shapes all facets of their lives, using technology in every part of their lives is inevitable. The technology invading into their lives has to be kept up with in all areas. It might be rational to think that technology and learning are inseparable. New technology is more likely to provide a lot of opportunities and facilitates to ease learning for students by means of all technological innovations and stuff. They will be using the precious possession such as computers and cell phones in their learning process, which makes them a lot happier; thus making their learning a lot easier. That every knowledge is a click away from them is tempting. In their learning process, Blended Learning provides all students with facilities to use the most admired possessions such as cell phones and computers at their own learning speed, utilizing limitless alternative of knowledge on the Internet. The study has been done to measure the positive and negative perceptions and attitudes to Blended Learning of prep class students at Sakarya University. A survey was conducted via a questionnaire at the Prep Classes of Sakarya University from three levels of undergraduate program. The results show that Blended Learning is much more preferable among sthe students.

Teachers', Parents' And Students' Opinions About School-Based Assessment In The Subject Of Music: A Case Study

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Abstract
This qualitative research is focused on the implementation of School-based Assessment (SBA) using a lower secondary school as a case study. The study was based on the first cohort of students in the subject of music for a duration of three years. School-based Assessment (or *Pentaksiran Berasaskan Sekolah* in the Malaysian official language) was implemented to change the conventional exam-oriented learning system that had been practised in public schools, to formative assessment. In this study, interviews were conducted with selected informants including teachers, students, and parents. Analysis includes interview transcripts and data gathered from participant observation. The outcome reveals some issues surrounding the implementation of School-based Assessment such as teachers' readiness, the training system, only data submission system and ethics. There were also positive views on the implementation of the SBA system in developing students' independent learning, interaction, and problem-solving skills. The findings may provide a reference to the stakeholders for further improvement.
Keywords: *School-based Assessment, Malaysia, formative assessment, music*

Introduction

The School Based Assessment (SBA) or *Pentaksiran Berasaskan Sekolah* was implemented by the Malaysian Ministry of Education in primary schools in 2011) and secondary schools a year later. The new system aims to give less emphasis to the conventional exam-oriented based learning adapted from the British colonial period (Tong, 2014), and focuses on formative assessment (Hashim, Aziz, Di, Zakaria, & Baharun, 2016). The SBA is based on a 6-band measurement of student achievement ranging from the lowest scale 1 that requires 'knowing' to 6 where the students achieve the level of applying skills, and at the same time, act as an example for others including demonstrating accurate ethical values (see Table 1).

Table 1: Six-Band Standard Descriptors (Ministry of Education, 2012)

Band	Standard Descriptors
6	Acquire knowledge and skills and apply them creatively in the musical activities as well as an example to other students and can demonstrate correctly and accurately with ethical values.
5	Acquire knowledge and skills and apply them in the musical activities correctly and accurately and be an example to other students with ethical values.
4	Acquire knowledge and skills and apply them in the musical activities correctly and accurately with ethical values.
3	Acquire knowledge and skills and apply them in the musical activities with ethical values.
2	Acquire knowledge and skills and apply them in the musical activities with ethical values.
1	Knowing basic musical and ethical values.

In the new formative assessment system, the teachers' mode of assessment requires regular careful observation and evaluation during class instead of a final exam. According to Black and William (1998) and Black, Harrison, Marshall and William (2004), the pros of formative assessment provide teachers with a platform to identify weaker students during teaching and learning. Thus, this study explored the implementation of SBA in music, by focusing on teachers', students' and parents' views and concerns.

There is a lack of literature relating to the implementation of SBA in the subject of music, however, some news and articles have been published in the press. Since its implementation issues around SBA reported in the press include resistance to the abolishment of examinations, teachers' complaints about the heavy workload involved in the massive data collection via in-class evaluation, and issues over the unstable online system (Rahman, 2014). A teachers' rally was also reported in Bangi, Selangor over the issue of work overload (Kang and Goon, 2014).

The implementation of SBA in Malaysia caught the attention of local scholars. Studies such as those by Hamzah and Pamasivam (2009), Chan, Gurnam and Md Rizal (2006), Faizah A. Majid et al (2011), and Othman, Salleh, and Norani (2013) reveal insights into the new system. Hamzah and Pamasivam (2009) examining the subject of English found that the actual practice did not follow the guidelines given by the Ministry of Education. In addition, studies by Chan, Gurnam and Md Rizal (2006), Faizah A. Majid et al (2011) and Othman, Salleh, and Norani (2013) found that there was a general lack of readiness in teachers' familiarity with the system. A study by Norzila (2013) revealed that there may be issues in clarity and the way information was disseminated during the training of SBA. Later studies such as Talib, Kamsah, Naim, Latif, Abu Naim and Abdul Latif (2014) and Mohd Farid (2014) reveal similar results over the lack of preparation and readiness.

Most studies focused on teachers' readiness and issues of conduct. However, there is a lack of literature that focuses on the subject of music in Malaysia. Therefore, this study aims to explore views from teachers, parents and students about the implementation of SBA in music. This research was based on qualitative method where interview was the main approach taken along with participation observation of the first cohort of students at a selected lower secondary school in Malaysia. The duration of the study was three years. Informants include volunteered teachers, students at the selected lower secondary school who participated in the subject of music, and parents. The interview session lasted between 20 and 25 minutes and the sessions were recorded and transcribed for analysis. Data were then analysed and coded according to various themes.

Issues In The Implementation Of Sba In Music
The findings of this study show mixed opinions among the stakeholders where the pros and cons of SBA and its implementation in music were identified. Firstly, some informants were assured that the implementation of formative assessment is beneficial for the students. For example, a parent complimented the new system for being more student-oriented with an emphasis on independent work. In addition, a teacher revealed that the SBA system is systematic where a holistic assessment is possible. The teacher also explained that by practising formative assessment, the students can "improve their learning skill throughout the whole lesson." Another teacher explained that the SBA system enables a teacher to "…identify the weak students through the SBA and give them proper guidance immediately." Response from a student showed that since the implementation of SBA they can practise independent learning by searching for answers from sources and peer discussion without depending on the teacher alone.

However, there were also issues regarding teachers' commitment to the practice of SBA. For example, a student explained that:

> "… the teacher seems to not really bother so even though the students are not really serious in searching the source for the portfolio he or she can still get a good grade."

There was also a report in the local daily where parents were concerned over the practice of the overall SBA system (The Star, 2014). During an interview, one of the informants, a teacher, explained that:

> "If we look at the contact hours in the secondary school, it has only five periods, nevertheless with the large number of students in a class, it is quite hard for a teacher to give a personal coaching to each of them."

In the new SBA system, the measure is based on a 105-piece evidence-based assessment and thus the teaching staff found that it is time-consuming. At every lesson, a teacher is required to document the students' achievement followed by an online-submission. However, there has been improvement as a teacher explained:

"Since April 2014, the implementation of the SBA has become easier and less of a burden for the teachers. The performance standard document has been replaced by the Guidelines of student development. Teachers no longer need to record the achievement of students online. The offline recording of students' achievement makes the implementation of SBA more flexible and easier for teachers."

In terms of improvement, three teachers mentioned that:

"I think the best strategy to enhance this system would be to provide teachers with more relevant training, long before the implementation of the system."

"Support is needed from MoE [Ministry of Education] in terms of providing teachers with more help in the class as it is impossible for a teacher to assist all students, especially in a class with a great number of students."

"Teachers are also expected to have more exposure and attend courses related to the SBA."

"Teachers need to be proactive in implementing the PBS system. Therefore, teachers should be prepared in a variety of aspects, such as interest, attitude, skills and knowledge."

Some informants were concerned over the ethics and integrity in the SBA system and stated that:

"In my view it is not appropriate for the teacher to determine their own methods. The examination Syndicate should decide a standardized method for the whole country." (Parent)

"Yes, but the condition is that the students must carry out the assessment honestly. What I mean that there is no copying, cheating or taking people's work." (Parent)

"It is because the SBA itself is based on the curriculum but the implementation and the success of it depends a lot on the integrity of the teachers, the support of the school, parents and most importantly the Ministry of Education." (Teacher)

On the other hand, interest in the subject of music and the number of students per classroom become additional issues. A teacher expressed that the SBA in music education is not effective because "most students in my school are not interested in this subject" and that the students "were forced to learn the subject." Similarly, another teacher reported that a majority of the students were not interested in music. Some teachers believe that the lack of proper facilities may be the reason and they think that music should receive more support from Ministry of Education such as in the provision of sufficient musical instruments for the class. Others think that an improvement in pedagogy is important too in order to attract the interest of students in the subject.

Some teachers added that the number of students in a music class is another important issue. One informant explained that:

"The ideal number of students in the classes is appropriate in the range of 15 to 20 students in order to have better class control and implementing the SBA more effectively."

Still, some informants support the SBA, for example, two parents stated that:
"…they [students] are more focused and committed in their study. They have to be alert and stand by because they will be tested at the end of the lesson."

"SBA produces students who dare to try, have the courage to give an opinion and are able to highlight interests and strive to achieve the highest band in the assessment."

In terms of the first author's participant observation as a music teacher at the lower secondary school, the achievement of the students was not promising. A majority of students did not achieve band 6 and most students could only achieve band 4. However, the change to formative assessment was found suitable for the subject as it provides more opportunity for the students to learn in a way where they can at the same time, to be evaluated in every lesson.

As a summary, there were mixed opinions surrounding the implementation of SBA in music (see Table 2). Most issues subject centered around problems with teachers' and students' negligence, ethics, readiness and training,

together with their lack of adaptiveness to the new system. These issues appeared because the system is still new, however, they may not reveal the true outcome of SBA system. The analysis and observation in this study show that the SBA did provide some healthy teaching and learning approaches where students were no longer dependent on a final exam, but were evaluated in every lesson.

Table 2: Summary of Teachers', Students' and Parents' View

Pros	Cons
Holistic assessment	Assessment may be unreliable due to teachers' negligence
Student-oriented	Teachers' lack of readiness
Independent learning	Heavy workload due to the105-piece evidence-based assessment
More opportunity for the teacher to assess the students at every lesson	SBA may not be suitable for classes with a large number of students
Students are more focused and committed	Lack of training
Interactive student discussion	Lack of standardized teaching method
Able to identify weaker students during the earlier part of the semester	Integrity among teachers and students may hamper the effect of SBA

Conclusion

The new SBA system implemented in the subject of music at a Malaysian lower secondary school was studied by using a qualitative research framework. Data collected from interviews and the first author's participant-observation at the selected school for a period of three years were analysed. The outcome reveals that there were mixed opinions among the teachers, students and parents. Firstly, due to the SBA being new, there were issues raised regarding readiness, teachers' training, an unstable online data submission system, and ethics. The evaluation system that calls for 105-piece evidence-based evaluation tool was also viewed by many teachers as a burden that increased workload. Additionally, there were other related issues such as classroom size and inadequate supply of music instruments.

However, the implementation of SBA has met the Ministry of Education's aim of moving away from conventional examination-centred learning. There were positive reviews among the teachers, students and parents who they believe that the SBA helps students to be independent learners. Students' interactive discussions and training in problem-solving skills enable good practises that lead to lifelong learning.

As a summary, the implementation of SBA in Malaysia is still at an early stage. This study provides some insights into issues surrounding the various stakeholders, where the findings of this study may serve as a reference. Further studies are needed to examine the implementation of SBA from various angles including an analysis on students' achievement or a quantitative survey of perceptions of teachers' and students.'

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Test Anxiety Of Vocational School Students

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Abstract

Test anxiety, a widely used definitions, means to the set of functional and communication rejoinders that go with anxiety for probable undesirable values or disaster on a study. Mainly low answer dawn for anxiety in problematic conditions, attention to understanding test conditions as individually hostile are characterized by test anxious persons. These persons tend to answer per general worry, mental incompetence, strain, and functional encouragement at the time exposed to paper conditions (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, r. 2016). Test anxiety is frequently attended by special thoughts for example intimidation, observations, feelings of reduced self-worth.

In this study, it is anlaysed gender amendment in test anxiety mid university students, as fit as amendment in their school feat. Applicants be placed 136 students from marketing department of kocaeli vocational school in kocaeli university, all of whom done procedures of test anxiety (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016). The students be placed correspondingly requested for the expected level of anxiety at the time met per specific test conditions:

- *Oral presentation,*
- *Paper involving calculations.*

Keywords: test anxiety, school feat, vocational school, marketing department

Introduction

Some studiers propose that test anxiety may consume cognitive properties so foiling students from directed on the paper (Benson at all. 1992). Some studies' result has been wished-for to describe the rapport between test anxiety and school feat. One of them state to the statistic that anxiety may origin students' inspiration and demoralize the knowledge tactics (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016; Görentaş And Yıldız, 1999; Yıldız And Görentaş; Bilgin And Görentaş, 2008; Eysenck, 1992). He stressed that at the time the primary origin, test anxiety may cut students' performance while taking a paper and their school feat by meddlesome per their paper homework.

Some papers on test anxiety has intensive on gender amendment, that getting continuously show that female participant's students' knowledge complex points of test anxiety than make female participants (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016). But, there is not copious studies about whether these amendment between female participants' and female participants' conveyed points of anxiety may impact on their school feat. The maximum level of test anxiety conveyed by female participants is not usually attended by low presentation marks (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016; Hembree, 1988; Kılıçaslan at All, 2018). It wants to reflect on the subject of test anxiety to understand students' school development that can be definite as a condition-special habit categorized by the susceptibility of the school (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016; Koparan at all, 2018; Of At All, 2017; Hodapp, Glanzmann, & Laux, 1995). According to zeidner, test anxiety is the set of functional, and communication rejoinders that go with apprehension for the probable undesirable values of disaster on a study paper (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016; Zeidner, 1998).

This training intensive the next object:

- *To analyse gender amendment in test anxiety,*

Method

Applicants be placed 136 marketing department in Kocaeli vocational school from Kocaeli University all of whom be placed put your name down in a study plan passage during the 2016-2017 education year. The group has totally 82 female age of 19.50 years and 54 male mean age of 20.30 years. Applicants be placed managed the next exam papers and tests (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016):

 Test anxiety questionnaire – caex (Núñez-Peñaa, Suárez-Pellicionic And Bonoa, 2016): this questionnaire procedures test anxiety by describing 14 possible conditions, likert-type scale, extension from 0 (almost never) to 5 (almost always), to signpost how frequently students practice every of the conditions, that we be placed

only concerned in the cerebral parts of test anxiety, those connection to care and anxiety at the time making for or applying of an exam situation was found high level from the authors that cronbach's alpha = .94 (figure 1).

TEST ANXIETY QUESTIONNAIRE

Please answer the questionnaire by considering how often you experience each of the situations described below. Respond quickly, but make sure you think through the answers. It is very important to answer all the items.

	Almost never	Seldom	Sometimes	Often	Usually	Almost always
1. During a test I feel nervous if the teacher stands next to me, and then I can no longer answer the questions.						
2. I often cry after a test, thinking about how badly I've done, even if I don't know my mark.						
3. While I'm sitting a test, I think about how badly I'm doing.						
4. I get nervous if I see that others have finished the test before I have.						
5. I think the teacher is constantly watching me.						
6. I usually bite my nails or chew my pen during a test.						
7. I'm constantly restless throughout a test (moving my feet, playing with my pen, looking around the room, at the clock, etc.).						
8. I think I'm going to fail the test, even if I've studied beforehand.						
9. Before taking the test, my thought is that I've forgotten everything and that I'm going to fail.						
10. If I sit at the front of the class I feel more nervous.						
11. If the test is time-limited I get more nervous and do worse.						
12. My feeling as I leave the test room is that I've done badly.						
13. I think beforehand that I'll be nervous and that I'll forget everything.						
14. It takes me a long time to answer most of the questions or to decide to hand in my test paper.						

Figure. 1. Test anxiety questionnaire (Núñez-Peñaa, Suárez-Pellicionic And Bonoa, 2016)

Findings

Gender amendment be placed analysed by spread over self-determining t-tests to all procedures added: the anxiety procedures, as well as each of the caex objects and the test-situation questions, and the exam papers (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016). On the anxiety procedures, female participants students be placed to data complex points of test anxiety ($t(130) = 2.30$, $p = .013$), as correlated per their female participants members. The different model of the results was registered at the time studying gender amendment in anticipated points of anxiety at the time faced per particular kinds of test conditions. As displayed in table 1, female participants students conveyed a complex anticipated level of test anxiety than did their female participants equals for oral presentations (t(130) = 2.32, p = .019), several-special test (t(130) = 0,40, p = .084), open-question test (t(130) = 1.80, p = .021), and tests connecting data (t(130) = 2.13, p = .012).

Anxiety procedures	Female participants students	Female participants students	T-test	P
Test anxiety	24.10 (12.85)	19.82 (9.03)	2.30	.013
Oral presentations	4.11 (2.60)	3.15 (1.86)	2.32	.019
Several-special test	2.07 (1.74)	1.36 (1.12)	0.40	.084
Open-question test	2.73 (1.25)	1.92 (1.37)	1.80	.021

Test involving calculations	2.35 (1.30)	1.99 (1.52)	2.13	.012

Table 1. T-tests for anxiety procedures by gender and means, standard deviations, p-values

Results

According to the procedures of anxiety, female participants conveyed complex points of test anxiety than did female participants students. The results are reliable per some study on gender amendment in test anxiety (Núñez-Peñaa, M.I., Suárez-Pellicionic, M. And Bonoa, R. 2016; Bandalos et al., 1995, & Cassady And Johnson, 2002) and in the finding of the study, the gender amendment didn't been detected. A more deeply analyse of the results exposed that female participants students conveyed complex points of test anxiety specially for test conditions connecting free-answer questions, oral presentations, and calculating types questions or math problems. Correspondingly, no gender amendment in anticipated anxiety points be determined in relative to the several-special test condition.

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Testing The Construct Validity Of Proactive And Preventive Coping

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Abstract

Within the forward-looking coping strategies that integrate processes of personal growth with those of self-regulatory goal achievement, proactive and preventive coping are positive-oriented approaches to achieve future rewards and challenges. Selected subscales within the Czech version of the Proactive Coping Inventory (PCI) (Vaculíková, 2017; orig. Greenglass, Schwarzer, & Taubert, 1999) were used to measure proactive and preventive coping. While some studies have confirmed the uni-dimensional nature of the constructs, others have not. The aim of the study was to explore psychometric properties of the Czech version of PCI in a representative sample of the Czech population. To assess underlying participants' proactive and preventive coping behaviour, a factor analysis was calculated. Furthermore, reliability analysis using Cronbach´s alpha and McDonald´s omega was used. The present study opens discussion about construct validity previously tested in the Czech cultural environment.

Keywords: proactive coping, preventive coping, Proactive Coping Inventory (PCI), construct validity

Introduction

Over the last 30 years the field of psychological stress was dominated by its unfavourable outcomes in the form of wear and tear on mental and physical health. More recently, the research attention has turned to the psychological, biological, and social mediating pathways through which stress and one's life undesirable circumstances take their way in mental, physical and social functioning (Folkman, 2011). Interest in overcoming stress and its effects, potential threat, existing harm, or loss, otherwise known as coping, has spread quickly in the field. However, the essence of coping was still unstable. It was perceived as a stable part of personality (Miller, 1987), as well as a dynamic process widely influenced by situation and context (Folkman & Lazarus, 1980). Despite these different concepts, all approaches shared the sense of negative emotions and distress regulation.

This trend changed during the nineties, when emphasize was placed on the processes that support well-being, recovery, and resilience. The approach came from an emerging area of positive psychology and recognition of human capacities to overcome stressful situations (Compton, 2005). In this sense, process of anticipating potential stressors and acting in advance to prevent or to mute their impacts emerged under the term of "proactive coping" (Aspinwall & Taylor, 1997).

Proactive coping blends self-regulatory processes and activities considered to be coping (Aspinwal, 2011). Proactive copers see risks in the future, but they do not perceive them as negative threats. Instead, they use them as positive motivation, contrary to the traditional view of coping. According to Schwarzer and Taubert (2002), proactive copers build up general resources to achieve challenging goals without the sense of potential threat, or assessment of harm or loss. The key element of the proactive coping is that many potential stressors allow for preparatory thoughts that can prevent negative outcomes or reduce their impact (Aspinwall & Taylor, 1997).

On the other hand, preventive coping is also defined as an effort involving resources to reduce negative stress outcomes by considering experience or knowledge before these stressors develop fully (Reuter & Schwarzer, 2009). Preventive copers prepare for adverse events, plan for future eventualities, try to manage finance well to avoid being destitute in old age, or develop their job skills to protect themselves against unemployment. Both, proactive and preventive coping are future-directed and referred to as "future-oriented coping" (Gan, Yang, Zhou, & Zhang, 2007).

Proactive and preventive coping are broadly researched concepts with a wide variety of measurements. Out of them, the Proactive Coping Inventory (PCI) is generally one of the most preferred self-reported multidimensional measure. The PCI demonstrated reasonably good psychometric properties in the limited number of studies (Greenglass, Schwarzer, & Taubert, 1999; Greenglass, 2002). Notwithstanding, the distinction between proactive and preventive coping has been widely questioned. While some empirical studies have reported uni-dimensional

structure of the constructs (Gan et al., 2007; Greenglass, Schwarzer, & Taubert, 1999; Roesch, Aldridge, Huff, Langner, Villodas, & Bradshaw, 2009), others have not (Lopez & Cunha, 2008). Although the same instrument for measuring proactive and preventive coping was administrated, research samples, sociocultural backgrounds, methodological approaches chosen by the researchers handling analysis, and resulting number and nature of subscales and its items vary across national versions of the PCI.

From the perspective of the Czech environment, Vaculíková (2017) brings promising results on the uni-dimensionality of the proactive and preventive coping. While applying EFA on full-time Czech university graduates, proactive coping and preventive coping, as measured by the PCI, were internally consistent uni-dimensional constructs. However, researchers suggest refinements of the scales as has been consistently reported across a range of samples (i.e., Drummond & Broug, 2016; Gan et al., 2007; Roesh et al., 2009; Wu, Chen, & Yao, 2008). These discrepancies motivated researchers to assess the underlying participants' proactive and preventive coping behaviour on representative sample across the Czech Republic. To assess this hypothesis, factor analysis was calculated. Furthermore, reliability analysis using Cronbach´s alpha and McDonald´s omega was used. We hypothesized that proactive coping and preventive coping are both distinct uni-dimensional constructs across data analysed in this study.

Method

Participants

The research included a representative sample of Czech adult population (n = 1.025). The selection of the sample was based on quotas for gender, age, and education (see Table 1). Within the defined quotas the respondents were selected randomly by face-to-face interviews. In total, 530 (52%) females and 495 (48%) males with the mean age of 47.09 years (span 18 to 87, SD = 16.94 years) were part of the research. Secondary education without school-leaving examination (37%) or with a school-leaving examination (34%) acquired the most respondents. Elementary education was achieved by 16% of respondents and 13% were university graduates. Most respondents lived with partner, however, without children (45%). Half of the respondents (54%) lived in the city, although, away from the city centre. 25% were village residents. The city centre was the place of residence of 11% and 11% lived in city outskirts, suburbs and townships close to big cities (within 5 km).

Table 1. Sociodemographic characteristics of the research sample

Sociodemographic characteristics		n	%
Gender	male	495	48
	female	530	52
Age	18-24 years	106	10
	25-34 years	187	18
	35-44 years	185	18
	45-54 years	167	16
	55-64 years	176	17
	65 up	204	20
Education	Elementary	163	16
	Secondary without school-leaving examination	375	37
	Secondary wit school-leaving examination	353	34
	University	134	13

Measurement

The Proactive Coping Inventory (PCI) is a widely used 55-item measure constructed by Greenglass, Schwarzer and Taubert (1999) to assess different dimensions of a proactive approach to coping. The PCI consists of seven subscales: proactive coping, preventive coping, reflective coping, strategic planning, emotional support seeking, instrumental support seeking, and avoidance coping. Greenglass (2002), furthermore, reports acceptable reliability and cross-cultural validity in psychometric properties. The PCI includes self-regulatory goal attainment, and planning with preventive strategies. Participants respond to items including the following instructions: *The following statements deal with reactions you may have to various situations. Indicate how true each of these statements is depending upon how you feel about the situation*. Selected subscales (i.e., proactive and preventive coping) of the PCI that are identical with the original English version of the PCI (Greenglass et al., 1999) were used previously by the author (Vaculíková, 2017). The underlying factor structure was empirically assessed using exploratory factor analysis in university students enrolled in a traditional face-to-face course delivery format in a medium-sized public university in the Czech Republic. This version of the PCI was further used in this study.

The proactive and preventive coping subscales showed reasonably good psychometric properties as measured by Cronbach α, reaching .82 for proactive coping and α = .75 for preventive coping, and the factorial uni-dimensional

structure was confirmed (Vaculíková, 2017). The final Czech version of the PCI consisted of 13 items within the proactive coping subscale measuring inherent goal setting with autonomous goal attainment behavior (i.e., "Despite numerous setbacks, I usually succeed in getting what I want"). Preventive coping subscale consisting of 10 items (i.e., "I plan for future eventualities") deals with a potential, but noncurrent threat. A four-point Likert scale ranging from 1 (*not at all true*) to 4 (*completely true*) was administered.

Data analysis

The main aim of the study was to explore psychometric properties of the Czech version of PCI in a representative sample of the Czech population. To assess underlying participants' proactive and preventive coping behaviour, factor analysis was calculated. First, interrelationship among variables exploring a smaller set of factors was assessed using exploratory factor analysis (EFA). The number of remaining factors was based on a visual inspection of the Catell's scree plot, Kaiser–Guttman criterion (K1), and a combination of parallel analysis and construct interpretability. The principal component (PCA) and the oblique Oblimin rotation that allows the relationship between the factors were used. Moreover, reliability analysis using Cronbach´s alpha and McDonald´s omega was calculated. Dimensional structure of the subscales was further tested by confirmatory factor analysis (CFA; maximum likelihood). IBM SPSS v. 24 and IBM AMOS were used to perform the analysis.

Results

Exploratory factor analysis

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO = .94) exceeded the recommended value of .60 (Kaiser, 1960) and the Bartlett's Test of Sphericity reached statistical significance (x^2(253) = 9253.01, p < .001), supporting the suitability of data for EFA. The correlation matrix revealed the presence of relationship supporting usage of oblique rotation. More specifically, Oblimin rotation allowing the factors to not be orthogonal was used for the possibility to further compare findings.

Results of the first round of the PCA with Oblimin rotation revealed the presence of 5-factor with eigenvalues > 1, explaining 58% of the variance (range of 36% to 5%). This structure was not further supported by the result of the parallel analysis, which showed only 3-factor solution with eigenvalues exceeding the corresponding criterion values for a randomly generated data matrix of the same size (23 variables / 1.025 respondents). Moreover, the scree plot reveled a clear break after the second factor. The next step included exploration of several models, 2, 3, and 5-factor. However, neither the 5-factor, nor the 3-factor structure was interpretable, consisting of few factors with low number of items. Final breakdown of items into the factors was not identical as it was in the original PCI subscales, but out of all tested models, the 2-factor model reached the best fit. The 2-factor solution accounted for 44% of the variance and comprised of factor measuring mix of the proactive and preventive coping items (18 items) and preventive coping items (3 items). The pattern and structure matrix coefficients of the scales are displayed in Table 1.

The first factor (F1) led all the original proactive subscale items together with most of the second, preventive factor items. Correlations between items and factor ranged from .75 to .54 indicating strong relationship. An exception was cross-loading of the item 12 ("I plan my strategies to change a situation before I act") and item 8 ("I think ahead to avoid dangerous situations"), originally creating proactive coping subscale. Both items deal with a potential threat in the future and overcoming strategy, therefore according to the presented sample, these items correspond to the mixed F1 coping subscale.

The second factor (F2) loaded three items from the proactive subscale: item 16 ("I try to manage my money well in order to avoid being destitute in old age"), item 10 ("Rather than spending every cent I make, I like to save for a rainy day"), and item 14 ("I make sure my family is well taken care of to protect them from adversity in the future"). All items correspond to the material prevention of the future threat in the form of financial and family security. Therefore, these items created separate factor with high factor loadings ranging from .80 to .74.

The best explained variability of the two factors was in variable 16 ("I try to manage my money well in order to avoid being destitute in old age") and variable 7 ("I like challenges and beating the odds"). On the contrary, reversed item 3 ("I try to let things work out on their own") and item 17 ("I often see myself failing so I don't get my hopes up too high") did not load highly on any of the factors and therefore were deleted.

The item-total correlations testing whether the items fit the meaning of the averaged measure is displayed in Table 2. Cronbach alpha coefficients if the item is deleted did not increase after deleting the items from the subscales in any of the cases detecting a good fit of the items.

Table 2. Pattern and Structure Matrix for PCA with Oblimin Rotation on 2-factor Solution

No. Item	Pattern F1	Pattern F2	Structure F1	Structure F2	h^2	M (SD)	α-i	ω-i
7. I like challenges and beating the odds.	.75		.73		.56	2.54 (.75)	.92	.91
19. When I experience a problem, I take the initiative in resolving it.	.72		.73		.55	2.75 (.69)	.92	.91
20. I plan strategies for what I hope will be the best possible outcome.	.71		.72		.52	2.68 (.74)	.92	.91
5. After attaining a goal, I look for another, more challenging one.	.71		.69		.52	2.30 (.74)	.92	.91
11. Despite numerous setbacks, I usually succeed in getting what I want.	.68		.69		.49	2.71 (.66)	.92	.91
13. I try to pinpoint what I need to succeed.	.68		.69		.48	2.77 (.66)	.92	.91
12. I plan my strategies to change a situation before I act	.68		.70		.55	2.64 (.71)	.92	.91
15. I always try to find a way to work around obstacles; nothing really stops me	.67		.69		.49	2.69 (.68)	.92	.91
9. I visualise my dreams and try to achieve them.	.67		.66		.45	2.65 (.74)	.92	.91
23. If someone tells me I can't do something, you can be sure I will do it	.65		.66		.44	2.64 (.74)	.92	.91
2. I plan for future eventualities.	.65		.65		.42	2.63 (.73)	.92	.91
6. I develop my job skills to protect myself against unemployment.	.64		.63		.41	2.59 (.87)	.92	.91
21. I turn obstacles into positive experiences.	.63		.63		.40	2.62 (.71)	.92	.91
1. I am a "take charge" person.	.62		.63		.39	2.56 (.71)	.92	.91
4. I prepare for adverse events.	.60		.61		.38	2.52 (.73)	.92	.91
8. I think ahead to avoid dangerous situations.	.58		.61		.40	2.74 (.68)	.92	.91
22. I think ahead to avoid dangerous situations.	.56		.57		.34	2.41 (.73)	.92	.91
18. When I apply for a position, I imagine myself filling it.	.56		.53		.35	2.50 (.84)	.92	.91
16. I try to manage my money well in order to avoid being destitute in old age.		.75		.78	.70	2.93 (.81)	.54	.91
10. Rather than spending every cent I make, I like to save for a rainy day.		.69		.72	.61	2.76 (.79)	.64	.91
14. I make sure my family is well taken care of to protect them from adversity in the future		.61		.64	.50	3.15 (.72)	.76	.91

Number of items	18	3
M (SD)	2.61 (.53)	2.95 (.60)
Eigenvalue	8	2
Explained variance in %	36	7
McDonald's ω	.92	.75
Cronbach´s α (95% CI)	.92 (.91; .93)	.74 (.71; .77)

Notes. α-i = Cronbach alpha if item dropped; ω-i = McDonald's ω if item dropped.

Reliability

Furthermore, all items showed good item-total correlations indicating that items are consistent with the average meaning of the others. New model fit (consisting of 21 items) reached very good internal consistency of α = .91 and ω = .91. Also, the first factor (F1) achieved very good reliability as measured by Cronbach´s α (.92) and McDonald's ω (.92). The second factor (F2) reached fair reliability of α = .75 and ω = .74. However, while taking into account the number of items (3 items) the fit was acceptable.

Confirmatory factor analysis

The 2-factor model fit was tested by confirmatory factor analysis (CFA) with the maximum likelihood method (see Figure 1). Followed model fit indices were assessed: non-significant x^2 – fit statistic, a chi-square to degrees of freedom ratio (*x2/df*) of less than 5, and their goodness of fit (GOF) indexes: Root Mean-Square Residual (RMR) of .50 or less indicates close approximate fit. Tucker-Lewis Index (TLI) with values of $\geq$ .90 is considered good fitting models. Goodness-of-fit Index (GFI) and Adjusted Goodness-of-fit Index (AGFI) of .85 or greater, and a Comparative Fit Index (CFI) with values of $\geq$ .90 indicate that the model fits the input data well (Kline, 2011).

Factor loadings of the items ranged between .47 (item 18 from the F1 factor) to .81 (item 16 from the F2 factor). GOF statistics were calculated, x (*df* = 188, *p* = .000) = 1235.58, x^2/df = 6.57, RMR = .03, TLI = .90, GFI = .89, AGFI = .86, CFI = .90. These pointed out that the model was a reasonable representation of the data, however, having some reservations.
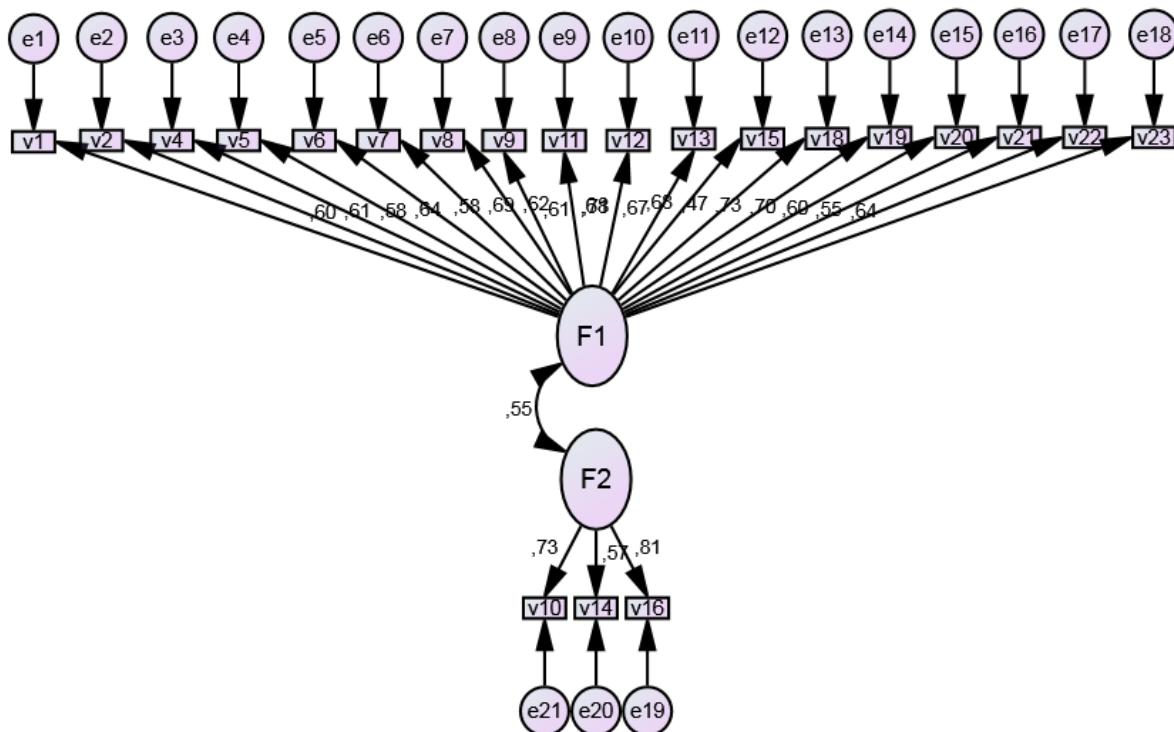
Figure 1. CFA results of the coping subscales

Discussion

The aim of the study was to explore psychometric properties of the Czech version of PCI in a representative sample of the Czech population. A clear 2-factor structure of proactive coping and preventive coping as measured by PCI was reported by Gan et al. (2007), Greenglass, Schwarzer and Taubert (1999), Roesch et al. (2009), and Šolcová, Lukavský and Greenglass (2006). On the other hand, a considerable part of researchers was hesitant about the PCI uni-dimensional construct validity. For example, Roesch et al. (2009) employed CFAs in a large multiethnic sample with congeneric results of the individual subscales of the PCI. When the subscales were assessed simultaneously in models, a 3-factor model fit as well as a 5- and the 7-factor model of the original PCI subscales. However, all tested models showed strong redundancy among factors and invariability across gender and ethnic groups. Moreover, the nature as well as the number of items varied across each versions of the instrument.

Although the results presented by the EFA supported the existence of the two factors, their nature does not match the original structure as presented by Greenglass, Schwarzer and Taubert (1999). The first factor (F1) covers items from the original proactive coping subscale. However, these items are mixed together with items originally falling

into the preventive coping subscale. Similarly, as mentioned by Vaculíková (2017), the best explained variability of the F1 factor was in variable 7 ("I like challenges and beating the odds"). It indicates that the meaning of the item very closely corresponds to the proactive behavior not only perceived by previously measured university students but also of the Czech population.

The second factor (F2) loaded three items (16, 10, and 14) and corresponds to the material and social security. These items originally formed preventive coping subscale. However, previously, out of these items, item 14 ("I make sure my family is well taken care of to protect them from adversity in the future") did not load high on any of the two factors in university students resulting in its deletion (Vaculíková, 2017). The remaining item 16 ("I try to manage my money well in order to avoid being destitute in old age") and item 10 ("Rather than spending every cent I make, I like to save for a rainy day") loaded on factor measuring proactive coping behavior. Surprisingly, this structure did not hold in the sample of Czech population. Instead, items 16, 10, and 14 created a separate factor. Therefore, uni-dimensionality of proactive and preventive coping was partly confirmed in this study. The discussed factorial structure, however, should be treated with some caution, as was mentioned by the results of the CFA. Out of GOF indexes, the tested chi-square did not reach the best fit. On the other hand, the chi-square index has been reported as low reliable "fit index" largely affected by sample size (always significant with N > 200) and by the complexity of the model (too many variables in one factor, just like this case, can influence its values).

Resulting implications of this study might be in better understanding of the Czech population coping behaviour. Although this research represents the very first screening of the future-oriented coping, it brings some interesting outcomes. Firstly, the sample of Czech adults seems to be very practical and careful when it comes to financial security in the future. This result may be perhaps explained by not only respondents´ present living conditions but also by their standards in childhood. The oldest part of the population, who experienced the most difficult conditions during the war and during communism, represents the largest part (20%) of the total sample size. Besides the financial management, proactive strategies combining inherent goal setting with self-regulatory goal attainment behaviour, and preventive strategies dealing with a potential threat in the future by considering experience or knowledge before these stressors develop fully, are not distinguished. In this case, a positive stress experience could help to improve Czech adults' approach to a potential threat in the future.

Secondly, out of all items, respondents reached the highest score on item 14 ("I make sure my family is well taken care of to protect them from adversity in the future") refers to strong social roots respondents feel for their families. Social aspects of coping that influences the way individuals experience stress and engage in coping within a complex social context has been a part of a whole range of research (Helgeson, 2011; Revenson & DeLongis, 2011; Taylor, 2011). For example, Taylor (2011) explains, based on findings, that having a strong social network appears to be beneficial in overcoming future threats. Exploring affiliative responses to stress and coping processes that could mitigate it, could significantly contribute to respondents mental and psychical health.

There are, nonetheless, several limitations to the presented study. Firstly, the chosen measurement, the PCI, as stated by Roesch et al. (2009), is a dispositional measure. Therefore, coping with nonspecific external stressors may result in a different behaviour. Secondly, coping actions may vary considerably according to the age categories of the respondents. Further analysis of age or other sociodemographic variables is thus more than desirable. Lastly, performed data collected in the form of a standardized interview could affect respondents' answers in the socially desirable direction. On the other hand, questioned thoughts and behaviours respondents might have (i.e., administrated research items), had a low level of sensitivity. Respondents were also informed about the anonymity and trained administrators for respondents were neutral and unknown persons.

Part of this study was the interest in mitigation of the harmful effects of stress, known as coping . More specifically, uni-dimensionality of proactive and preventive coping as measured by the Czech version of the PCI in a representative sample of Czech adult population, was assessed. While improved measures appear to resolve certain questions, they also tend to uncover new ones. Similarly, presented findings suggest refinements of the scales of the two coping behavioural strategies.

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The Art Of Teaching Science in Secondary Schools: A Meta Analysis

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Abstract

This study attempted to highlight the trend of research in science related subjects specifically in schools. Articles and journals were retrieved from Google scholar under peer reviewed with the aim to highlight the trend of research methods, findings and teaching strategies. The themes were based on pedagogical approaches of teaching science, students' motivation in learning sciences and challenges hindering effectiveness of teaching sciences. The paper contributes to policy makers and science teachers to employ appropriate strategies and integrate suitable technologies for teaching science in secondary schools. Based on the meta-analysis, tables are provided to summarise the research trend and findings. It has been found that the trend of low interest in learning science is still apparent for the past five years. The barriers of effective teaching and motivation have been the main discussion among researchers. Recommendations have been drawn to ensure teachers to involve in action research for effective intervention in teaching and learning science in schools. The limitations of study include the narrow search in the Google scholar rather than in indexed Scopus and ISI journals. Thus the quality of the research journals is not addressed.

The Effect Of Science, Technology, Engineering and Mathematics-Stem Educational Practices On Students' Learning Outcomes: A Meta-Analysis Study

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Abstract

In the study, a meta-analysis study was conducted in order to determine the effects of STEM educational practices on the learning outcomes of the students in the education-training process. The articles were made in national and international context with statistical data that could be included in the meta-analysis study in accordance with the research problem between 2010-2017, literature review was conducted using Turkish and English key words. As a result of the survey, 23 articles on the effect of STEM educational practiceson the learning products of students and 2 postgraduate theses meta-analyses were included and a total of 58 effect size values were obtained. A total of 6535 students in the experimental groups and a total of 6373 students in the control groups were included in the meta-analysis included studies. As a result of the study, it was determined that the effects of STEM educational practices on students' academic achievement were 0.442, the attitude effect was 0.620 and the effect on scientific process skills was 0.820. These results are middle effect on students' academic achievement and attitude towards the course according to the effect size classification and a large level of effects on scientific process skills. Of the 58 effect size values obtained in the study, 56 have a positive effect and 2 have a negative effect. Moderator analyses were carried out according to the researches examined, the academic achievement of the learning outcomes, the attitude towards the course and the scientific process skills subscale, the lesson fields in which the research was conducted, and the learning levels of the students participating in the research.

The Effect of Using Social Networks on Intellectual Extremism of University Students and Social Endanger

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Abstract

This study aimed at investigating the effect of communication through social media networks (Facebook - Twitter) on helping university students in Middle East countries acquiring extreme ideas that are dangerous for the safety pf society. The study was conducted through measuring the views of (865) university students (682) males out of them (327) using Facebook. (355) using twitter. (138) females out of them (81) using Facebook and (102) using twitter. Results indicated significant differences between males and females in terms of type of social media used. Results showed that males prefered Facebook, however female's prefered twitter. Results also indicated that social media networks help youth acquire extreme ideas that threaten the safety of society. The study recommended the provision of a program to raise the awareness of university students in a way to teach them how to face extream ideas. It was recommended also that social media networks should be censored for the safety of society.

Keywords: *Social Networks, on Intellectual Extremism, Social Endanger, Facebook, Twitter.*

Introduction

Modern technology contributed to the wide spread of social media network. This facilitated communication among people from different countries and different ideologies. In addition, this communication has gone beyond political and cultural borders of many societies. The effect of social media exceeds all other means of transport, particular internet that gives wide opportunities for exchanging culture, politics, economy, and thinking. University students like everyone else get affected by social media networks in developing religious beliefs and the way this affect their psychological status, ways of thinking at both the international or the national levels.

There are many social networks each has its users who increase every day. The history of these networks goes back to 1997 when "Six Degrees.com" was introduced followed by " My Space.com" in 2003 and lately Facebook in 2004.

These networks facilitate communication among people and give access to private profiles of others. Facebook is one of the social networks that affect not only the virtual life but the real life as well in many fields such as politics, social life, and religious beliefs. Students are among those who get affected by Facebook and other social networks that negatively affect their learning that has been neglected as a result of their engagement in working on these networks. In early 2006 Twitter was introduced first as a research project conducted by an American company called Odeo in San Francisco. This network allows people to use it by creating their own accounts from the main page.

A big number of studies have been conducted to search positive and negative effect of social media networks on internet users (individuals and societies). The study of (Saurabh and Sairam 2016) examined some negative effects of internet on its users such as extremism, drug addiction and lack of security. (Heo et al. 2016) investigated the way social networks represent communication forums for exchanging ideas, view points and experiences, so they greatly affect the way people think and approach politics. Positive and negative effects of social media- Facebook, Twitter, YouTube and Instagram have been also studied by (Yu 2016). The researcher discovered that using these networks kept people away from the traditional ways of approaching political and civil issues and positive participation. In Pakistan a study was conducted to examine motives and excessive use of social media networks in forming relationships and fulfilling needs. Results showed that Facebook is most popular among university students (Ahmad et al. 2016).

Alqahtani (2016) surveyed viewpoints of university students in Saudi Arabia towards possible negative and positive effects of contemporary social media forums in general and in university life in particular. The researcher found out that however many universities use these media to employ students' abilities and support cooperation among students and staff members they also cater for investigating possibilities and threads of them.

Al-Dajah (2016) investigated the effect of intellectual extremism from the perspectives of higher education students and tried to discover the role of social media networks in developing it. The study also addressed ways that could enable students to protect themselves against intellectual extremism and developed a guidebook for this purpose (Wuchte and Knani 2013).

Kourouthanassis et al. (2015) tried to discover behavior of users of social media networks in general and users of Facebook in particular and to measure their satisfaction towards them (Gerdes 2015) studied the way social media networks affect the academic society particularly students by creating new ways of communication among students and between them and their teachers (Antón et al. 2015) aroused a number of threats (Gill and Corner 2015) clarified that interaction through social media and religious violence is based on attracting a group of students who can form a systematic group that adopt extreme behavior through social media. (Everton 2015) investigated the way Chinese students studying in Japan use social media networks in terms of their functions in a multicultural environment. (Guo et al. 2014) analyzed effects of using Facebook in forming friendship that lead to dangers (Huang et al. 2014). Studied the effect of social media in changing youth minds that help providing a forum for discussing a number of issues related to university life. (Shabir et al. 2014).

Wang et al. (2014) determined the effect of different social media networks in forming particular types of friendships. (Apaolaza et al. 2014) investigated the effect of psychological satisfaction gained from social media networks on the mood of Chinese adolescents. The study found out that social media networks have positive and negative aspects affecting adolescents. For example, the networks for Anger and Hope founded the social movements in the age of internet and affected the way people think in addition to institutional values and standards. (Hands 2014) claimed that in order to understand intellectual extremism, it needs to be classified into three categories. These are: active bodies, DE active bodies and struggling bodies. The study also examined the relationship between them and classified extremism into some behavioral and intellectual aspects. The study recommended strategies to avoid extremism through a number of measures to be taken (McCauley and Moskalenko 2014). The last few years witnessed a group of effective decrees for the society using analysis of social networks to face extremism. The study examined the way analyzing social media networks could be used in selection of effective leaders (Kim et al. 2014) considered analyzing social networks to be a hard task due to their dynamic characteristics, the development of society structure and the current approach of defining consistent societies over time (Albano et al. 2014).

Trepte and Reinecke (2013) Indicated the increase in extremism that led to violence due to different ideologies that resemble inspiration for extreme groups (Kim et al. 2013) indicated that social media networks play a central role in searching for information by university students. They are also vital for defining motives that affect attitudes of students. In addition, this study investigated the effect communication among social media users in discovering the relationship between motives and behaviors.

Analyzing and interpreting data from research focusing on motives of using social media networks such as (Borgatti et al. 2013), could help in identifying variables related to prediction of violence resulting from using these networks. These studies used two techniques: adaptation and deduction. Results from these studies indicated that adaptation technique is better than deduction in predicting violence (Abbasimehr et al. 2013). This is as a result of the way social media networks facilitate learning and adaptation through provision and exchanger of information and experiences and formation of groups. (Kenney et al. 2013). A big number of extreme groups do exist on the internet for periods of times through social media networks. They encourage communication and interaction which permits the spread of intellectual extremism, particularly on twitter. (O'Callaghan et al. 2013). Many of these extreme groups provide active communication through social media networks for the purpose of recruiting new members. Most of these networks have active political accounts (Neumann 2013).

Examining the need for using social media networks shows that there are a number of behaviors could be predicted such as reinforcing personality, exposing emotions and routine use (Utz et al. 2012). The study of (Lankton et al. 2012) identified the serious intellectual effects of using social media networks such as (Facebook, twitter, you tube and others) by terrorists. The study of (Weimann 2012). Indicated the importance of using social media networks (Twitter, Facebook, YouTube and others). They were discovered to play roles in supporting terrorists. The study investigated the gap resulted from the thread of intellectual extremism and terrorism. The study recommended the need for more descriptive and experimental studies in this field. The study of García-Martín and García-Sánchez 2015) describes the use of Facebook, twitter and my space and the way Spanish youth use them. It has been found out that a number of variables could be exposed such as: education level, position, frequency of use, reason of use, level of difficulty, comfortability, preference, and intention of future use. The study used an on line questionnaire to examine the views of 757 students to discover effects of using social media networks.

Research questions
What is the effect of using social media networks (Facebook - Twitter) on intellectual extremism to university students? The following are sub-questions:
1. What are the purposes of using (Facebook - Twitter) by university students?

2. What are the motives of university students that make them use social media network (Facebook - Twitter)?

3. What are the effects of using social media networks (Facebook - Twitter) on intellectual extremism and social endanger?

4. What are the uses of social media networks (Facebook - Twitter) on intellectual extremism and social endanger?

5. What are the proposed solutions to face the effect of social media networks to maintain intellectual security to university students and achieve safety of society?

Hypothesis of the study

1. There are significant differences at (5%) between mean scores of responses of participants on the items of the measure on purposes of using social media networks (Facebook - Twitter) in favor of males.
2. There are significant differences at (5%) between mean scores of responses of participants on items of the measure of motives of using social media networks (Facebook - Twitter) in favor of males.
3. There are significant differences at (5%) between mean scores of responses of participants on items of the measure of the effect of using social media networks (Facebook - Twitter) on intellectual extremism in favor of males.
4. There are significant differences at (5%) between mean scores of responses of participants on items of the measure of proposed solutions to face the effect of using social media networks (Facebook - Twitter) to maintain safety of society in favor of males.
5. There are significant differences at (5%) between mean scores of responses of participants on items of the measure of proposed solutions to face the effect of using social media networks (Facebook - Twitter) to maintain safety of society in favor of males.

The study aims at

Investigating the effect of social media network (Facebook - Twitter) on intellectual extremism and threatening safety of society to university students. It aims also at developing a proposed framework to raise the awareness towards maintaining moral values and sound habits among university students to protect society from extreme ideas**.**

The following are sub-objectives

- Defining purposes why university students use Facebook and Twitter
- Establishing intellectual foundations to maintain sound values to university students could lead to safety of society.
- Defining motives of using social media network (Facebook - Twitter) on intellectual extremism of university students and threatening the safety of society.
- Proposing a program to raise the intellectual awareness that could help in maintaining positive values among university students and the society.
- Studying the effect of using social media networks (Facebook - Twitter) on intellectual extremism of university students threatening safety of society.
- Defining ways of making social media networks in spreading sound values to university students that maintain safety of society.
- Defining ways of evaluating the role of social media networks to university students and achieving safety of society.
- Proposing solutions to face the negative effect of social media networks to maintain intellectual security and safety of society.

Effects of using social media networks

Social media networks facilitated communication among people; this encourages more developments in this field. The effect of these networks included their components, social and demographic features of students and the ability to affect and build an effective strategy for disseminating messages. (Ramírez-Ortiz et al. 2012). (Fusco et al. 2010) is an examples of study examined the effects of social media networks in forming relationships among people and identifying the motives behind using and building these networks. (Maulik et al. 2011) examined the effects of social media networks on the daily life of people. Social media networks are based on the use of a dynamic group, use of principles of social comparisons, transfer of information for modeling, getting affected by exchange of information and mutual ambition (Han et al. 2011). For the reason of discovering human interaction

using social media networks and how they affect treatments of some social, spatial and time features, it has been found that these networks give ideas on the way people interact with each other (Angelopoulos et al. 2011).

These networks seem to be used at a wide range (Goldman 2011) for religious discrimination purposes that lead to the need to analyze them through the knowledge, skills and tools required for the analysis process (De Nooy et al. 2011). Some studies discovered that intellectual extremism encourages both individual and groups to violence (Fenstermacher et al. 2011).

There are other studies that aimed at analyzing and discovering solutions that may contribute to solve problems of intellectual extremism. These conducted in countries like Pakistan, Mexico, Afghanistan and Yamen in addition to other Golf and Middle East countries in order to face intellectual extremism through social media networks (Everington 2011). The major point in this regard is the great growth of these networks that lead to new challenges and opportunities for human interaction (Agarwal and Bharadwaj 2011). Some studies investigated this problem through random studies that analyze the organizational structure of these networks and identifying their effects (Aral and Walker 2011). Other studies investigated institutional coding system and the use of social media networks by academic society (Asunka et al. 2011). Some studies were conducted as a trial to control and manage the students' thinking through the use of social media networks (Arias 2011).

The use of social media networks led to the emergence of cloud computing that increased the cognitive and implementation level of users (Azua and Goodman 2011). The use of social media networks is an international phenomenon that became easy to obtain features to manage them (Sledgianowski and Kulviwat 2009).

The result of a recent study by (Madge et al. 2009) indicated that 95% of British university students use social media networks regularly. However, in the Middle East still very little known about the effect of these networks on students. The students participated in this study mentioned that they use Facebook in order to make new friends in their university and they view Facebook of great social importance. It was proofed that internet is effective dynamic means of communication reaches the public increasingly. It is a process starts with exchanging information, then a tool for terrorism and intellectual extremism (Vidic 2009). Social media networks are multiple in dimensions and relations through which lessons could be offered to groups (Fisher 2013). For example, the use of Facebook in University of Cape Town encourages interaction and exchange of information and offers immediate service (Bosch 2009). The use of social media networks reinforces interaction and exchange of information (Pai and Yeh 2014). They also encourage the idea that everyone looks forward to know others on the virtual life (Park and Lee 2010). That is why there is a need to conduct experimental and longitudinal studies to identify the causative relationship between the variables of the effects of different types of social media networks, (Wang et al. 2014).

Prominent weaknesses
There are a number of weak points for social media networks that affect university students negatively. Some of these may lead to facilitate the way to young people to adopt extreme ideas and practice immoral actions. Other negative effects may also lead to social isolation of people, violence, selfishness, depression and many others.
In order to maintain intellectual security to students and protect society from dangers of using social media networks, the present study recommends the following procedures to be taken: maintain the sound concept and beliefs students possess through providing them with tools of researching for knowledge and establishing correct thinking systems, learn how to be moderate and alert and establish the sense of fidelity towards home country

Methodology
The current research project aimed at investigating the role of technologies of social media networks (Facebook - Twitter) on intellectual extremism and social endanger of university students in some Middle East countries. Participants of the study were (686) University students whom their views were investigated through a measure of (21) items developed by google drive for this purpose. The measure consisted of two main aspects. First, description of the participants (defining gender- defining type of social media used) second, examining research hypotheses to search for the purposes of using social media networks and their effect on intellectual extremism and social endanger. Thus, the study followed the discovery method in order to answer the research questions.

Results
First: results regarding question 1: **What are the purposes of using (Facebook - twitter) by university students?**

In order to discover the relationship between purposes of using social media networks (Facebook - twitter) to the male participants, data were examined to look for reasons of wide spread of Facebook in exchanging news and information among users and the effect of this on social, cultural and political aspects. Mean scores of exchanging

news and links were (3.889) with standard deviation of (0.984). This came to be higher than other mean scores of the same aspect. Then, mean scores for cultural development were (2.519) and standard deviation of (1.162). Finally, mean scores for political work were (1.458) and standard deviation of (0.643). Data for defining reasons of wide spread of Facebook in exchanging news were also examined. In addition, the privacy of exchanging news and the cultural and political effect of this were examined. Mean scores of exchanging news were (3.726) and standard deviation of (0.997). Higher than other mean scores on the same aspect. Then, mean scores of cultural development were (3.307) and standard deviation of (1.286), followed by mean scores of exchange of information of (2.743) and standard deviation of (1.395). Finally, political work with mean scores of (1.546) and standard deviation of (0.536). These results showed the relationship between purposes of using social media networks. This is illustrated in Table 1 & Figure 1 and Figure 2 below

Table 1

Purposes of male students to use Facebook and Twitter

Gender = Male, Networks	Facebook					Twitter				
	Gender	1	2	3	4	Gender	1	2	3	4
N	327	327	327	327	327	355	355	355	355	355
Mean	1.0000	3.889	1.984	2.519	1.458	1.0000	3.726	2.743	3.307	1.546
Std. Error of Mean	.0000	.0544	.064	.084	.035	.00000	.052	.074	.068	.028
Std. Deviation	.0000	.984	1.162	1.526	.643	.00000	.997	1.395	1.286	.536
Variance	.000	.969	1.353	2.330	.415	.000	.996	1.948	1.654	.288
Std. Error of Skewness	.135	.135	.135	.135	.135	.129	.129	.129	.129	.129
Std. Error of Kurtosis	.269	.269	.269	.269	.269	.258	.258	.258	.258	.258
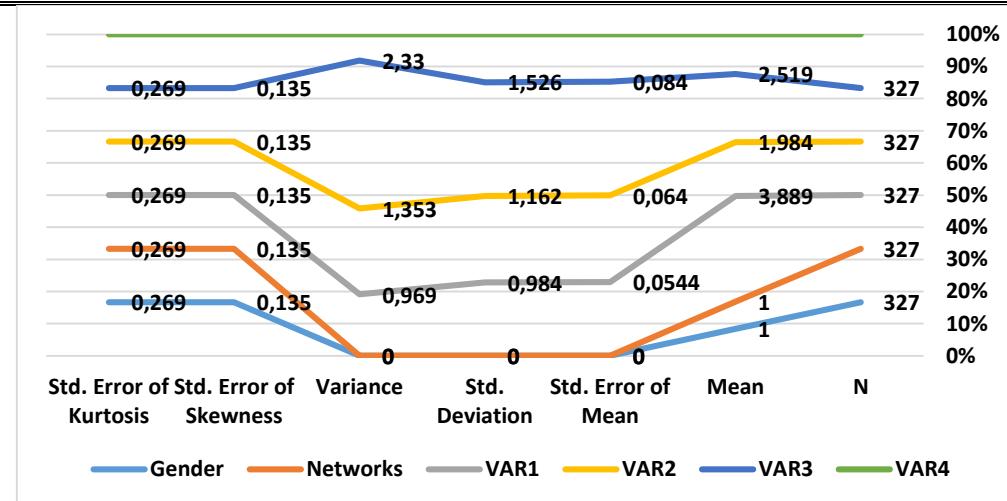
Figure 1. Purposes of using Facebook (Male)
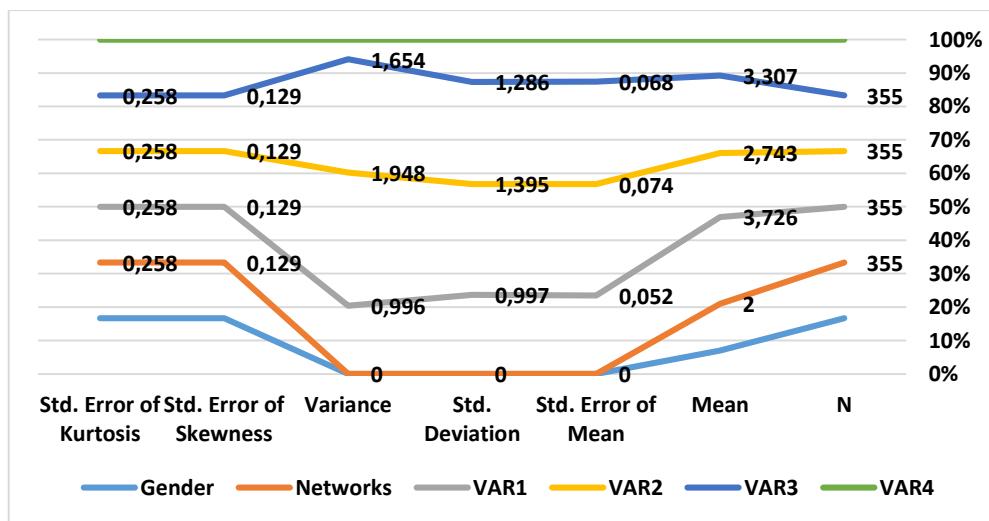
Figure 2. Purposes of using twitter (Male)

In order to discover the relationship between purposes of using social media networks (Facebook - twitter) to the female participants, data were examined to look for reasons of wide spread of Facebook in exchanging news and information among users and the effect of this on social, cultural and political aspects.

Mean scores of exchanging news and links were (3.691) with standard deviation of (0.970). This came to be higher than other mean scores of the same aspect. Then, mean scores for cultural development were (3.549) and standard deviation of (1.162). Finally, mean scores for political work were (1.382) and standard deviation of (0.970).

Data for defining reasons of wide spread of Facebook in exchanging news were also examined. In addition, the privacy of exchanging news and the cultural and political effect of this were examined. Mean scores of exchanging news were (3.872) and standard deviation of (0.970). Higher than other mean scores on the same aspect. Then, mean scores of cultural development were (3.549) and standard deviation of (1.286), followed by mean scores of exchange of information of (2.743) and standard deviation of (1.395). Finally, political work with mean scores of (1.546) and standard deviation of (0.536). These results showed the relationship between purposes of using social media networks. Results showed that females preferred twitter. As shown in Table 2 & Figure 3 and Figure 4

Table 2

Purposes of female students to use Facebook and Twitter

Gender = Female, Networks	Facebook					Twitter				
	Gender	1	2	3	4	Gender	1	2	3	4
N	81	81	81	81	81	102	102	102	102	102
Mean	2.0000	3.691	2.037	2.234	1.382	2.0000	3.872	3.166	3.549	1.451
Std. Error of Mean	.00000	.107	.130	.154	.057	.00000	.091	.1300	.117	.056
Std. Deviation	.00000	.970	1.177	1.389	.514	.00000	.919	1.313	1.190	.573
Variance	.000	.941	1.386	1.932	.264	.000	.845	1.724	1.418	.329
Std. Error of Skewness	.267	.267	.267	.267	.267	.239	.239	.239	.239	.239
Std. Error of Kurtosis	.529	.529	.529	.529	.529	.474	.474	.474	.474	.474
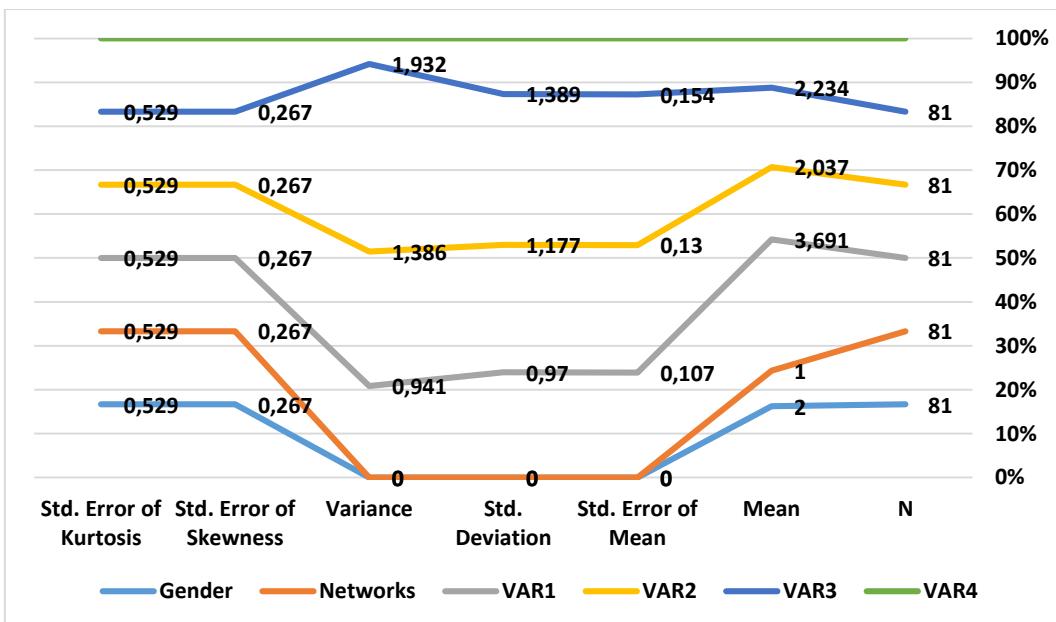
Figure 3. Purposes of using Facebook (female)
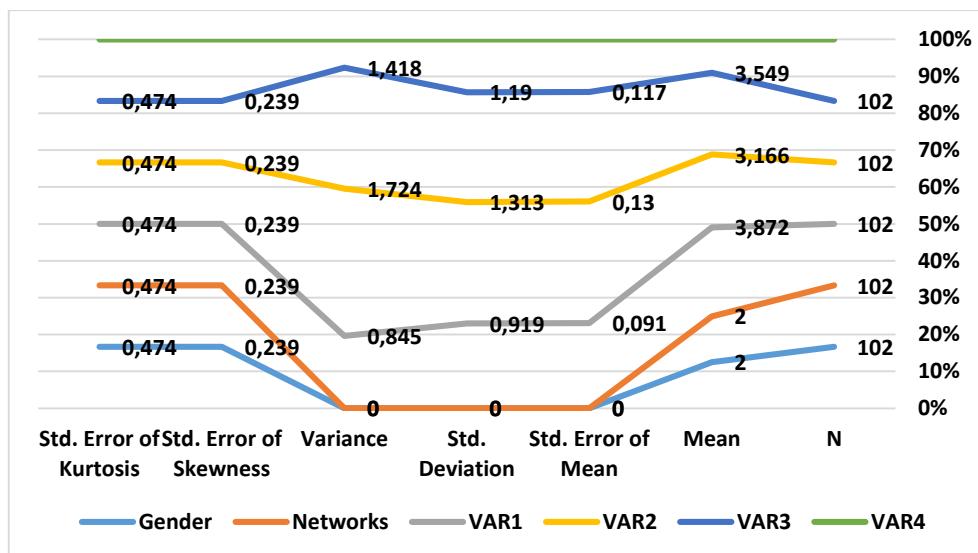
Figure 4. Purposes of using twitter (female)

Second, question 2: **What are the motives of university students that make them use social media network (Facebook - twitter)?**

In order to examine the relationship between motives of male students and their effect of this, data were analyzed in order to offer programs that raise the intellectual awareness of students to face intellectual extremism. Mean scores of the role of awareness program through Facebook to face intellectual extremism through face book were (4.146) and standard deviation of (1.031). Followed by mean scores of communication with big number of people (3.951) and standard deviation of (1.021). Finally, encouragement on using social media network (1.813) and standard deviation of (0.949). Data were also examined in order investigate motives of male students to use twitter. Mean scores of offering programs to face intellectual extremism through face book were (3.780) and standard deviation of (1.039). Followed by mean scores of communication with big number of people (3.780) and standard deviation of (1.034). Finally, encouragement on using social media network (2.194) and standard deviation of (.9930).

Results showed that motives of male students to use Facebook were higher than their motive to use twitter. This is illustrated in Table 3 & Figure 5 and Figure 6 below

Table 3

Motives of male students to use Facebook and Twitter

Gender = Male, Networks	Facebook					Twitter				
	Gender	1	2	3	4	Gender	1	2	3	4
N	327	327	327	327	327	355	355	355	355	355
Mean	1.0000	3.012	4.146	1.813	3.951	1.0000	2.664	3.780	2.194	3.780
Std. Error of Mean	.00000	.056	.057	.052	.054	.00000	.0457	.055	.048	.0549
Std. Deviation	.00000	1.021	1.031	.949	.989	.00000	.8621	1.039	.919	1.034
Variance	.000	1.043	1.064	.901	.979	.000	.743	1.082	.846	1.070
Std. Error of Skewness	.135	.135	.135	.135	.135	.129	.129	.129	.129	.129
Std. Error of Kurtosis	.269	.269	.269	.269	.269	.258	.258	.258	.258	.258
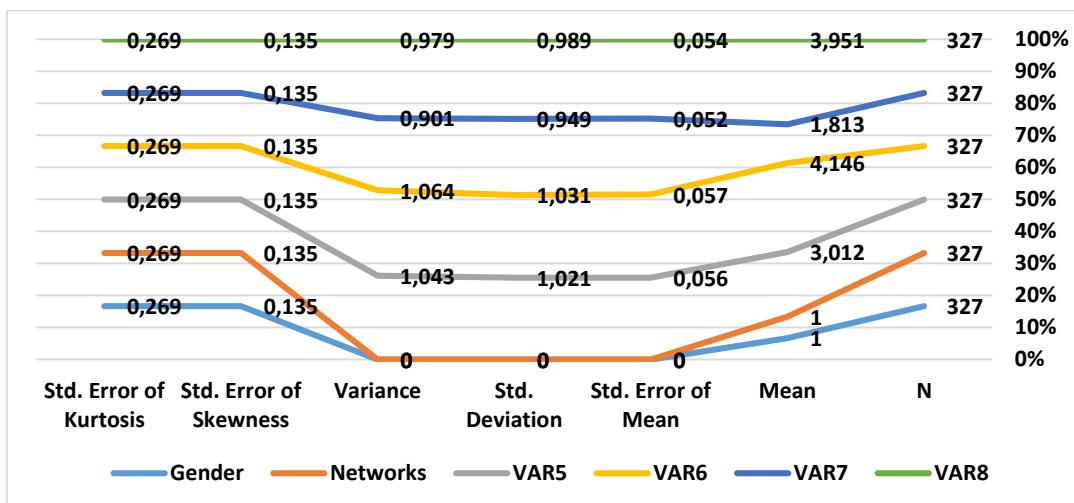
Figure 5. Motives of male students to use Facebook
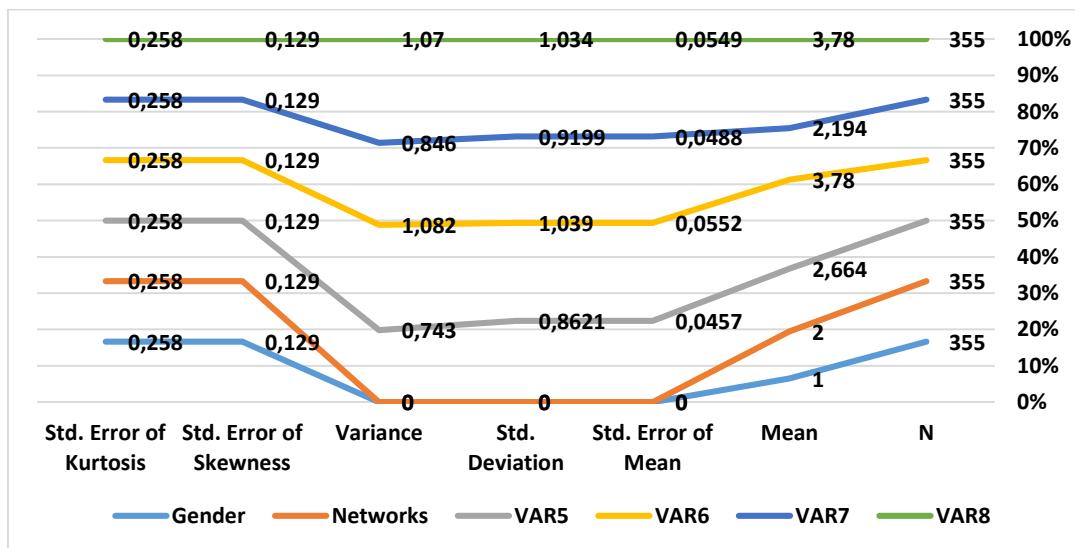
Figure 6. Motives of male students to use twitter

In order to examine the relationship between motives of female students and their effect of this, data were analyzed in order to offer programs that raise the intellectual awareness of students to face intellectual extremism. Mean scores of the role of awareness program through Facebook to face intellectual extremism through face book were (3.963) and standard deviation of (.9930). Followed by mean scores of communication with big number of people (3.888) and standard deviation of (1.024). Finally, encouragement on using social media network (3.963) and standard deviation of (.9930). Data were also examined in order investigate motives of female students to use twitter. Mean scores of offering programs to face intellectual extremism through face book were (3.784) and standard deviation of (.771). Followed by mean scores of communication with big number of people (2.666) and standard deviation of (.981). Finally, encouragement on using social media network (2.666) and standard deviation of (.936).

Results showed that motives of male students to use Facebook were higher than their motive to use twitter. This is illustrated in Table 4 & Figure 7 and Figure 8 below

Table 4
Motives of female students to use Facebook and Twitter

Gender = Female, Networks	Facebook					Twitter				
	Gender	5	6	7	8	Gender	5	6	7	8
N	81	81	81	81	81	102	102	102	102	102
Mean	2.000	3.345	3.963	2.061	3.888	2.000	2.803	3.823	2.666	3.784
Std. Error of Mean	.0000	.0948	.110	.1221	.1138	.0000	.0763	.101	.092	.097
Std. Deviation	.0000	.8538	.993	1.099	1.024	.0000	.7712	1.028	.936	.981
Variance	.000	.729	.986	1.209	1.050	.000	.595	1.058	.878	.963
Std. Error of Skewness	.267	.267	.267	.267	.267	.239	.239	.239	.239	.239
Std. Error of Kurtosis	.529	.529	.529	.529	.529	.474	.474	.474	.474	.474
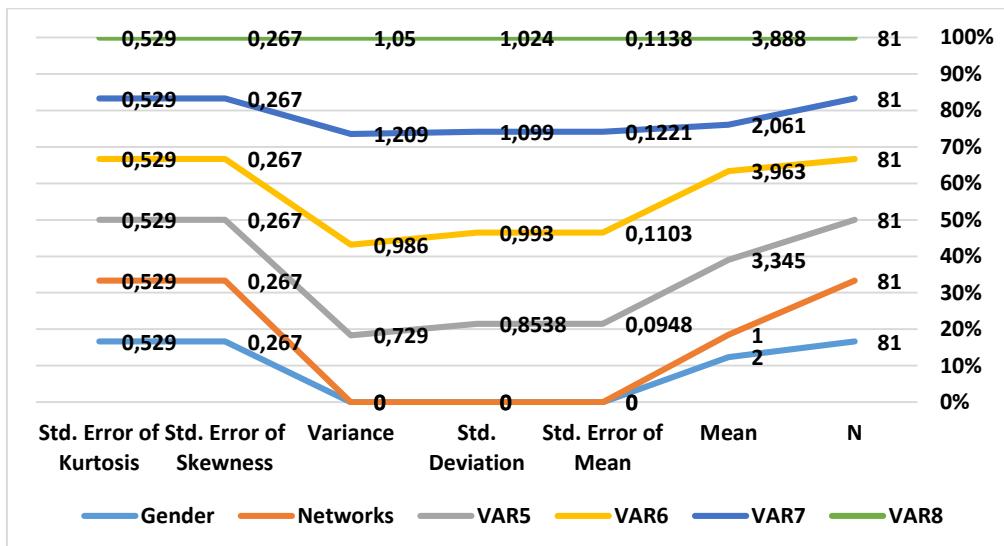
Figure 7. Motives of female students to use Facebook
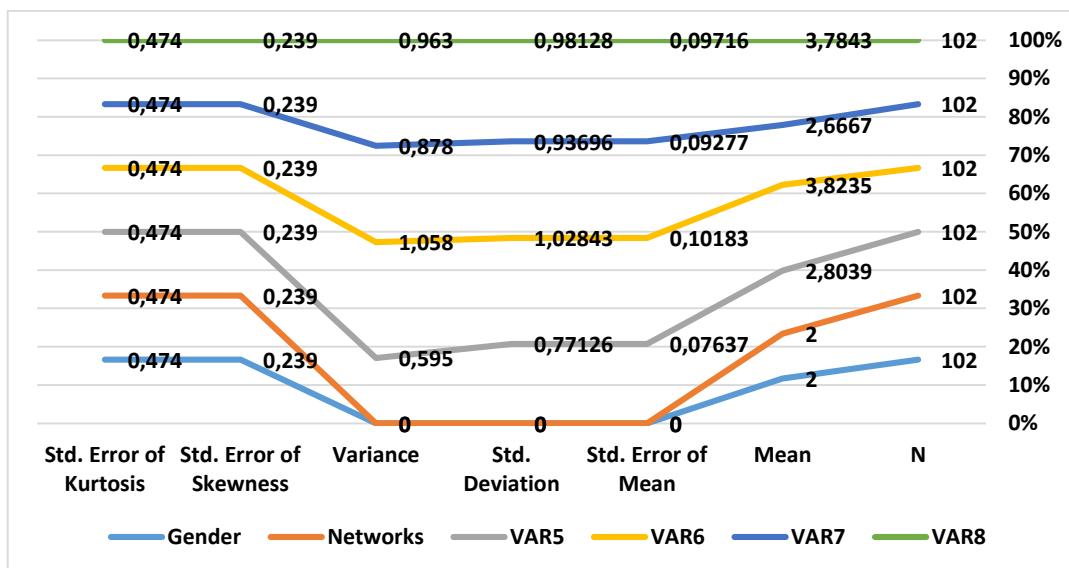
Figure 8. Motives of male students to use twitter

Results showed that female students were motivated to use twitter more than Facebook.

Third: Results regarding third questions 3: **What are the effects of using social media networks (Facebook - twitter) on intellectual extremism and social endanger?**

Data were analyzed In order to examine the relationship between the use of male students to social media network (Facebook and twitter) and intellectual extremism and social endanger. Results indicated that the male students use Facebook with a mean score of (4.009) and standard deviation of (1.066). Followed by the way social media networks may lead to intellectual extremism with a mean score of (3.489) and standard deviation of (1.474).

Finally, a number of intellectual extremism with a mean score of (2.814) and standard deviation of (1.307). Results regarding the use of twitter showed mean score of (3.571) and standard deviation of (1.087) regarding its use in social life. Whereas its use for study purposes showed a mean score of (3.523) and standard deviation of (1.200). Finally, a number of cases of intellectual extremism resulted from misuse of the network with a mean score of (3.225) and standard deviation of (1.137).

Results indicated that the use of Facebook for male students had a greater effect than the use of twitter. This is illustrated in Table 5 & Figure 9 and Figure 10 below

Table 5

The effect of male students to use Facebook for male students

Gender = Male, Networks	Facebook					Twitter				
	Gender	9	10	11	12	Gender	9	10	11	12
N	327	327	327	327	327	355	355	355	355	355
Mean	1.0000	4.009	3.318	3.489	2.841	1.0000	3.571	3.459	3.523	3.225
Std. Error of Mean	.00000	.058	.081	.077	.0723	.00000	.0577	.063	.061	.060
Std. Deviation	.00000	1.066	1.474	1.396	1.307	.00000	1.087	1.200	1.150	1.137
Variance	.000	1.138	2.175	1.950	1.711	.000	1.183	1.441	1.324	1.294
Std. Error of Skewness	.135	.135	.135	.135	.135	.129	.129	.129	.129	.129
Std. Error of Kurtosis	.269	.269	.269	.269	.269	.258	.258	.258	.258	.258
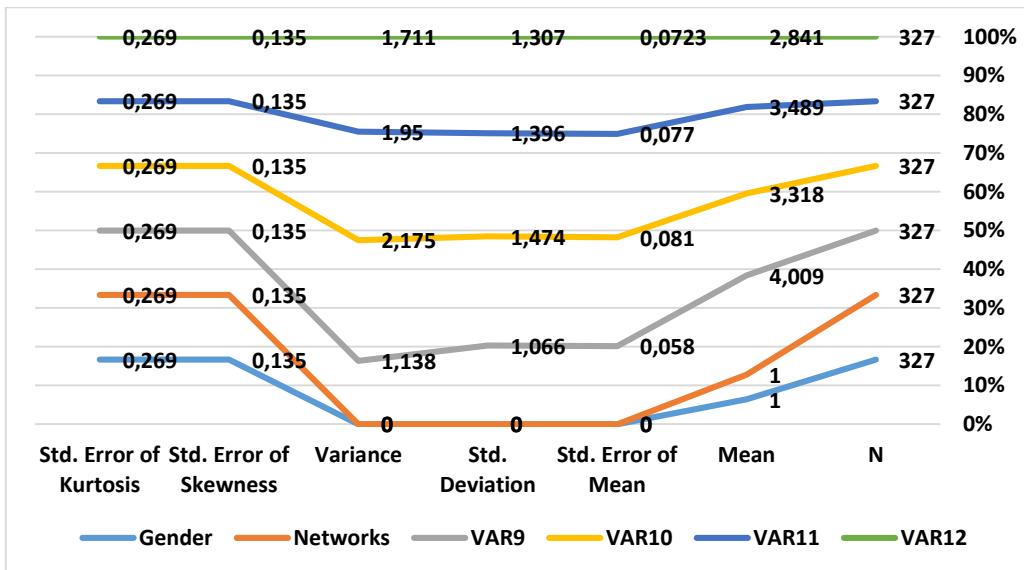
Figure 9. The effect of using Facebook for male students
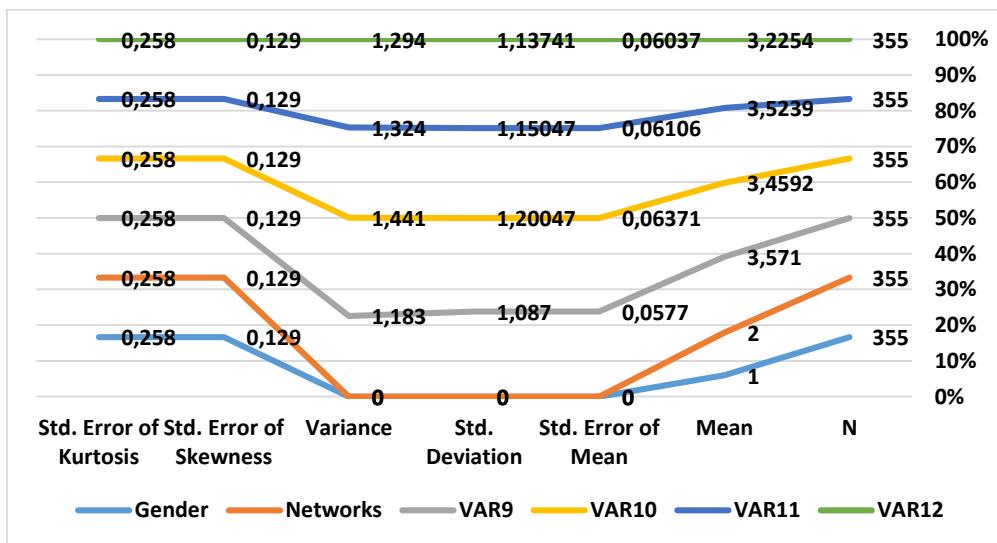
Figure 10. The effect of using twitter for male students

Data were analyzed In order to examine the relationship between the use of female students to social media network (Facebook and twitter) and intellectual extremism and social endanger. Results indicated that the female students use Facebook with a mean score of (3.382) and standard deviation of (1.471). Followed by the way social media networks may lead to intellectual extremism with a mean score of (3.271) and standard deviation of (1.255). Finally, a number of intellectual extremism with a mean score of (3.160) and standard deviation of (1.560). Results regarding the use of twitter showed mean score of (3.086) and standard deviation of (1.051) regarding its use in social life. Whereas its use for study purposes showed a mean score of (3.523) and standard deviation of (1.200). Finally, a number of cases of intellectual extremism resulted from misuse of the network with a mean score of (3.225) and standard deviation of (1.137). Results indicated that female students use twitter more than Facebook. This is illustrated in Table 6 & Figure 11 and Figure 12 below

Table 6

The effect of female students to use Facebook for female students

Gender = Female, Networks	Facebook					Twitter				
	Gender	9	10	11	12	Gender	9	10	11	12
N	81	81	81	81	81	102	102	102	102	102
Mean	2.0000	3.160	3.271	3.382	3.086	2.0000	3.549	3.637	3.696	3.509
Std. Error of Mean	.00000	.173	.1394	.163	.116	.00000	.107	.099	.111	.091
Std. Deviation	.00000	1.560	1.255	1.471	1.051	.00000	1.086	1.002	1.123	.920
Variance	.000	2.436	1.575	2.164	1.105	.000	1.181	1.006	1.263	.846
Std. Error of Skewness	.267	.267	.267	.267	.267	.239	.239	.239	.239	.239
Std. Error of Kurtosis	.529	.529	.529	.529	.529	.474	.474	.474	.474	.474

Figure 11. The effect of using Facebook for female students
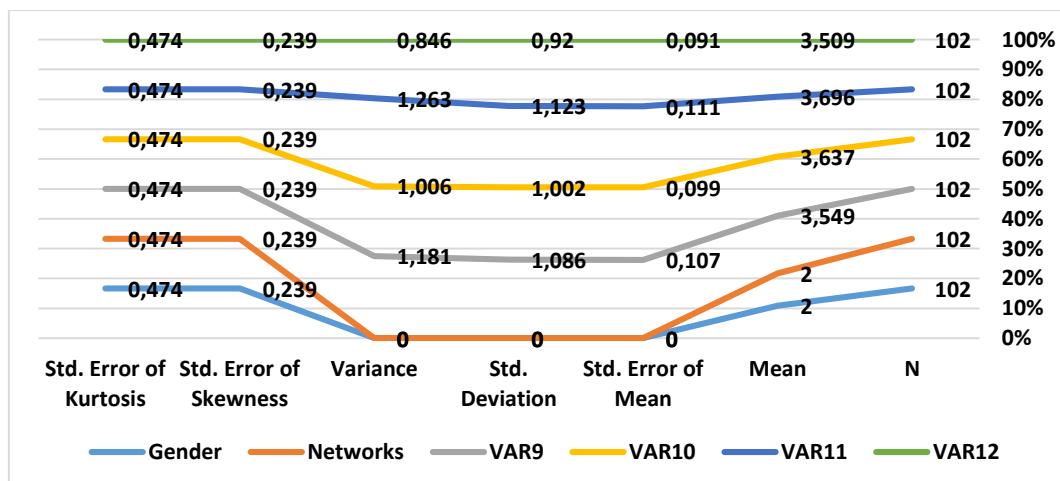
Figure 12. The effect of using twitter for female students

Fourth: results regarding fourth question 4: **What are the uses of social media networks (Facebook - twitter) on intellectual extremism and social endanger?**

In order to examine the relationship between research variables concerning the ideological effect of social media networks on intellectual extremism for male student's data were statistically analyzed. For the ideological effect of using Facebook the mean score showed (2.923) and standard deviation of (1.199). For the negative effect of social media networks resulted in isolation mean score was (2.727) and standard deviation of (1.330). Finally, the positive effect of social media networks on intellect showed mean score of (2.235) and standard deviation of (1.211). Followed by the way using social media networks result in intellectual extremism with a mean score of (2.076) and standard deviation of (1.209). Results regarding the ideological effect of using social media network on isolation showed a mean score of (3.380) and standard deviation of (1.141). Then, the misuse of social media networks that negatively affect the future of society showed a mean score of (2.994) and standard deviation of (1.255). Followed by the way social media networks lead to intellectual extremism which showed a mean score of (2.797) and standard deviation of (1.206). Finally, the positive effect of social media networks on intellect showed a mean score of (2.580) and standard deviation of (1.140)

Results indicated that twitter had greater effect on male students than Facebook in this perspective.
This is illustrated in Table 7 & Figure 13 and Figure 14 below

Table 7
The effect of male students to use Facebook for male students

Gender = Male, Networks	Facebook						Twitter				
	Gender	13	14	15	16	17	Gender	13	14	15	16
N	327	327	327	327	327	327	355	355	355	355	355
Mean	1.0000	2.923	2.076	2.235	2.727	2.825	1.0000	3.380	2.797	2.580	3.140
Std. Error of Mean	.00000	.066	.0669	.0670	.073	.081	.00000	.062	.064	.060	.060
Std. Deviation	.00000	1.199	1.209	1.211	1.330	1.474	.00000	1.178	1.206	1.140	1.141
Variance	.000	1.439	1.463	1.469	.135	2.175	.000	1.389	1.456	1.301	1.302
Std. Error of Skewness	.135	.135	.135	.135	.269	.135	.129	.129	.129	.129	.129
Std. Error of Kurtosis	.269	.269	.269	.269	.269	.269	.258	.258	.258	.258	.258
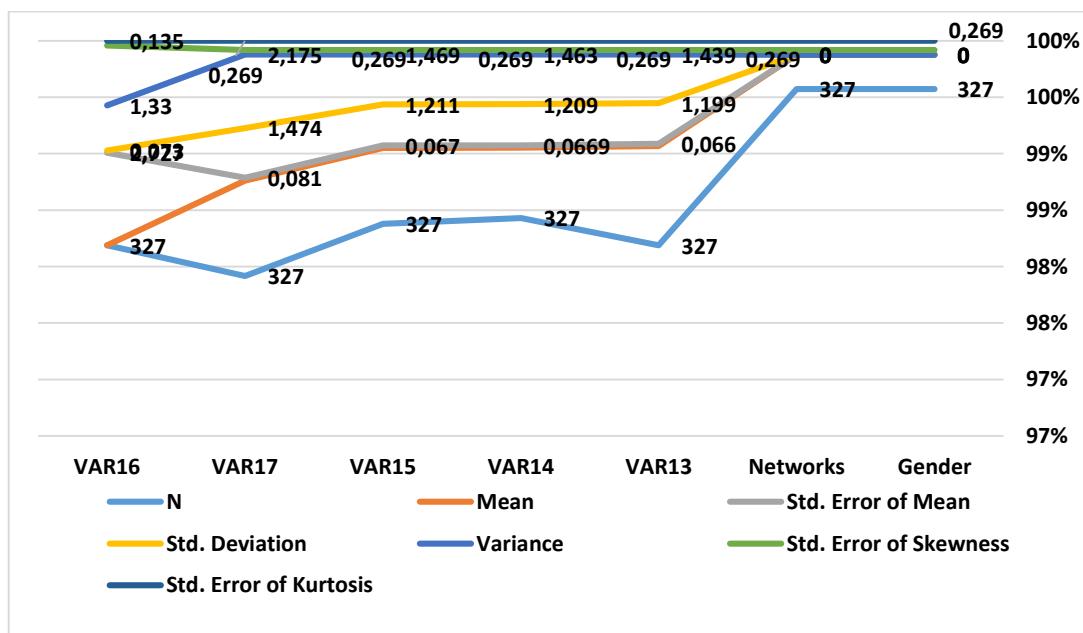
Figure 13. The effect of using Facebook for male students
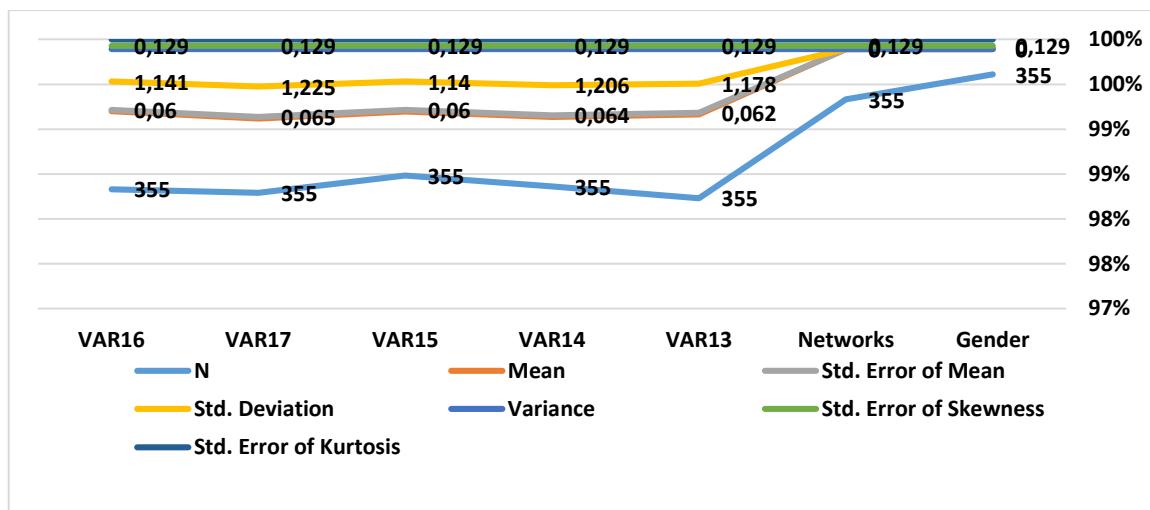
Figure 14. The effect of using twitter for male students.

In order to examine the relationship between research variables concerning the ideological effect of social media networks on intellectual extremism for female students, data were statistically analyzed. For the ideological effect of using Facebook the mean score showed (2.802) and standard deviation of (1.435). For the negative effect of social media networks resulted in isolation mean score was (2.790) and standard deviation of (1.221). Finally, the positive effect of social media networks on intellect showed mean score of (2.271) and standard deviation of (1.255). Followed by the way using social media networks result in intellectual extremism with a mean score of (2.234) and standard deviation of (1.132). Results regarding the ideological effect of using social media network on isolation showed a mean score of (1.987) and standard deviation of (1.269). Then, the misuse of social media networks that negatively affect the future of society showed a mean score of (3.411) and standard deviation of (1.065). Followed by the way social media networks lead to intellectual extremism which showed a mean score of (3.676) and standard deviation of (1.178). Finally, the positive effect of social media networks on intellect showed a mean score of (3.411) and standard deviation of (1.160).

Results indicated that twitter had greater effect on female students than Facebook in this perspective. This is illustrated in Table 8 & Figure 15 and Figure 16 below

Table 8
The effect of using Facebook and Twitter for female students

Gender = Female, Networks	Facebook						Twitter				
	Gender	13	14	15	16	17	Gender	13	14	15	16
N	81	81	81	81	81	81	102	102	102	102	102
Mean	2.0000	2.790	1.987	2.234	2.271	2.802	2.0000	3.676	3.019	3.068	3.411
Std. Error of Mean	.00000	.1357	.1410	.1258	.1394	.159	.00000	.1167	.099	.095	.1135
Std. Deviation	.00000	1.221	1.269	1.132	1.255	1.435	.00000	1.178	1.004	.967	1.146
Variance	.000	1.493	1.612	1.282	1.575	2.060	.000	1.389	1.010	.936	1.314
Std. Error of Skewness	.267	.267	.267	.267	.267	.267	.239	.239	.239	.239	.239
Std. Error of Kurtosis	.529	.529	.529	.529	.529	.529	.474	.474	.474	.474	.474
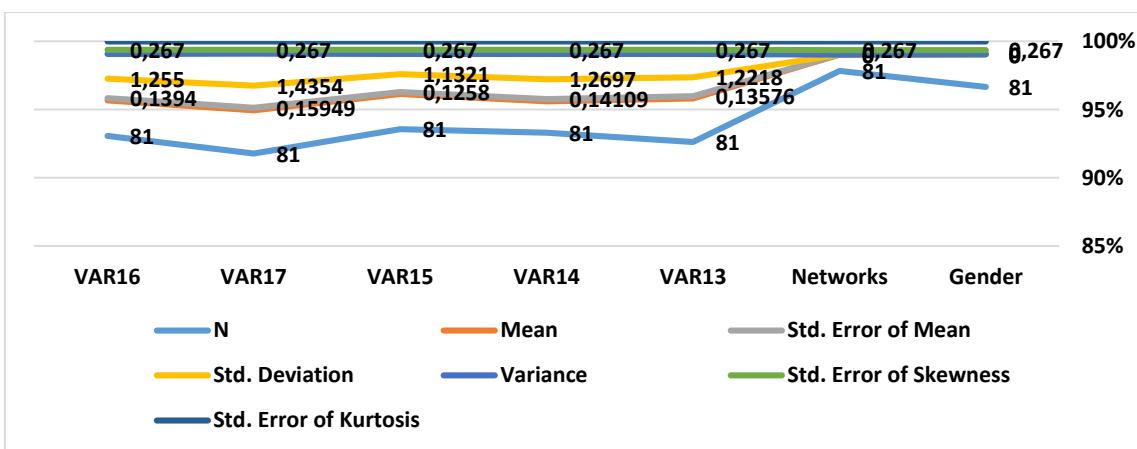
Figure 15. The effect of using Facebook for female students
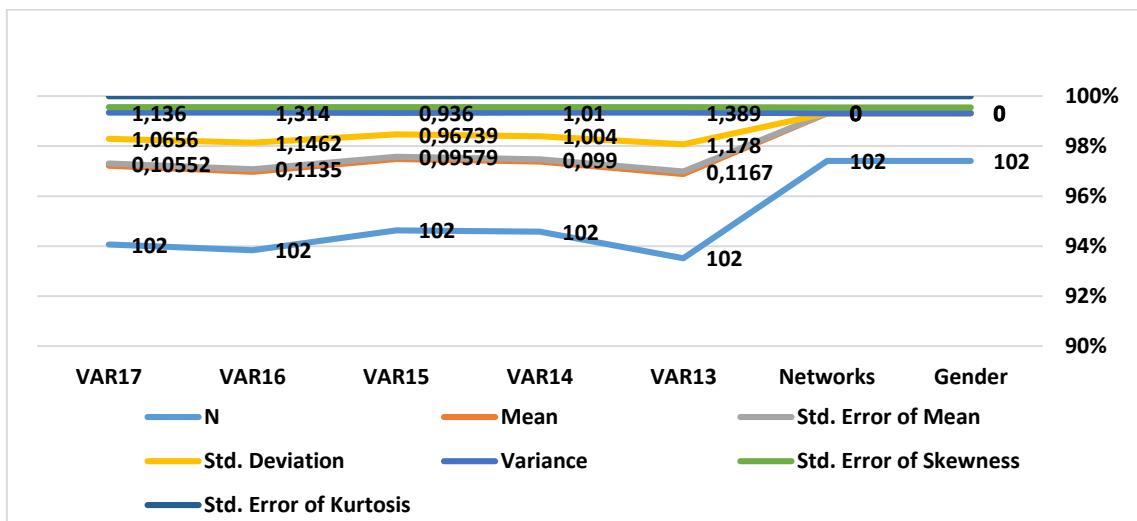
Figure 16. The effect of using twitter for female students

Fifth: results regarding question 5: **What are the proposed solutions to face the effect of social media networks to maintain intellectual security to university students and achieve safety of society?**
For the purpose of examining the relationship between the research variables to male students, data were analyzed to determine the proposed solutions that can make social media networks play a positive role in raising the awareness on the ideal use of them to face intellectual extremism. For Facebook, results for the aspect - how far the time of using social media network can face intellectual extremism- showed a mean score of (3.578) and standard deviation of (1.622). Followed by imposing a monitoring system on the use of social media networks to face intellectual extremism that showed a mean score of (3.480) and standard deviation of (1.460). Results regarding - the establishment of traditional social clubs might help in forming friendships away from social media network- showed a mean score of (3.116) and standard deviation of (1.655). Finally came - raising the awareness of how to use social media network properly to avoid intellectual extremism- showed a mean score of (2.813) and standard deviation of (1.296). For results regarding twitter on the same aspect, imposing a monitoring system for the use of social media networks showed a mean score of (3.385) and standard deviation of (1.277). Followed by -time of using social media network that can help avoid intellectual extremism- showed a mean score of (3.543) and standard deviation of (1.288). Finally, -raising the awareness on how to use social media networks to avoid intellectual extremism- showed a mean score of (3.152) and standard deviation of (1.122). Results indicated that male students preferred proposed solutions via twitter more than Facebook. This is illustrated in Table 9 & Figure 17 and Figure 18 below

Table 9
Proposals for facing Facebook and twitter effects on male students

Gender = Male, Networks	Facebook					Twitter				
	Gender	18	19	20	21	Gender	18	19	20	21
N	327	327	327	327	327	355	355	355	355	355
Mean	1.0000	2.813	3.116	3.578	3.480	1.000	3.152	3.233	3.543	3.385
Std. Error of Mean	.00000	.0716	.0915	.0897	.0807	.0000	.0595	.0683	.0579	.0678
Std. Deviation	.00000	1.296	1.655	1.622	1.460	.0000	1.122	1.288	1.091	1.277
Variance	.000	1.680	2.741	2.631	2.134	.000	1.259	1.660	1.192	1.633
Std. Error of Skewness	.135	.135	.135	.135	.135	.129	.129	.129	.129	.129
Std. Error of Kurtosis	.269	.269	.269	.269	.269	.258	.258	.258	.258	.258
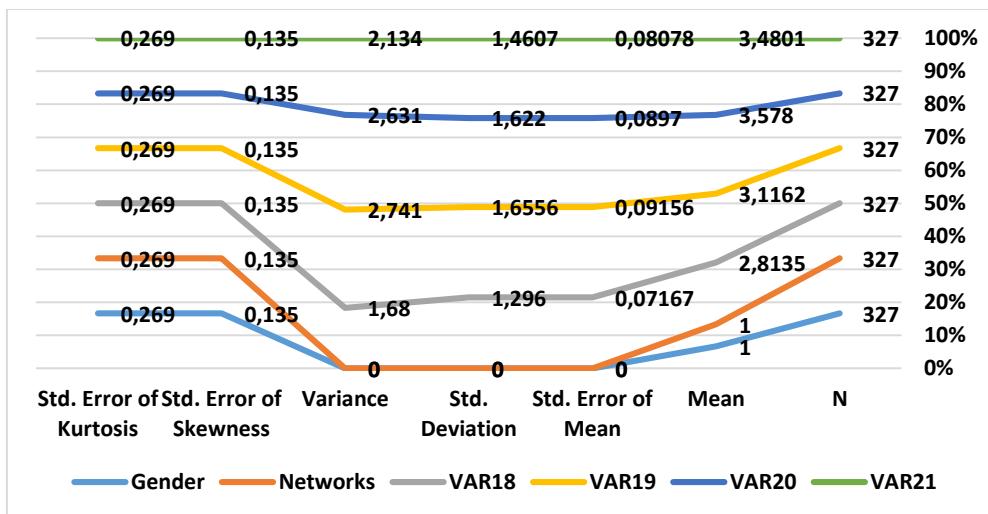
Figure 17. Proposals for facing Facebook effects on male students
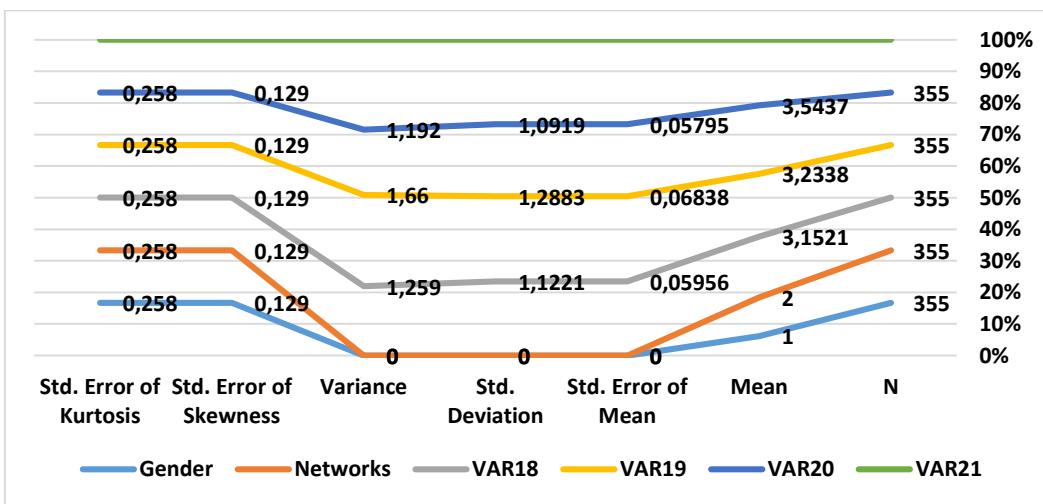
Figure 18. Proposals for facing twitter effects on male students

For the purpose of examining the relationship between the research variables to female students, data were analyzed to determine the proposed solutions that can make social media networks play a positive role in raising the awareness on the ideal use of them to face intellectual extremism. For Facebook, results for the aspect - how far the time of using social media network can face intellectual extremism - showed a mean score of (3.296) and standard deviation of (1.177). Followed by imposing a monitoring system on the use of social media networks to face intellectual extremism that showed a mean score of (3.271) and standard deviation of (1.573). Results regarding - the establishment of traditional social clubs might help in forming friendships away from social media network- showed a mean score of (2.963) and standard deviation of (1.382). Finally came - raising the awareness of how to use social media network properly to avoid intellectual extremism- showed a mean score of (2.9136) and standard deviation of (1.6747). For results regarding twitter on the same aspect, imposing a monitoring system

for the use of social media networks showed a mean score of (3.5294) and standard deviation of (1.1998). Followed by -time of using social media network that can help avoid intellectual extremism- showed a mean score of (3.519) and standard deviation of (1.191). Finally, -raising the awareness on how to use social media networks to avoid intellectual extremism- showed a mean score of (3.451) and standard deviation of (1.157). Results indicated that male students preferred proposed solutions via twitter more than Facebook. This is illustrated in Table 10 & Figure 19 and Figure 20 below

Table 10

Proposals for facing Facebook effects on female students

Gender = Female, Networks	Facebook					Twitter				
	Gender	18	19	20	21	Gender	18	19	20	21
N	81	81	81	81	81	102	102	102	102	102
Mean	2.0000	2.963	2.913	3.2963	3.271	2.0000	3.294	3.529	3.451	3.519
Std. Error of Mean	.00000	.15360	.18609	.13081	.17481	.00000	.111	.1188	.114	.11801
Std. Deviation	.00000	1.382	1.674	1.1773	1.573	.00000	1.130	1.199	1.157	1.191
Variance	.000	1.911	2.805	1.386	2.475	.000	1.279	1.440	1.339	1.420
Std. Error of Skewness	.267	.267	.267	.267	.267	.239	.239	.239	.239	.239
Std. Error of Kurtosis	.529	.529	.529	.529	.529	.474	.474	.474	.474	.474
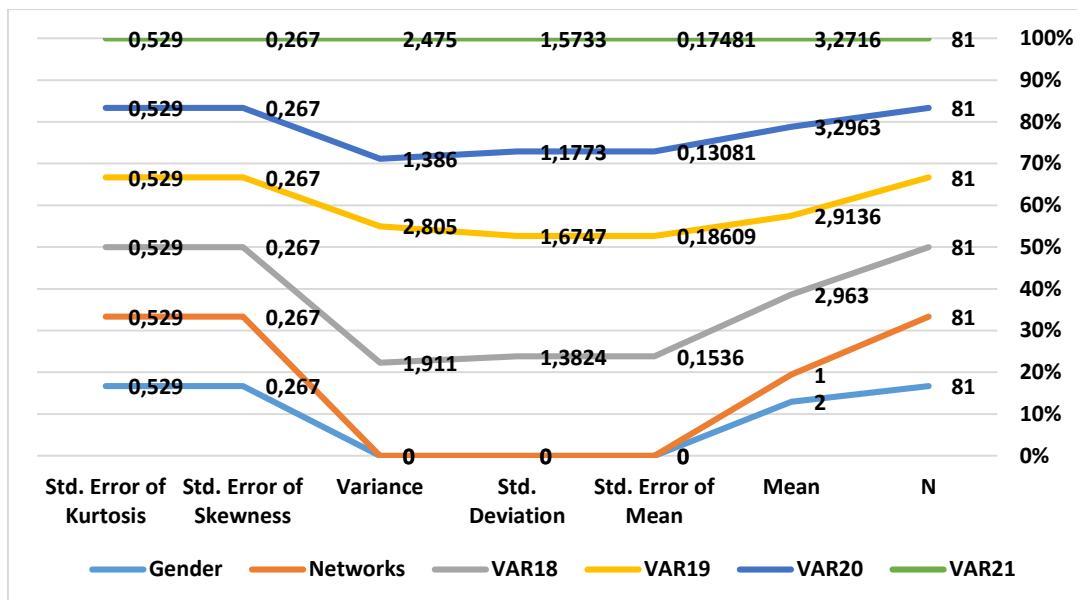
Figure 19. Proposals for facing Facebook effects on female students
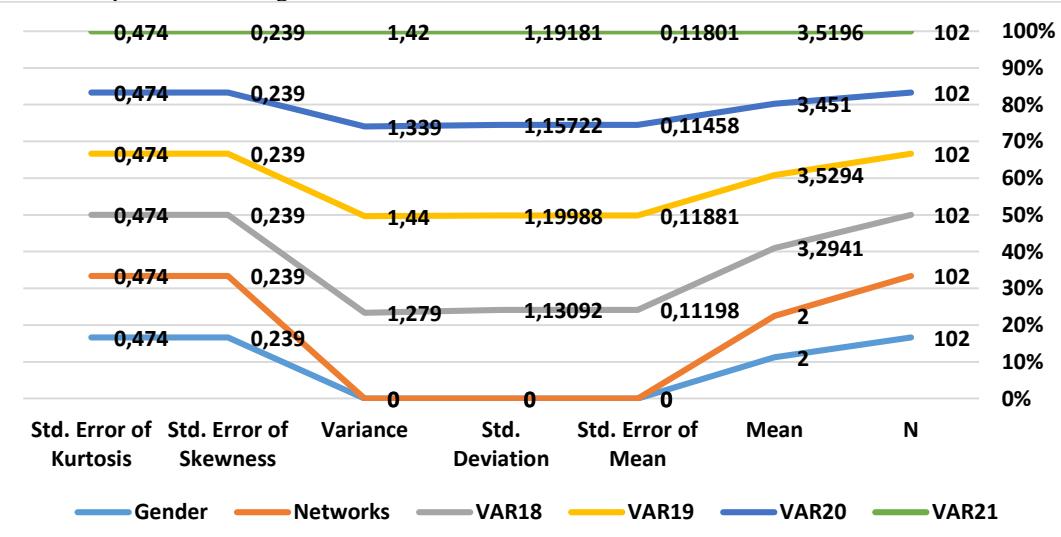
Figure 20. Proposals for facing twitter effects on female students

Discussion

The current study identified reasons why university students use social media networks (Facebook- Twitter). It also investigated the role social media networks play and their negative effect on society in general and on youth on particular. The results from this study indicated the need for identifying positive and negative effects of these media for the purpose benefiting society and spreading is culture. This result came in accordance with results from Guo ,Y., Li, Y & ,.Ito, N. (2014).

In this study reasons of the wide use of social media networks in: exchanging news and websites among users, confidentiality in exchanging information and the culture impact of this were investigated. The study of reached the same results in addition to the need to increase the awareness of family about the importance of helping their children to develop good values. Wang, J. L., Jackson, L. A., Gaskin, J & ,.Wang, H. Z. (2014) this also match with results from Vidic ,M. (2009).

As well as identifying the motives of using social media networks (Facebook - Twitter) on the intellectual extremism of university students, and threatening the safety of society. The results supported Saurabh, S. & Sairam, A. S. (2016). The overall results support the impact of using social networking (Facebook - Twitter) on the intellectual extremism of university students, threatening the safety of society, helping them socialize, developing their hobbies and talents, and taking advantage of their free time (Pai, F. Y., & Yeh, T. M. 2014).

However, the research and the findings of the Alqahtani's, S. (2016) study called for the use of the proposed solutions to counteract the impact of social media networks to maintain university students' intellectual security and to achieve the community safety. It also, as confirmed by Wuchte, T., & Knani, M. (2013), calls for attesting the news and judgments before using those networks to prevent extremism and taking into account the appropriate time when communicating. It is in line with the study of Everton, S. F. (2015) in educating young people about the negative side of using means of communication (telephone, internet) through various broadcast and print media, giving lectures as well as awareness-raising of the family, which is consistent with the study of Hands, J. (2014).

Religious education entrenches, in the human ethical principles, Islamic beliefs, and moral orientation so as to safeguard him against any ideological or religious deviation. These results are consistent with the research conducted by McCauley, C., & Moskalenko, S. (2014). It calls to activate family role in children control when they have cell phones, especially university students, and to direct them during consumption and reception of these media production, as shown in the results of previous research (Tokuta, AO, & Oh, H. 2014).

Moreover, it calls for searching for the bright face, in terms of use, in these mass media; that is to employ them in return for the person and the nation's benefit in all aspects, and the ability to listen and focus. This result is consistent with Utz, S., Tanis, M., & Vermeulen, I. (2012). It also advocates teaching general culture, sciences, foreign languages, art, and mathematics which strengthens the ability, according to the results of Apaolaza, V., He, J., & Hartmann, P. (2014), to solve problems.

The study calls also for activating the language of dialogue and understanding between parents and children, which may significantly lessen the impact of the external environment. It does not advocate absolute confidence in the student, especially in the age of youth group, which may be used negatively by some of them, but it is necessary to set limits, no harm no foul. It advocates regulation and good distribution of time, without the exceeding of time devoted to the consumption of such means at the expense of other duties and obligations. This agrees with the study of Heo, Y. C., Park, J. Y., Kim, J. Y., and Park, H. W. (2016). The study calls also for the creation of a general social system for leisure time for young people. Also, it advocates the establishment of youth clubs programs to spend leisure time thereby benefiting the community.

The study of (Alqahtani, S. 2016) called for the use of the proposed solution to face the effects of using social media networks in order to maintain intellectual safety of university students and society. Other studies examined their gender differences in using social media networks such as Lankton ,N. K., McKnight, D. H & ,.Thatc, García-Martín, J & ,.García-Sánchez, J. N. (2015) & Madge, C., Meek, J ,.Wellens ,J & ,.Hooley, T. (2009) Results from this study showed that both male and female students have similar behaviors towards the use of social media networks however the gender.

Conclusion

The current study identified reasons and motives of using social media networks to university students. Thus, intellectual extremism could be faced and proper guidance could be given to modern technology to play a positive role in developing knowledge and skills needed for everyday life. The results from the study showed that students are satisfied about the use of social media networks however the effects resulting from misusing them. It is indicated that proposed solutions to treat the negative effects of using social media networks play a vital role in avoiding intellectual extremism. Results also indicated that students need to integrate processes of social media networks in their thinking to improve their skills. In addition, it is recommended that more research is needed to identify effects of social media networks in a number of Middle East Countries.

Countries. This study highlighted the importance of identifying the effect of social media networks as they represent the modern technology currently.

Further studies

- Identifying effects of social media networks on academic achievements.
- Designing programs to raise the awareness of university students to the negative effects of misuse of social media networks.
- Conducting research on how to employ social media networks in treating autism, depression and others with special needs.
- Conducting research to employ technology of social media networks to develop communication among students in different countries.

Recommendations

The study encourages public and private institutions to participate and interact with social media networks in order to create new ways to look at them. This may include the style of communication and interaction. The aim of this is also to promote the way people discuss ideas on line and trying to make them more responsible in the same way they do in real life. Rethinking new shapes for social media network may positively affect both the individual and the society. It is also recommended that this study to be repeated on other age groups in order to examine the effect of social media networks on other types of students in other educational institutions.

Expected outcomes

- First, identifying the role of social media networks in forming intellectual extremism and social endanger to university students.
- Second, proposing solutions for avoiding intellectual extremism and social endanger.

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The Effects Of Favoritism, Cronyism, Nepotism And Partisanship On Organizational Justice And Organizational Commitment

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Abstract

Favoritism is manifested in almost every area of the social system. The purpose of this study is to examine the influence of favoritism on organizational justice and organizational commitment. Favoritism can be classified in three groups as cronyism, nepotism and political favoritism. In the study, the relations between the concepts were questioned by using literature review. In an organization where there is a favoritism system, organizational elements are damaged and create some problems for employees. The most important of these problems is to restrict the employment of qualified employees. If employees are competing with any privileged individual, their work is quite difficult to upgrade. Due to favoritism, there may be perception of injustice in the organization and employees may exhibit destructive behavior. These behaviors are; less work, increased absenteeism, quitting, strike and even theft. In organizations where widespread favoritism exists, employees who are seen as close to and far from management do not trust each other. Employees who feel discrimination in an organization can be separated from their work. For these reasons, favoritism makes organizational commitment and organizational justice difficult. Reducing favoritism leads to positive outcomes on organizational justice and organizational commitment. It is dangerous and difficult to oppose favoritism practices. Favoritism, which can be defined as a system in which merit principles are ignored in all kinds of applications related to employees; reduce organizational loyalty and eliminate positive perceptions towards organizational justice.

Introductıon

Favoritism prevails in a variety of organizations. The harmful impacts of favoritism on productivity and efficiency have been widely recognized. For instance, it is argued that favoritism is one of the most important sources of conflicts in organizations and that it results to the distortion of incentives. Employers may have intrinsic preference over some employees and they can derive a utility from playing favoritism. It appears that there must exist some efficiency enhancing motivation for playing favoritism. To disclose the non-altruistic rationale for favoritism, it is essential to examine the key incentive issues in organizations where favoritism emerges. Favoritism prevails in organizations where objective measurements of employee performance are unavailable and thus incentive schemes are designed on the basis of employers' subjective assessments. Subjectivity of performance assessments then opens a door to favoritism, where employers act on personal preference toward subordinates to favor some employees over others. In these organizations that rely on subjective assessments of performance, typical incentive contracts often take the form of tournament where a prize is committed to the winner of the contest (Prendergast & Topel, 1996). Favoritism refers to the act of offering jobs, contracts and resources to members of one's own social group in preference to others who are outside the group. Favoritism is prevalent in both rich and poor countries. At the same time, favoritism is widely associated with economic inefficiency, violent political opposition and slow economic growth. Favoritism often involves a quid pro quo which take an indirect form: so Mr. A may sign a contract with Mr. B for the supply of some inputs, and Mr. B may offer a relative of Mr. A a job in his firm. At some point in the future, Mr. A may call upon this relative to help him arrange a meeting with an important politician (Akerlof & Kranton, 2010). Favoritism is not regarded as a crime or corruption directly relevant for penalty.

In the case of abuse of management power for the gain of family members, "nepotism" becomes the issue. "Cronyism" comes into play in the event of a preferential dealing for reasons such as political preference. If friends or colleagues see privileged behavior, it is called "favoritism". Favoritism has two very different meanings. First, a person or group is a general tendency to favor others. The other is the dealing of friends, neighbors or other acquaintances in a personal relationship (Loewe, 2017). Partisan is someone who prefers the interests of the party, using only the possibilities that are in his possession for the supporters of his own party.

Favoritism Concept and its Types

As a social interaction mechanism favoritism is widely current in political and social world. Interestingly, everyday observations can reveal that favoritism is confused with reciprocity, altruism and other benevolent behaviors creating many ethical dilemmas and problems (Özler & Büyükarslan, 2011). Also in social discourses there seem innocent terms used in place of favoritism. Favoritism is a form of corruption but it can be distinguished from other forms of corruption, such as bribery, because it does not usually involve a direct exchange of material favors.

Compared to bribery, favoritism creates a more implicit, indirect, and unspecified return obligation (Loewe et al., 2008). Favoritism is the use of personal ties to receive preferential treatment of relatives, friends, neighbors or other acquaintances.

Favoritism means to behave better towards one person or group of people than to others and shows the personal preferences of those who are decision-makers (Aydogan, 2012). Favoritism has three perspectives. These are nepotism, cronyism and patronage. Nepotism is to bestow privileges only on relatives at every level for every position. Cronyism is to bestow privileges only on friends. Patronage occurs when political parties assuming power assign their relatives and friends to high level management positions (Abdalla et al., 1998). Favoritism is more common where there are in-group and out-group bias. In-group favoritism is a tendency to treat people in one's own group preferentially. People hold more positive views about members of their own group and thus attribute more positive traits to in-group members than out-group members. In-group members are considered to be more loyal, honest, and reliable, than are out-group members (Beaupre and Hess, 2003). In-group members are more likely to see themselves more alike and more distinct from out-group members. However, out-group members are perceived more homogeneous in their characteristics and personalities (Taylor et al., 2010: pp.195-196).

There are basically two sides in the formation of the act of favoritism. One of these is the company authority that holds the management power. The other is the favored person. Sometimes there are intermediaries who bring these two sides together and are instrumental in favoritism. An average citizen applies mediators in the conduct of business because he feels weak against the public bureaucracy. The relationship between favoritist and favored is depicted vertically and hierarchically. The person who is a favoritist is usually located at the top of the hierarchy, while the person who is favored or protected is at the bottom (Erdem, et al., 2013). The manager in the organizational structure is often the favoritist side (Asunakutlu, 2010). İlhan and Aytaç (2010: p.63) indicate that those who are favored generally feel gratitude to those who favor them. Sometimes in the society the favor of relatives is seen as a virtue, and the bureaucrat, who does not act accordingly, is subjected to the pressure of his surroundings. In this case, managers act with the instinct to protect their relatives to earn their dignity.

Cronyism Concept
The definitions made for the concept of favoritism differ in every culture. Cronyism is used instead of favoritism in the domestic literature in Turkey (Asunakutlu & Avcı, p.2009). Nepotism is found in developed countries as well as being a more common phenomenon in the family businesses of countries where traditional ties and relations are intensively experienced and the market mechanism is not sufficiently developed (Özsemerci, 2002: p.13).

Cronyism is the favoritism based on the principle of fellow-townsmenship and acquaintance rather than principles of merit and equity in employment. Cronyism is essentially no different from nepotism. However, the person who is favored in cronyism is not a relative; 'friends', 'acquaintances', and so on. It is possible to consider the favoritism of fellow-townsmenship as a special kind of cronyism. Today, factors such as 'being in the same region' and 'growing on the same land' continue to be a cause of widespread favoritism in traditional societies (Aktan, 2001: p.57). As a matter of fact, in a survey conducted in the province of Bursa, it has been determined that the Erzurum people preferred to settle in the same neighborhoods as a fellow townsman group, 80% applied to their fellow townsmans without solving their problems and 55% preferred to hire them. In short, being a fellow townsman can sometimes be a condition of employment (Asunakutlu and Safran, 2005: p.162).

The Concept Of Nepotism
The concept of nepotism is derived from the word "nepos" which means "nephew" (Kiechel, 1984: p.143). Today nepotism is used for those who abuse their position for the benefit of their family (Ford and McLaughlin, 1985: p.57). Relativism is an instinct that exists in humans. Biological / ecological approaches in social sciences claim that nepotism is in the class of rational behavior. That is, nepotism behavior; it is accepted as a rational and elective behavior, not arbitrary, emotional or instinctive (Özler et al., 2007: pp.437-438). In family companies, the application of favoritism is an important question. Because in these companies, owners-managers do not take into consideration the talents of family members, their contributions to society. (Ateş, 2003: pp.12-13). Particularly the reason why the family members are brought to the management position is not the professional expertise but the trust in the interpersonal relationships.

In family companies; instead of merit principles such as knowledge, skills, ability, success and level of education in recruitment, promotion and other organizational processes, there is an unfair situation in which kinship relations are taken into consideration (İyiişleroğlu, 2006: 44). For this reason, the nepotical practices in question create serious motivation and stress problems in other workers (Develi, 2008: 24). Considering the macro level stress factors in the workplace, it is seen to be parallel to nepotism. The likelihood of nepotism and the resulting unfair success evaluations, the inequality in favor of family members in the wages, the hiring process, the promotion in

all other processes, the unbalanced and unfair business climate create stress in employees. According to a research, nepotism, favorism and chronism have increased job stress, which in turn has increased job dissatisfaction among employees. Moreover, nepotism has the most negative effect on the job stress (Büte, 2011). Nepotism, which includes favoring family members in the workplace, causes adverse effects on non-family managers and employees. If the employees in the business and those in the management are in competition with any family member, their work is very difficult to upgrade. Favoritism, especially based on nepotism, is a common behavior in today's service enterprises (Arasli et al., 2006: 296). It can be argued that this unfair competition environment arising from Nepotism will lead to a decrease in job satisfaction for non-family managers and employees. Many researchers who have investigated the relationship between nepotism and job satisfaction have suggested that nepotism leads to a decrease in job satisfaction (Araslı & Tümer, 2008: p.1237, Araslı et al., 2006: p.304, Asunakutlu & Avcı, 2010: p.105).

Partisanship

In a classification, favoritism practices have been grouped under two main headings as man-friendly favoritism and political favoritism. Friend-favoring behavior has been examined in its own way as nepotism and cronyism. Under the title of political favoritism, patronage, clientelism and services favoritism have taken place. Political parties are called "political favoritism" by giving privileged treatment to voter groups that support themselves after they have come to power, in a variety of ways. Political favoritism is also called "political affiliation" or "partisanship". In a study, it was stated that some people were discriminated against because of their political opinions in their workplace, due to the prejudices of their employers. In the same study, it was stated that the number of people punished for political opinion or not promoted at all and even removed from the work is quite high (Özkanan, A. & Erdem, R., 2014: p.192).

Organizational Justice And Organizational Commitment

Equitable take-up of business decisions and increased sense of trust increase employee loyalty by increasing employee job satisfaction (Hon ve Lu, 2010: p.674). Employees with increased organizational commitment are more willing to take on more responsibilities and are more likely to contribute organizational goals by increasing their performance (Chow, 1994: p.5). Work on organizational justice begins with Adams' Equation Theory. According to this theory, employees compare their achievements with both the achievements of their colleagues and the achievements of employees in similar situations in other organizations (Robbins ve Judge, 2011: p.255). If they believe there is a similarity between the achievements, they conclude that the organization they are working with is a fair organization. It is also possible to explain organizational justice through the theory of change. According to this theory, employees compare their level of education, their skills, their experience and their efforts in the organization. At the end of the comparison, if the perception of justice of the employees is low, besides the behavioral reactions such as absenteeism, tardiness and resignation, their performance is also decreased (Mullins, 2007: p.126-135). In management practices, especially in the distribution of awards, if there is a belief that there is injustice, there are negative organizational evaluations, especially organizational commitment and organizational citizenship (Akgündüz & Güzel, 2014: p.2).

Conclusion

Justice affects both the social and organizational life of individuals because it is an important factor affecting interpersonal relationships. Due to favoritism, there is a perception of injustice in organizations and employees show aggressive behavior. In organizations where favoritism exists, employees do not trust each other. Favoritism increases workplace stress and increases employee dissatisfaction. Favoritism makes organizational commitment and organizational justice difficult. It is possible to say that employees who believe that managers and co-workers are trustworthy will increase their organizational commitment accordingly. The shaking of the perception of organizational justice is as vital for institutions as well as for individuals. For this reason, the reduction of favoritism will help to increase and strengthen the sense of justice. The provision of in-service training and awareness training to organization managers and their staff on the types of favoritism and organizational and individual outcomes of favoritism can help managers to be responsive and meticulous in respect of favoritism.

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The Effects Of Manager's Perfectionist Personality And Empowerment Skills On Work-Life Balance Of Employees

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Abstract

Perfectionist personality is a feature found in managers. The purpose of this study is to examine the influence of managers with perfectionist personality on the worker's work life balance. The study also examines the impact of empowerment on the work-life balance. In the study, the relations between the concepts were questioned by using literature review. Perfectionists have extreme behaviors. They have extreme and impossibly high expectations for themselves. They are highly critical, especially of themselves. Perfectionists are unable to delegate tasks to others. A perfectionist's intense fear of failure overrides the belief in an ability to succeed. They often have difficulty managing stresses related to their excessively great expectations. In addition, perfectionists are often overly scrupulous, inflexible and overly conscientious when it comes to matters of morality, ethics or values. For these reasons, the perfectionist personalities of the executives make it difficult for employees to balance their work life. Reducing managers' perfectionist behavior; it has positive effects on empowering employees and ensuring business-life balance. Empowerment is to create and strengthen the people's confidence in themselves and make efforts to improve the organization's activities. Empowerment means giving people the power, authority, freedom and responsibility to carry out their jobs. An empowered employee has autonomy to take decisions and make choices at his own will. Empowering employees enhance participatory management, remove employees from being a robot, and facilitate work-life balance.

Introduction

The modern-day man, trying to adapt to the changing conditions, tends to reach the perfect one with the urgency of keeping up with the new environment. One of the main issues of management researches is the behaviors of managers and the effects of these behaviors on the organization. The concept of personality is the basis of the person's ability to understand and recognize both himself and others. Although there are different opinions in the literature about the dimensions that make up the personality, the common factors include the genetic and physical structure of the individual, cultural factors, group membership, familial factors, role behavior and social status. Individuals who are successful in their private and organizational lives have a healthy and balanced personality. Being professionally knowledgeable is not sufficient for business success; besides attitudes, behaviors are given importance. Because the realization of the organizational goals and objectives is largely related to the personality structure and characteristics of the managers and members of the organization. Each individual has different characteristics in terms of his / her personality and is influenced by different motives while engaging in different activities (Alan & Baykal, 2018: pp.119-120).

The construct of perfectionism has been receiving attention in both clinical and personality psychology for many years, and recently the research literature on perfectionism has grown remarkably (Sumi & Kanda, 2002), but little is known about the role of perfectionism in work adjustment. Perfectionism has been conceptualized both as a stable personality trait, where individuals habitually engage in the same patterns of behavior and a thinking style (Melrose, 2011). In the other hand, perfectionism is considered a stable pattern of thinking and behavior that changes relatively little over time (Anshel, Weatherby, Kang & Wats, 2009). Perfectionism is a personality trait characterized by striving for setting excessively high standards for performance accompanied by tendencies towards overly critical evaluations of one's behavior (Besharata, Pourhoseina, Rostamia & Bazzazianb, 2010). The perfectionist strives toward high goals, especially in the domains of work which may or may not be attainable for two reasons. First, the individual may have set unrealistic goals in regard to his or her abilities. Perhaps the goal is not attainable in the given time period. Second, perhaps the trade is not conducted fairly. The individual sets reasonable goals, but progress is thwarted by discrimination. Perfectionist tendencies are likely to be reinforced when the world appears just, and discouraged when the world appears to actively disregard hard work or appears random in handing out the benefits of achievement (Beheshtifar, Sefidi & Moghadam, 2011). People with dysfunctional perfectionism are more likely to avoid situations that require them trying to meet his or her perfectionist standards. They put off starting a task because the desire to complete it perfectly will make it hard or unpleasant and prematurely ending tasks because perfectionist standards are unlikely to be met (Aminizadeh, Dolatshahi, Pourshahbaz, Babapour, Yousefzadeh, Zamanshoar & Eshaghi, 2013).

Perfectionism and its Types

The managers of the organization experience emotions and behaviors such as anxiety, stress, anxiety, perfectionism and burnout. Perfectionism means that a person cannot feel comfortable until he is able to perfect his work (Üstün & Akdağ, 2016: pp.127-129). Perfectionism is characterized by a striving to be perfect and avoid mistakes. Perfectionists usually compare their values with inaccessible goals. Most studies show that two aspects of perfectionism are completely distinguished: Positive or normal perfectionism and neurotic or negative perfectionism. The former includes those aspects of perfectionism related to perfectionism challenges such as having high-level personal standards and trying to be the best. The latter includes those aspects, which are related to prefectural worries such as worries about making mistakes and uncertainty also fear of others judgments and disharmony of expectations and results (Aminizadeh, et al., 2013).

Perfectionism has been conceptualized as a personality variable that underlies a variety of psychological difficulties. Recently, however, theorists and researchers have begun to distinguish between two distinct types of perfectionism, one a maladaptive form that results in emotional distress, and a second form that is relatively benign, perhaps even adaptive. Perfectionism involves striving for perfection and the belief that failure to obtain perfection is unacceptable. Historically, the majority of research on perfectionism has focused on the maladaptive outcomes associated with this personality style. Burns (1980) demonstrated the link between perfectionistic beliefs and mental health problems, physical health problems, and poorer performance. He discussed a number of negative outcomes associated with perfectionism including: depression, anxiety, obsessive compulsive disorder, decreased productivity, problems with selfcontrol, low self-esteem, troubled personal relationships, and even increased coronary disease. In this context, healthy perfectionism brings the feeling of success and self-confidence and relaxation. Unhealthy and extreme perfectionism leads to disturbances such as lack of success in individuals and social conflict.

There are big differences between perfectionists and those who are seen as healthy achievers (Anthony & Swinson, 1998). Therefore, it is necessary to investigate different forms of perfectionism briefly before study it at workplace. Among several measures of perfectionism, the most widely used and extensively researched is the Multidimensional Perfectionism Scale (Hewitt & Flett, 1991). In this scale, the three forms of perfectionism including self-oriented (SOP), other-oriented (OOP) and socially prescribed (SPP) are distinguished. Socially prescribed perfectionism entails the need to attain standards or expectations prescribed by significant others and other-oriented perfectionism identified with the super expectations from others, while self-oriented perfectionism involves stringently evaluating oneself and setting high standards. Self-oriented perfectionism involves setting unrealistic, exacting selfstandards, as well as stringently evaluating and censuring one's behavior. Other-oriented perfectionism involves setting unrealistic standards for others, placing importance on the perfection of others, and stringently evaluating others' performance. Individuals who are high in socially prescribed perfectionism perceive themselves to be the subjects of other people's perfectionist expectations. They believe that others evaluate them stringently and apply pressure on them to be perfect (Fairlie & Flett, 2003). Generally, two higher order dimensions have been focused on adaptive and pathological (Frost et al., 1990). The adaptive form of perfectionism that is also called benign typically involves high self-imposed, personal standards, while the latter (also called problematic) includes self-critical evaluative concerns involving excessive concern over mistakes and doubts about actions (Aminizadeh, et al., 2013).

Perfectionism is considered to be a multi-dimensional concept and is defined as "a tendency of the individual to create extremely high standards and to criticize him/herself excessively" (Büyükbayraktar, 2011). Perfectionism is defined as the tendency of the individual to create extreme high performance standards, to fight for perfection and to be extremely critical when evaluating his own behaviors. In the studies on perfectionism, it was concluded that perfectionism is a three-dimensional structure. These are self-directed perfectionism, perfectionism for others and socially focused perfectionism (Eryılmaz & Kara, 2016).

a) Self-directed perfectionism: It is the tendency of the individual to set standards which are unrealistic towards him / herself and are impossible to reach. Self-directed perfectionists, in the event of any failure to install themselves. They seek the cause of this failure. These individuals try to achieve the goals they set themselves.

b) Perfectionism for others: It is the fact that the person sets unrealistic standards for others and expects people to comply with these standards. Perfectionist individuals for others want others to achieve the goals they have set for themselves. The perfectionist individuals for others, in the event of any failure, do their predicaments externally. In other words, they seek the causes of failure in others.

c) Perfectionism imposed by the society: People in this group have a belief that people expect the impossible from themselves. The perfectionists imposed by society think that these standards are imposed by others. Socially perfectionist individuals try to achieve the goals set by others. When they fail to achieve their goals, they hold themselves responsible for failure.

Empowerment

Nowadays, in order to compete, businesses are looking for ways to move towards a structure that is innovative and does not limit its employees to specific molds within a flexible specialization concept. For this reason, enterprises make an effort to create an organizational structure based on an environment where employees are devoted to learning and developing themselves, maximum participation in the decision process is ensured and the climate of trust and open communication prevails (Çekmecioğlu & Eren, 2007). From the beginning of the 1980s, many of the globally competitive international enterprises in the United States have introduced strengthening programs. In addition, countries such as the UK, France, Norway and Canada have decided to strengthen empowerment in public administration reforms (Fernandez & Moldogaziev, 2013).

In the development process of the notion of empowerment, two different paradigms, behavioral and cognitive, emerge (Quinones et al., 2013). According to the researchers who approach the subject from a behavioral perspective, empowerment is the redistribution of the power of decision-making, which is carried out under the responsibility of the senior management, including those without such power (Çöl, 2008). The focus of this approach is the behavior of those who hold power (Gümüşlüoğlu & Karakitapoğlu, 2010). Factors that constitute power according to behavioral approach; legal power, power of expertise, rewarding power, compelling power and charismatic power (Gümüştekin & Emet, 2007).

According to the approach that handles empowerment from a cognitive perspective, the behaviors of managers towards employees and the perceptions of those who work are different. According to Conger and Kanungo (1988), empowerment is a motivational form of self-efficacy. According to Thomas and Velthouse (1990), it is necessary to differentiate between managerial practices and the perceived situation (psychological empowerment). According to Spreitzer (1995), who conducted important research on psychological empowerment, motivation is important in the perception of empowerment. Beliefs of employees who are self-confident in their self-sufficiency and in achieving their jobs will make them feel strong. Defining and eliminating the situations that cause weakness in the employees and feeling their feelings of self-sufficiency are called psychological empowerment (Erdem et al., 2016). In his study, Spreitzer (1995) had pointed out that focus of control, prizes, self-esteem and knowledge sharing as pioneers of psychological empowerment are important. He had emphasized that the development of managerial efficiency and innovative behaviors are important, as psychological empowerment's successors. In this context, it is determined that PG consists of four dimensions as meaning, competence, autonomy and influence. The four dimensions described below will help individuals feel strong (Spreitzer, 1996):
-Meaning: The harmony between the beliefs, values and judgments of the employees and the requirements of the work. As the harmony increases, the meaning of the job for the individual will increase.
-Competency: It is the whole of the perceptions developed by the employees about how competent they are about their work (degree of expertise, capacity).
-Autonomy: It is the whole of the perceptions that the employee can use the initiative related to the work he / she makes and can take decisions by himself.
-Impact: The belief that the employee has an impact on the managerial practices and results of the organization.

Work-Life Balance

The two indispensable elements of individuals' lives are the work and family. Some individuals may disrupt their work while giving importance to their families. Or individuals who care about their work may experience problems with their private lives. The desired situation is to provide a balance between work and family. On the existence of work-life balance; the number of children, presence of spousal support, marital status, the presence of the dependent individual, family support, presence of ancillary person and age were determined as statistically significant and meaningful (Altıok Gürel, 2018: p.31).

Conclusion

The perfectionist personality of the managers has a negative effect on the work-life balance of the employees. However, the implementation of authorization has a positive effect on the work-life balance. Perfectionists have difficulty in managing the stresses associated with their over-expectations. For this reason, perfectionist personalities of managers make work-life balance of employees difficult. Employee empowerment improves participatory management and facilitates work-life balance.

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The Effects Of Webopac Self Training Tool With Guided Exploration On Information Literacy Skills Among First Year Degree Students

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Abstract
The purpose of this study is to investigate effects of WebOPAC Self Training Tool with Guided Exploration (WSTTG), WebOPAC Self Training Tool with non-guided exploration (WSTT) and Traditional (T) groups as the learning strategies on information literacy (IL) skills standards among first year degree students in Malaysian public university. The proposed learning strategy (WSTTG) was developed according to Ausebel's Instructional Design Theory and Gagne's Nine Events of Instruction which consist of constructivist learning environment model and cognitive of multimedia learning model. This unique and novel learning strategy is used to develop individual's logical thinking skill and access the information literacy skills which comply with Association of College and Research Libraries Information Literacy Competency Standards for Higher Education and Bloom Taxonomy standard. This study investigates the effects of the learning strategies amongst the students with high and low logical thinking level on their IL skills. Student's logical thinking level was measured using Group Assessment of Logical Thinking Test (GALTS). Meanwhile, students' information literacy skills were measured through a WebOPAC Training Assessment Information Literacy Skills (WTAILS). A quasi-experimental study with posttest-only nonequivalent group design that employed a 3x2 factorial design was applied in the study. The sample considered of 150 students from three academic libraries in Malaysia which were all randomly selected and assigned to the treatment and control groups. The findings of this study suggest that WSTTG is preferred compare to WSTT and T methods in developing student's information literacy skills at both logical thinking levels. From the practical perspective, the findings should alert librarians on the need to adopt this effective learning strategy for library orientation program and to be used by both the librarians and library users for WebOPAC teaching and learning purposes.

Keywords: *Information literacy, logical thinking skill, WebOPAC self-training tool, learning strategy, library orientation program, academic library*

Introduction

Today, academic libraries are shifting their role from collection-centered to learning-centered due to continuous changing on the academic agenda and user needs. This academic library plays a significant role in the context of new learning paradigm. Based on the new perspective of learning, an academic library as a subsystem of academic organization has not been a division that is added providing services for studies and research any longer. Instead, it has become an important unit of academic's information infrastructure and an active participant in the learning process of particular study training. It is an integral part of the academic's educational system. The academic library serves two complementary purposes: to support the universities' curriculum, and to support the research of the academic faculty and students.

Past review, academic libraries are the important organization and core component with the roles to teach and support the integration of information literacy especially to the undergraduates students courses (Head, 2013; Ghaphery & White, 2012; Maitaouthong, Tuamsuk, & Tachamanee, 2012; Edzan, 2008). According to Rice & Gregor (2013)and Madhusudhan and Singh (2010), library orientation programs plays a vital role in the communication process between the library and its user, although the library orientation program formats changed with the advent of various technologies. The library orientation programs offers an introduction to the library's resources and services, to the fresh undergraduates in the academic as well as information on study skills and academic integrity to help in the survival of the first year students throughout their studies at tertiary scores.

To date, Malaysia has twenty public universities which are funded by government and governed as self-manage institutions. Generally, Malaysian academic libraries of each universities were actively conducting their various library orientation programs, library skill trainings, library research trainings, information skills trainings and other similar trainings whose main aim is to educate the user on information use (Klaib, 2011; Edzan, 2008). In Malaysia, most of these academic libraries are doing their academic orientation for their users especially for undergraduate and post graduate students. Library orientation trainings are compulsory for every new student and are conducted usually at the beginning of every academic year or semester. Throughout the year, the libraries will organize program with the aim of familiarizing the students with the various tools within the libraries. This program is a way to help new students familiarize themselves with the layout, regulations, types of services and facilities offered by the particular academic library.

This library orientation has two main purposes: first is to train users to tap library resources and services and second, to instil awareness among its users about the significance of principles and practices of information skills. Madhusudhan and Singh (2010) also supported that this library orientation has to make 1) provision of guidance for understanding the features of specific information system or information in relation to user's needs, (2) provision of guidance on the specific information sources accessible through a specific system, (3) provision of guidance in the use of specific tools (e.g. online public access catalogue (OPAC) used in specific information system; and (4) developing familiarity with the outputs obtainable through a specific system.

Information Literacy (IL) is one of the critical digital-age illiteracies for higher education. Thanuskodi (2013) defined that IL is a way to move efficient access, evaluation and use of information should be taken into account and used for improving information end users. Therefore, the library orientation programs need continuously improvement to be taken seriously by academic library to develop information literacy skill among undergraduates which will allow them to function in an information society as envisioned in Malaysian Vision 2020 (Edzan, 2008). Thus, students need to be information literate to cope with the challenges in further studies and future profession.

The Association of College and Research Libraries (ACRL) provided a standard which is Information Literacy Competency Standards for Higher Education as a guideline that will assist student in learning how to use the information, describe, locate, satisfies, evaluate and use the information need effectively (ACRL, 2011, 2000). Recent studies found that few problems facing during practicing information literacy training which relate to the ineffective way and strategy of conducting library tours, introductory information skills classes, and in teaching advanced information skills. The studies conclude that the academic agencies do not aware the importance and development of information literacy among students. Supporting facilities such as class spaces, funding and training coordination provided on information literacy development was not seriously manage. Previous studies also reported that logical thinking skill moderates the relationship between teaching strategy and information literacy skills (Ralph Catts, 2010; Špiranec & Pejova, 2010; King, 2007). They concluded that students are lacking of logical thinking skills to evaluate IL, to identify the most efficient search strategy, to use scholarly information resources, and to use information ethically. This problem was supported by Fabunmi and Asubiojo (2013); Sankari et al., (2013), who believed that the lack of basic skills such as logical thinking skills of IL might become serious problem among undergraduate students in using WebOPAC in any academic library. As the result, the information literacy training during the orientation sessions does not comply with ACRL's standards (Shao & Purpur, 2016; Derakhshan, Hassanzadeh, & Nazari, 2015; Nurfaezah Mamat, Mohd Nasir Ismail & Adnan Jamaludin, 2014; Magnuson, 2013; Baro & Keboh, 2012; Husaini, Aziz, Karim, Jamin & Saad, 2011; Syamalamba, 2011; Gullikson, 2006). They major finding and supported by Nurfaezah Mamat et al. (2014); Rice and Gregor (2013); Gregory & Broussard (2011) concluded that the ineffective way and strategy of conducting these orientations programs contribute to the deficiencies of information literacy skill among university students.

Problem Statement
In most of academic libraries in Malaysia, library orientation activities are consist of library tours, hands on library system (WebOPAC), library briefings, information skills classes using online databases, lectures and multimedia presentations (Jyoon & Ibrahim, 2015; Salleh, Halim, Yaacob, & Yusoff, 2011; Ali, Abu-hassan, Md Daud, & Jusoff, 2010; Edzan, 2008). Ironically, even though library orientation program in Malaysian academic libraries were carried out every semester to new students; Nurfaezah Mamat et al. (2014) discovered that information literacy education in Malaysia is still at infancy since year 2002. The most common problem faced by academic libraries in Malaysia that was reported in previous studies is basically due to conventional ways of conducting library orientation programs. The problems identified were regards to information overload, student's time constraint, varying levels of information skill among trainers, limitation of classroom and with burden to the library staffs (Briggs, 2016; Koltay, Sonja, & Karvalics, 2015; Ismail, Dorner, & Oliver, 2011; Salleh, Halim, Yaacob, & Yusoff, 2011; Ranaweera, 2010; Edzan & Mohd Saad, 2005; Bahri, 2003)

A needs assessment was done by Nurfaezah Mamat et al. (2014) by collecting data from interviews with five expert librarians to see in depth problems occur, which relate to the orientation programs conducted at the academic library in five different public universities in Malaysia. This needs assessment was conducted in order to elicit information concerning to the expert librarians' experiences in conducting library orientation programs, perceptions on student's IL skill and problems which corresponds to training strategies and content coverage during orientation programs. According to the needs assessment which also supported by previous studies, they found and concluded that the major problem among students is regarding to deficiencies of information literacy skill (Syamalamba, 2011; Madhusudhan & Singh, 2010) which were relate to these four factors: 1) lack of problem solving skills among students (Fabunmi & Asubiojo, 2013; Sankari et al., 2013; Mohd Nasir Ismail et al., 2010; Ralph Catts, 2010; Špiranec & Pejova, 2010; King, 2007); 2) lack of effective strategy of using WebOPAC (Rice & Gregor, 2013; Baro & Keboh, 2012; Yusuf, 2012; Nilsen, 2012; Gregory & Broussard, 2011; Xiao, 2010); 3) lack of proper content to conduct training of WebOPAC (Baro & Keboh, 2012; Diep & Nahl, 2011; Ranaweera, 2010); and 4) there is no standard measurement on WebOPAC to measure the scores of Information literacy (Martin (2013); Karshmer & Bryan (2011); Abdullah, Kassim, Sharif, Saad, Tarmuchi, & Aripin, 2006). To conclude, these four factors give a very accurate affect to the lack of information literacy skills among students. So, there is need improvement and idea to overcome the problems which are to increase information literacy skill among students and academic staff in university. In other words, the ability of academic libraries to develop the library orientation programs be more effectively and achieve their goals in the development of information literacy skill especially in using WebOPAC system.

In this study, a unique and novel learning strategy known as WebOPAC Self Training Tool with Guided Exploration (WSTTG) was developed which is expected to train and access individual's IL skills. This learning strategy consists of WebOPAC web based self-training tool and self-guided manual which are complies with Association of College and Research Libraries (ACRL) Information Literacy Competency Standards for Higher Education and Bloom Taxonomy standard. The WSTTG instructional design was developed according to Ausebel's Instructional Design Theory (Ausubel, Novak, & Hanesian, 1978) and Gagne's Nine Events of Instruction (Gagne & Merrill, 1985) which consist of constructivist learning environment model and cognitive of multimedia learning model.

Research Objectives
The main purpose of this study is to investigate effects of WebOPAC Self Training Tool with Guided Exploration (WSTTG), WebOPAC Self Training Tool with non-guided exploration (WSTT) and Traditional (T) groups as the learning strategies on information literacy (IL) skills standards among first year degree students in Malaysian public university.

The study also intended to find out whether a WebOPAC Self Training Tool with Guided Exploration (WSTTG) can be used to develop students' information literacy skill for WebOPAC training provided and they had develop their logical thinking skill through guided exploration manual. The main focus of the study is the comparison between two different modes: WebOPAC Self Training Tool with Guided Exploration (WSTTG) method and WebOPAC Self Training Tool without Guided Exploration (WSTT) method, as well as comparison with WebOPAC Traditional (T) method in order to determine if other mode of self-training tool is equally effective in producing desired student information literacy outcomes.

Consequently, this study conducted to further investigate if there are any significant differences in student's information literacy skills between learners who were taught in three different instructional methods. These instructional methods are the WebOPAC Self Training Tool with Guided Exploration (WSTTG), WebOPAC Self Training Tool without Guided Exploration (WSTT) and WebOPAC Traditional (T) method.

In addition, another purpose is to investigate the effects of these instructional methods on high logical thinking (HLT) students and low logical thinking (LLT) students in information literacy skill. The study is further investigated if there are significant differences between the high logical thinking (HLT) students and low logical thinking (LLT) students on information literacy skill in WSTTG, WSTT and T group method.

Research Questions
With regards the research objectives, the research main question for this study are as follow:

1) Is there any significance difference in the scores between students taught via WSTTG, WSTT and via T methods in IL skills?
2) Is there any significant difference in the scores between students with HLT and LLT for IL skills?
3) Is there an interaction effect between instructional methods and logical thinking for IL skills?

Other secondary research questions include:

1) Are the effects of instructional methods factors moderated by the logical thinking factors?
   a) For students taught via WSTTG, is there a significant difference in the scores between HLT students and LLT students for IL skills?
   b) For students taught via WSTT, is there a significant difference in the scores between HLT students and LLT students for IL skills?
   c) For students taught via T method, is there a significant difference in the scores between HLT students and LLT students for IL skills?
2) Are the logical thinking factors affected by instructional methods?
   a) For HLT students, is there a significant difference in the scores between students taught via WSTTG, student taught via WSTT and students taught via T methods for IL skills?
   b) For LLT students, is there a significant difference in the scores between students taught via WSTTG, student taught via WSTT and students taught via T methods for IL skills?

Research Hypotheses

The hypotheses were given with respect to the main effects, interaction and the simple effects. The following null hypotheses for main effects were formulated from the above research questions. The hypotheses were stated in a null hypotheses form because principally it is better fitted to the statistical techniques, which are aimed at measuring the likelihood that a difference found is truly greater than zero (Gall, Gall, & Borg, 2007). The probability gain scores of 0.05 was used to test statistical significance.

H_1: *There is no significant difference in the gain scores for the IL skill between students taught via WSTTG, student taught via WSTT and students taught via T methods.*

H_2: *There is no significant difference in the gain scores for IL skill between students with HLT students and LLT students.*

For the interaction effect, the following hypothesis was formulated.

H_3: *There is no interaction effect between instructional method and students' logical thinking skills for IL skill.*

Further hypotheses were formulated for pos-hoc tests depending on the result from H_1. The hypotheses for the simple main effects include:

H_4: *There is no significance difference in the scores for students taught via WSTTG method between HLT students and LLT students for IL skills.*

H_5: *There is no significance difference in the scores for students taught via WSTT between HLT students and LLT students for IL skills.*

H_6: *There is no significance difference in the scores for students taught via T method between HLT students and LLT students for IL skills.*

H_7: *For HLT students, there is no significant difference in the scores for students taught via the three instructional methods for IL skills.*

H_8: *For LLT students, there is no significant difference in the scores for students taught via the three instructional methods for IL skills.*

Methodology

Research design
The present study was compared three instructional methods, i.e. (a) WebOPAC Self Training Tool with Guided Exploration (WSTTG), (b) WebOPAC Self Training Tool with Non Guided Exploration (WSTT), and (c) traditional (T) instructional method without WebOPAC Self Training Tool either Guided Exploration or Non Guided Exploration. This is a quasi-experimental study posttest only nonequivalent groups design (Shadish & Cook, 2002) to investigate the effects independent variables (WSTTG, WSTT and T) on one dependent variable (information literacy gain score) with logical thinking skill as the moderating variables. Slavin (1996) recommended the use of such research design because it enables researchers to hold constant all factors other than the ones being studied.

This is a posttest only design with nonequivalent groups where all groups are intact classrooms where the assignments of X1, X2 and X3 were random and under the experimenter's control (Gall, Gall, & Borg, 2007). In this study, mortality factor was not being a threat since the duration of the study was not more than 2 weeks. The researcher was also obtained demographic information about the participants' groups at the beginning of the study, identify the participants that may contribute to mortality effect and remove them from the groups.

Pretests of the three dependent variables were administered to the experimental and control groups. Treatments were given only to the experimental group as the treatments relates to matter pertaining the process during the experimental period. This design is recommended when it is not possible to locate a suitable pretest or when there is a possibility that the pretest has an effect on the experimental treatment (Borg et al., 2007). In this case, the pretest would have been irrelevant. The steps involved in this posttest design with nonequivalent groups were as follows: (1) non-random assignment of subjects to the groups, (2) administer the treatment to the two experimental groups but not to the control group, and (3) administer the posttest to three groups (Borg et al., 2007). Even though the study was done using quasi-experimental design, there was some degree of randomness of sampling of the three groups. Three campuses were randomly selected from the thirteen UiTM campuses. Two classes were randomly selected from the two selected campuses which have more than three classes. For the third campus, as it has only two classes, both intact groups were chooses as the sample.

A 3x2 factorial design was used to investigate the effects of the independent variable on the one dependent variable at each of the two levels of a moderating variable. The research design is illustrated as in Table 1.

Table 1: Research design

Moderating Variable (logical thinking level)	Independent Variable (Instructional Method)		
	WSTTG (X1)	WSTT (X2)	T (X3)
High (Y1)	Cell 1	Cell 2	Cell 3
Low (Y2)	Cell 4	Cell 5	Cell 6

R	O	XI (Y1)	O	(Cell 1)
R	O	X2 (Y1)	O	(Cell 2)
R	O	X3 (Y1)	O	(Cell 3)
R	O	X1 (Y2)	O	(Cell 4)
R	O	X2 (Y2)	O	(Cell 5)
R	O	X3 (Y2)	O	(Cell 6)

Where,

X1:	WSTTG
X2:	WSTT
X3:	T
R:	Random assignment of subjects to groups
O:	Posttest

Instrument and Measurement

Two major instruments are used to assess students' information literacy skill in using WSTTG, WSTT and T method. Group Thinking of Logical Thinking Test (GALT) was use to assess students' logical thinking level which being used as a moderating variable in this research for the Pretest and Posttest analysis. A WebOPAC Training Assessment Information Literacy Skill (WTAILS) was used to measure information literacy skills among students based on ACRL standards for the posttest analysis.

a)   Group Thinking of Logical Thinking Test (GALT)

The assessment on student's logical thinking level in the study are based on instrument that has been used in prior research to measure the student's level of logical thinking i.e. Roadrangka's Group Assessment of Logical Thinking (GALT) (Roadrangka, Yeany, & Padila, 1983). The adoption of this instrument assured that the logical thinking test would maintain items that had been previously reported as valid measure of logical thinking ability. The GALT had a reliability of 0.85 and validity of 0.80 (Roadrangka et al., 1983). This study used the GALT instrument that was based from the revised 12-item GALT that was translated into Malay language by Syed Anwar Aly (2000) in his study. The reliability values of GALT was found in his study are 0.59 (pre-test) and 0.688 (posttest). Therefore the test is adequate to distinguish between groups of students functioning at concrete and formal stages of development.

The GALT instrument consisted of 12 items measuring conservation of weight and volume displacement, proportional thinking, identification and control of variables, probabilistic thinking, correlational thinking, and combinatorial thinking posed in a pencil- and-paper format. Appendix B gives a breakdown of the thinking skill in GALT according to student's level of logical thinking defined by Roadrangka et al. (1983). The instrument used double answers for each question; multiple choice formats for presenting options for answers, and a justification or reason for each answer. The justification for answers provided more insight into student's logical thinking ability as well as greatly reducing the 'guess factor'. The student was given one point for each item for which a correct response was given for both answer and justification.

The instrument should be completed in 25 minutes but students will give one hour class period for the test. The test items in GALT instrument used pictorial representations of objects and the reading level was suitable for university students. Students with a score of 0 to 6 were considered to be low logical thinking student. Students who accumulated score from 7 to 12 points were classified as high logical thinking student.

b)   WebOPAC Training Assessment Information Literacy Skills (WTAILS)

A WebOPAC Training Assessment Information Literacy Skills (WTAILS) was used to measure information literacy skills among students based on ACRL standards for the posttest analysis. The WTAILS was designed to evaluate student learning in four content areas of the ACRL Information Literacy Competency Standards for Higher Education. This instrument was designed to assist institutions in identifying students' ability to locate, evaluate, and use information effectively when it is needed (ACRL, 2011, 2000). At the same time, it measures the scores of information literacy skills that are needed by the students in daily learning process. It is a multiple choice question test that must be completed in an hour. Items those are used to measure lower-order skills with the remaining one-third measuring higher-order skills (as defined in the Information Literacy Competency Standards).

According to ACRL (2011, 2000), information literacy skills was measured with five ACRL standards. However, one of the standards is not compatible with a multiple-choice item format which is standard four. This standard four refers to students who can use the information effectively to accomplish a specific purpose, the concern would be more reasonable skill assessed by examination or presentation of products produced by the students. Therefore, the item of WTAILS has been developed to measure Standard One, Two, Three and Five which is based to the ACRL standards. Based on the ACRL (2011, 2000), the standard two and three should receive a greater emphasis on the test, because it has shown that students' scores understanding of Information Literacy. Standard One and Standard Two are shown a lower order of logical thinking skill and for the Standard Three onwards it declined to the higher order of logical thinking skill.

The WTAILS was designed to evaluate student learning in four content areas of the ACRL Information Literacy Competency Standards for Higher Education. This instrument was designed to assist institutions in identifying students' ability to locate, evaluate, and use information effectively when it is needed (ACRL, 2011, 2000). At the same time it measures the scores of information literacy skills which students need to have the skills in everyday learning.

The data collected with the WTAILS also can be used to provide information about the scores of student learning and at the same time can improve the scores of information literacy among students. The results of the WTAILS can be used and has been successful in meeting the efficiency of student's information literacy performance.

Population, Sampling and Data Collection

The target population of this study were about 2500 first year degree students enrolled for a degree program in various field at thirteen Universiti Teknologi MARA (UiTM) campuses. Three campuses were randomly selected from the thirteen UiTM campuses. The sample consisted of 150 male and female students who studied in first year degree program and were selected from three different UiTM campuses i.e., two classes randomly selected from each campus understudy. In each of these branch campuses, all the new students are required attend the library orientation program during orientation week on the first semester. At the beginning, the targeted samples were 180 students where 60 students were randomly selected to each group. Due to the attrition amongst student, the size of the sample was decreased to 150 students. However, the size of the classes in each campus was approximately similar. Students in the selected branches were from approximately equivalent academic status as defined by the university. The students were randomly selected by the Head of Degree Programs into different course according to the alphabetical name listing provide from the Academic Division at each UiTM campuses.

Three librarian as a facilitators, one from each campus were involved in the study and each taught two groups. All the facilitators have similar levels as education (Degree of Library & Information Management) with more than seven years of experience in conducted library orientation program. The facilitators who taught the experimental groups were exposed to one day training on the instructional methods. The facilitators were informed that the purpose of this study was to examine different library orientation services and strategies that may help in the improvement of students' information literacy skills.

Data Analysis and Research Findings

The analyses were carried using one-way analysis of variance (ANOVA) and the post hoc pair wise comparison using ANOVA post hoc Tukey HSD test. The data were compiled and analysed using the Statistical Package for the Social Science (SPSS) Version 22.

The Homogeneity Test

Homogeneity test was conducted to test equivalency between the three groups of participants in terms of academic status as defined by the university. This test was done because the three groups were from three different campuses. Although similarity between different campuses is assumed as the criteria for intake of students is the same for these campuses, the test will statistically prove or disprove this assumption. The Homogeneity test result was conducted using Box's M Test of Equality of Covariance Matrices to determine the equivalence between the three groups WebOPAC Self Training Tool with Guided Exploration (WSTTG), WebOPAC Self Training Tool with Non-Guided Exploration (WSTT), and Traditional (T) instructional method. The mathematics and science of Malaysian Education Certificate (SPM) grades for Mathematics, Physics and Chemistry subjects were used for the testing of homogeneity as these subjects contribute in measuring the student's logical thinking skill.

The scores of mathematics across the three groups had relatively similar means, 1.04, 1.30, and 1.19 for WSTTG, WSTT and T respectively. The scores of three groups on Physics were close, (1.94, 2.22 and 2.73 for WSTTG, WSTT and T respectively). The scores of the three groups on Chemistry were also very close, (1.92, 2.68 and 2.87 for WSTTG, WSTT and T respectively).

The results also shows that are no significant difference between the means of each groups *(F= 1.012; p= 0.434; p > 0.05)*. This means that there were no statistically significant differences in the academic status across the three groups. Therefore, the assumption that the academic status across the three groups in terms of equivalency based on MEC grades was met.

The Internal Reliability Test

The experimental study was carried out across the three groups (WSTTG, WSTT and T) and the scores from the study tests; (i) Group Assessment of Logical Thinking (GALT) and (ii) WebOPAC Training Assessment Information Literacy Skill (WTAILS), were collected and a set of reliability tests were conducted to determine the Cronbach's Alpha reliability coefficients. The results were obtained which show that the instruments in the study were satisfactory reliable. The reliability values of the instruments are as follows: (i) GALT: 0.804 and (ii) WTAILS: 0.782. In this study, all instruments had alpha values above 0.6, which were considered as satisfactory reliable .

The Experimental Study Results

Descriptive Statistics
Table 2 presents the descriptive statistics of dependent variable as well as the interaction between the instructional methods and the logical thinking level.

Table 2: Descriptive statistics on dependent variable (IL) by the instructional between instructional method and logical thinking level

Dependent variable	Instructional method	Logical thinking	Mean	SD	N
Information Literacy Skill (IL)	WSTTG	HLT	21.13	4.014	40
		LLT	14.38	14.38	8
		Total	20.00	4.463	48
	WSTT	HLT	19.50	2.064	28
		LLT	14.05	1.397	22
		Total	17.10	3.265	50
	T	HLT	15.88	0.835	8
		LLT	11.95	3.027	44
		Total	12.56	3.140	50
	Total	HLT	19.97	3.544	76
		LLT	12.64	2.679	74
		Total	16.45	4.759	150

Testing of Hypothesis 1

> *There is no significant difference in the gain score for the information literacy skill between students taught via WSTTG, students taught via WSTT and students taught via T instructional methods.*

To examine if there were statistically significance differences in instructional methods, the first analysis of one-way analysis of variance (ANOVA) was conducted. Table 3 present summary of one-way analysis of variance (ANOVA) which shows the F-value, p-value of dependent variable by the instructional methods, WSTTG, WSTT and T, effect size and the observed power.

Table 3: Summary of one-way analysis of variance (ANOVA) IL for instructional method

Source	Dependent Variable	F-value	p-value	Result	Effect Size	Observed Power
Method WSTTG WSTT T	**IL**	13.409	0.000	*Sig*	0.414	0.998
Level HLT LLT	**IL**	83.252	0.000	*Sig*	0.254	1.000
Method * Level	**IL**	**1.638**	**0.198**	**Not Sig**	**0.022**	**0.341**

Note
* The mean difference is significant at the 0.05 level.

The ANOVA results for comparing the three instructional method groups on the dependent variable indicated that there were statistically significant differences between the three groups on the dependent variable. The ANOVA results of comparing the three groups were statistically significant for WebOPAC Training Assessment Information Literacy Skill (WTAILS*): F*-value is 13.409 and *p*-value is 0.000 (< 0.05), effect size is 0.414 and the power is 99.80%. This means that there were statistical differences on the dependent variable.

Therefore, the researcher further investigated the univariate statistics results analysis of variance (ANOVA) by performing post hoc pairwise comparison using the ANOVA post hoc Tukey HSD test for dependent variable in order to identify where the significant differences in the mean difference resided. According to Morgan and Griego (1998), many statisticians recommended a middle of road test such as the Tukey honestly significant difference (HSD) test compared to LSD post hoc test which is quite liberal and the Scheffe test which is quite conservative. Table 4 is a summary of post hoc pairwise comparison between the instructional methods and dependent variable.

Table 4: Summary of post hoc pairwise comparisons between the instructional methods and information literacy

Comparison Group	Dependent Variable: Gain Score WTAILS		
	Mean Difference	**P-value**	**Result**
WSTTG VS. WSTT	2.90	0.000 (p <0.05)	*Sig*
WSTTG VS. T	7.44	0.000 (p< 0.05)	*Sig*
WSTT VS. T	4.54	0.000 (p<0.05)	*Sig*

Note:
* The mean difference is significant at the .05 level.

Table 4 displays the mean differences, and p-value of different comparison groups by the dependent variable. The table shows that there are statistical mean differences among the three comparison groups and the dependent variable. The summary of testing hypothesis 1 is presented below.

There is a significant difference in the gain scores for the WTAILS between students taught via WSTTG group, students taught via WSTT group and students taught via T group (F- value = 13.409, p- value = 0.000). Post-hoc test was further formulated and the results show significant difference in the gain scores for the WTAILS between students taught via WSTTG group and students taught via WSTT group (Mean difference = 2.90, p-value = 0.000).

There is a significant different in the gain scores for WTAILS between students taught via WSTTG group and students taught via T group (Mean difference = 7.44, p- value = 0.000). There is also significant difference for the WTAILS between students taught via WSTT group and students taught via T group (Mean difference = 4.54, p-value = 0.000) which is also significant different. This means that all the three group had significant different which are the WSTTG group significantly outperformed the WSTT group (WSTTG > WSTT) and WSTTG group also significantly outperformed the T group (WSTTG > T) in information literacy skill. WSTT group also significantly outperformed the T group (WSTT > T).

Testing of Hypothesis 2

There is no significant difference in the gain scores for the information literacy skill between HLT and LLT students.

To examine if there were statistically significant differences in information literacy skills between HLT and LLT students, the second analysis using one-way analysis of variance (ANOVA) was conducted. The ANOVA results of comparing the two groups (HLT and LLT) on the moderating variable indicated that there were statistically significant different between the two groups (HLT and LLT) and the dependent variable (IL). Table 1.4 presents the summary of one-way analysis of variance (ANOVA) which shows the F-value and p-values of dependent variable by the instructional methods (WSTTG, WSTT, and T).

The ANOVA results of comparing the two groups on the moderating variable indicated that there were statistically significant differences between the two groups (HLT and LLT) and the dependent variable (IL). There is a significant difference in the gain scores for the information literacy (IL) skill between HLT and LLT students (F-value = 83.252, p-value = 0.000).

Testing of Hypothesis 3

> *There is no interaction effect between instructional method and students' logical thinking skills for information literacy skill.*

The results of the first in univariate analysis of variance (ANOVA) model analysis, showing the differences for the interaction between instructional method and logical thinking level effect on the one dependent variable. The ANOVA results of the interaction effects on the dependent variable was statistically significant which is *F*-value= 1.638 and *p*-value = 0.198.

Figure 1 shows the interaction graph between the instructional method and the students' logical thinking level across the three groups on information literacy skills (IL).
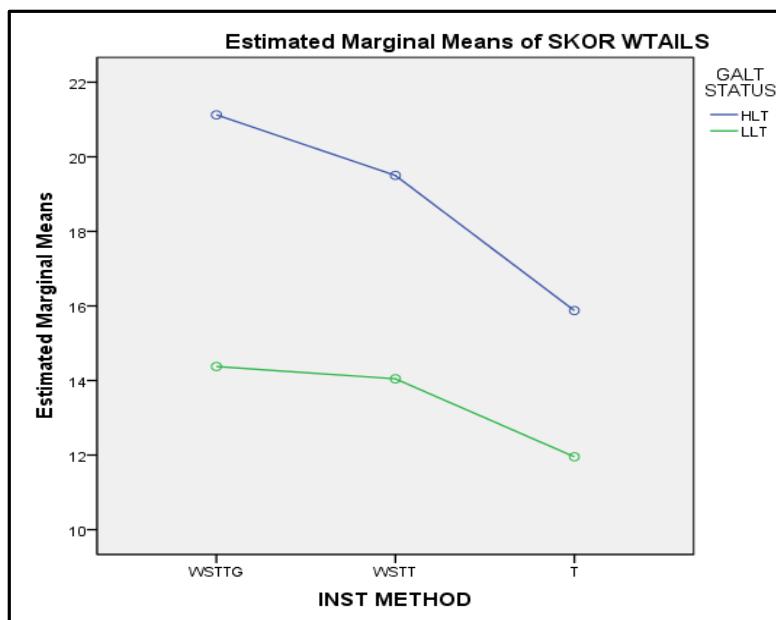
Figure 1: Interaction effect the between instructional methods and students' logical thinking levels on information literacy skill (IL)

Figure 1 shows that the LLT students taught via WSTG group benefited more than the HLT students taught via the same instructional method in information literacy skills. There is an interaction effect between the instructional method and the student's logical thinking level on information literacy skills across the three groups (*F*-value= 1.638, *p*-value= 0.198). Therefore, this inconsistent result was significant as analysed. In other words, HLT and LLT students taught via WSTTG, WSTT and T instructional methods benefited equally in information literacy skill. Therefore, the effect of the instructional methods on IL depends on the logical thinking level.

Testing of Hypothesis 4
> *There is no significant difference in the gain scores for information literacy skill between HLT and LLT students taught via WSTTG instructional method.*

To examine if there were statistically significant differences in information literacy skills between HLT and LLT students taught via the three instructional methods, a second analysis using univariate statistics results analysis of variance (ANOVA) by performing post hoc pairwise comparison using the ANOVA post hoc Tukey HSD test for the particular dependent variable in order to identify significantly where the differences in the mean difference resided for the particular group.

Table 5: Summary of post hic pairwise comparisons between the instructional and the logical thinking level (HLT and LLT)

Dependent Variable			Information Literacy Skill (IL)
Instructional Method	**Logical Thinking Level**		
WSTTG	**HLT**	**Mean Difference**	6.75

	vs		
	LLT	**Significant**	0.000
WSTT	**HLT**	**Mean Difference**	5.45
	vs		
	LLT	**Significant**	0.000
T	**HLT**	**Mean Difference**	3.93
	vs		
	LLT	**Significant**	0.011

Note.
*The mean difference is significant at the .05

Table 5 above presents the summary of post hoc pairwise comparisons between the WSTTG method and the logical thinking level (HLT and LLT) which shows the mean difference and the p-value of dependent variable.

There is a significant difference in the gain scores for information literacy skill between HLT and LLT students taught via WSTTG instructional method (Mean$_{HLT-WSTTG}$: 21.13; Mean$_{LLT-WSTTG}$: 14.38; Mean difference= 6.75, *p*-value= 0.000).

Testing of Hypothesis 5

There is no significant difference in the gain scores for information literacy skill between HLT and LLT students taught via WSTT instructional method.

To examine of there were statistically significant differences in information literacy skills (IL) between HLT and LLT students taught via WSTT instructional method, the result from the second analysis using univariate ANOVA analysis was used. The researcher further investigated the univariate statistics results (analysis of variance ANOVA) by performing a post hoc pairwise comparison using the ANOVA post hoc Tukey HSD test for the particular dependent variable in order to identify significantly where the differences in the mean difference resided for the particular group.

Table 5 above presents the summary of post hoc pairwise comparisons between the instructional and the logical thinking level (HLT and LLT) which shows the mean difference and the p-value of dependent variable. There is a significant difference in the gain scores for information literacy skill between HLT and LLT students taught via WSTT instructional method (Mean$_{HLT-WSTT}$: 19.50; Mean$_{LLT-WSTT}$: 14.05; Mean difference= 5.45, *p*-value= 0.000)

Testing of Hypothesis 6

There is no significant difference in the gain scores for information literacy skill between HLT and LLT students taught via T instructional method.

To examine of there were statistically significant differences in information literacy (IL) skills between HLT and LLT students taught via T instructional method, the result from the second analysis using univariate ANOVA analysis was used. The researcher further investigated the univariate statistics results (analysis of variance ANOVA) by performing a post hoc pairwise comparison using the ANOVA post hoc Tukey HSD test for the particular dependent variable in order to identify significantly where the differences in the mean difference resided for the particular group.

Table 5 above presents the summary of post hoc pairwise comparisons between the T method and the logical thinking level (HLT and LLT) which shows the mean difference and the p-value of dependent variable. There is no significant difference in the gain scores for information literacy skill between HLT and LLT students taught via T instructional method (Mean$_{HLT-WSTTG}$: 15.88; Mean$_{LLT-WSTT}$: 11.95; Mean difference= 3.93, *p*-value= 0.011).

Testing of Hypothesis 7

For HLT students, there is no significant difference in the gain scores for information literacy skill between students taught via WSTTG, WSTT and T instructional methods.

The result from the second analysis using univariate analysis ANOVA analysis was again used to examine if there were statistically significant differences in information literacy (IL) skills between HLT students across the three

instructional methods (WSTTG, WSTT, and T). The researcher further investigated the univariate statistics result (analysis of variance ANOVA) by performing pairwise comparison using the ANOVA post hoc Tukey HSD test for the dependent variables in order to identify significantly where the differences in the mean difference resided in every comparison groups for the HLT students.

Table 6: Summary of post hoc pairwise comparisons between HLT students across the three groups

Dependent Variable		
Information Literacy (IL) Skill Comparison Group	**Main Difference**	**Significant**
WSTTG vs WSTT	1.63	0.105
WSTTG vs T	5.25	0.000
WSTT vs T	3.63	0.017

Table 6 above presents the summary of post hoc pairwise comparisons between HLT students across the three groups which shows the mean difference and the p-value of dependent variable.

For HLT students, there is no significant difference in the gain score for information literacy skill between students taught via WSTTG and WSTT instructional methods (HLT$_{WSTTG}$ vs HLT$_{WSTT,}$ Mean$_{HLT - WSTTG}$: 21.13, Mean$_{HIT-WSTT}$: 19.50 ; Mean Difference = 1.63, p-value= 0.105).

However, there is a significant difference in the gain scores for information literacy skills between students taught via WSTTG and T instructional method and also between students via WSTT and T instructional method. This means that the HLT students taught via the WSTTG instructional method and students taught via WSTT instructional method significantly performed higher than the HLT students taught via the T instructional method (HLT$_{WSTTG}$>HLT$_T$ and HLT$_{WSTT}$ vs HLT$_T$)

(HLT$_{WSTTG}$ vs HLT$_{T,}$ Mean Difference= 5.25, *p*-value= 0.000)
(HLT$_{WSTT}$ vs HLT$_{T,}$ Mean Difference= 3.63, *p*-value= 0.017)

Testing of Hypothesis 8

For LLT students, there is no significant difference in the gain scores for information literacy skill between students taught via WSTTG, WSTT and T instructional methods.

The result from the second analysis using univariate analysis ANOVA analysis was again used to examine if there were statistically significant differences in information literacy (IL) skills between LLT students across the three instructional methods (WSTTG, WSTT, and T). The researcher further investigated the univariate statistics result (analysis of variance ANOVA) by performing pairwise comparison using the ANOVA post hoc Tukey HSD test for the dependent variables in order to identify significantly where the differences in the mean difference resided in every comparison groups for the LLT students.

Table 7: Summary of post hoc pairwise comparisons between LLT students across the three groups

Dependent Variable		
Information Literacy (IL) Skill **Comparison Group**	**Main Difference**	**Significant**
WSTTG vs WSTT	0.33	0.945
WSTTG vs T	2.42	0.036
WSTT vs T	2.09	0.005

Table 7 above presents the summary of post hoc pairwise comparisons between LLT students across the three groups which shows the mean difference and the p-value of dependent variable.

For LLT students, there is no significant difference in the gain score for information literacy skill between students taught via WSTTG and WSTT instructional methods (LLT$_{WSTTG}$ vs LLT$_{WSTT}$, Mean$_{ILT-WSTTG}$: 14.38, Mean$_{LIT-WSTT}$: 14.05; Mean Difference = 0.33, p-value= 0.945, >0.05)

However, there is a significant difference in the gain scores for information literacy skills between students taught via WSTTG and T instructional method and also between students via WSTT and T instructional method. This means that the LLT students taught via the WSTTG instructional method and students taught via WSTT instructional method significantly performed higher than the LLT students taught via the T instructional method. (LLT$_{WSTTG}$ > LLT$_T$ and LLT$_{WSTT}$ > LLT$_T$)

(LLT$_{WSTTG}$ vs LLT$_T$, Mean Difference= 2.42, p-value= 0.036)
(LLT$_{WSTT}$ vs LLT$_T$, Mean Difference= 2.09, p-value= 0.005)

Discussion

Both the WSTTG and WSTT instructional methods have significant positive overall effects on the dependent variable, namely the student's information literacy skills. Students taught via the WSTTG and WSTT method significantly outperformed the students taught via the T method in information literacy skills. Meanwhile, students taught via the WSTTG also significantly outperformed the students taught via the WSTT method in information literacy skills. There were significant effects between WSTTG, WSTT and T instructional methods on information literacy skills as shown in Table 4.

For the effects of instructional methods on information literacy skills' mean scores, there were two major findings. First, the results showed that the overall means score for information literacy skills for the students taught via WSTTG method was higher than WSTT group who, in turn, higher than the students taught via T method (Mean $_{WSTTG}$ > Mean $_{WSTT}$ > Mean $_T$). Second, both HLT and LLT students' means scores in information literacy skills for WSTTG method were higher compared to WSTT and T methods. Hence, the WSTTG method is preferred for HLT and LLT students compared to WSTT and T methods.

The results of the study also showed that the difference between HLT and LLT students among the three instructional methods were significant in information literacy skills. It supported Edzan (2008) study where the results from her study revealed that the elements of cognitive and logical thinking skills revealed a high correlation between the student's logical thinking level and their information literacy skills.

Further analysis revealed that the HLT students taught via WSTTG, WSTT and T instructional methods significantly outperformed the LLT students taught via the same method in information literacy skills. Working cooperatively with the LLT students, all the three method gave an opportunity the HLT students to discuss, clarify and evaluate each other ideas.

The findings of this study also showed the HLT students taught via both the WSTTG and WSTT methods significantly outperformed the students taught via the T method in information literacy skills. However, there were no significant differences in the mean gain score between HLT and LLT students taught via both the WSTTG and WSTT methods in information literacy skills. Moreover, for the LLT students taught via WSTTG and WSTT method significantly outperformed the students taught via T method in information literacy skills. This is to say that HLT and LLT students taught via WSTTG and WSTT method performed equally in information literacy

skills. Thus, it can be concluded that WSTTG and WSTT methods significantly support HLT and LLT students in improving their information literacy skills. In studies on the information literacy skills development Bundy (2004) and Thornes (2012) report that content, skills and processes is needed that different levels of thinking skills are associated with various learning outcomes.

These are the reason why students form both WSTTG and WSTT methods were outperformed their counterpart in the T method in information literacy skills. Based on the result from the study, the following recommendations are given for library user interested in using WSTTG in their instructions.

Conclusion

While this study has successfully achieved its objectives, it is however not without any limitation. The first limitation of this study chiefly revolves around the context and scope of the research. Instead of collecting data from various university academic libraries, this study only covered students enrolled in three UiTM campuses. Given these limitations, the results obtained are narrowed in terms of generalizability. The implications of this study can be viewed from both theoretical and practical perspectives. From the theoretical viewpoint, this study has developed a constructivist learning strategy which helps the students to fully benefit from the use of WSTTG method. WebOPAC self-training tool without guided exploration manual (WSTT) as the instructional method, is inadequate strategy as compare to WSTTG method. In this study, focusing was on the assessment of information literacy skills among first year degree students. Alternatively, the study can be further extended by investigating information literacy skills among final year degree and postgraduate students. From the practical viewpoint, the learning strategy that has been developed can be used as a the online tutorial for WebOPAC services and directed the students' attention to use, understand and evaluate the information needs, which help them to access the WebOPAC services provided in the library.

Acknowledgement

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The Impact Of New Media On The Forms Of Culture: Digital Identity And Digital Culture

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Abstract

Culture is the entirety of all values that might differ and regenerate with respect to the values societies retain. Changes occurring on the whole of current societal dynamics play a major role with respect to culture as well. In this age of internet and mobile technologies, culture also has been instrumentalized and digitalized. Digitalization of culture primarily results from the individuals' abstraction from real life and obtaining digital identities, and striving for reinforcement of their identities in that medium. Digital identities created by individuals in a virtual world generated a consequent imperialistic effect by affecting other individuals and the real life, which in turn led to serious changes regarding the concept of culture. In this regard, an individual's identity in real life has been transformed by the created digital identity and on macroscale, the culture of real life is led by a commonly created digital culture.

The Impact Of Social Presence On Learners' Satisfaction In Mobile Learning

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Abstract

Distributing learning completely through mobile courses is a new trend. Social presence has been identified as a significant predictor of learner satisfaction with online learning. It is a key element that improves learner satisfaction with online learning (Cobb, 2009; Reio & Crim, 2013). This study explores whether social presence is inherent in the mobile learning environment. Results revealed that social presence was a significant predictor in learners' satisfaction as were gender and number of courses learners had previously experienced.

The Influence Of Blockchain Technology On Business Education

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Abstract

The question of the role of Blockchain Technology, a decentralized and distributed digital ledger, in business education is only now being addressed with the technology in its infancy. Recently, Blockchain Technology has made significant advances in the fields of insurance, medical records, and the internet of things (IoT). However, the power of Blockchain Technology to solve problems business management problems will fundamentally transform business education. This paper attempts to address the challenges that Blockchain Technology will encounter by focusing on the methodology of using Blockchain Technology to solve problems in business transactions with special attention to the use of Decentralization and Peer-to-Peer Transactions. Specifically, this project will be examining the use of Blockchain Technology to drive the changes in business education. This paper will also discuss the future role of Blockchain Technology in teaching the various fields of business, and juxtapose them against traditional teaching methods in business, in order to reveal the increasing role that Blockchain Technology will play in the 21st-century business curriculum. This paper argues that indeed, Blockchain Technology will be able to increasingly affect how we solve various business problems and that this development will profoundly change the way the business curriculum is taught in the classroom. In conclusion, this project, by closely examining the role of Blockchain Technology, sheds new light on the rapidly developing changes in the business field.

Introduction

Since the sub-prime crash in the financial market in 2008, the stability of the orthodox financial system had been consistently questioned. Upon research, numerous limitations of the current system structure, from the addition of cost and fees to the vulnerability to fraud and crime, has arisen to the attention of financial stakeholders. The Harvard Business Review had reported that "45% of financial intermediaries, such as payment networks, stock exchanges, and money transfer services, suffer from economic crime every year; the number is 37% for the entire economy, and only 20% and 27% for the professional services and technology sectors, respectively" (Tapscott et. al. 2017). The Review asserts that the cause of such inefficiency is mainly due to the financial system's antique and vulnerable nature, that makes it resistant to both change and attacks that may lead to hacking or system failure. The assertion that the system is too exclusionary, denying usage to a sizable population of billions, has also been raised. Due to the many flaws, a revolution in the sphere of national and global finance has been long sought for. Many believe that the innovative combination between the modern technology and finance – thus the fintech revolution - signaled by none other than the rise of blockchain technology, will become the milestone key to solving the issue of the unstable financial model.

Figure 1. (Retrieved from: http://blockchain.open.ac.uk/)

According to the Wharton School of the University of Pennsylvania, blockchain is "a distributed database of computers that maintains records and manages transactions" (Knowledge @ Wharton, 2016). Unlike the orthodox financial system that is based upon a central authority -most commonly a bank- blockchain utilizes "blocks" to record transactions in the permanent database. The blocks, that may contain and record anything that may be of value, from money to equities, bonds, titles, deeds, and contracts, are then linked to each other in the form of a chain in linear, chronological order. A graphic illustration of this concept may be seen in Figure 1 above.

Furthermore, instead of storing all the information in one central database, blockchain is distributed across all computers around the world that are connected to its network clients: an advantage over any other financial model that make it nearly impossible to be hacked, for an attack would have to include accessing every copy of the database simultaneously to succeed. Wharton School eagerly reports that "The ability of the (blockchain) technology to provide an unforgeable record of identity, including the history of an individual's transactions, is one are being eagerly explored." The graphic in Figure 2 below illustrates the difference between the traditional methods of recording a transaction on a ledger and the blockchain method of recording a transaction. In the traditional method (illustrated on the right) the transaction record is kept by the clearing house in one location. This makes it vulnerable to attack and hacking because any attack must only breach the security of the clearing house. In a blockchain, however, the ledger is kept by multiple parties to the blockchain. Therefore, any attack must breach the security of multiple keepers of the ledger, an almost impossible task. The blockchain, then, provides a much more secure method of keeping a ledger.

Embedding distributed ledger technology
A distributed ledger is a network that records ownership through a shared registry

Clearing House

Centralised Ledger   Distributed Ledger

In contrast to today's networks, distributed ledgers eliminate the need for central authorities to certify ownership and clear transactions. They can be open, verifying anonymous actors in the network, or they can be closed and require actors in the network to be already identified. The best known existing use for the distributed ledger is the cryptocurrency Bitcoin

FT graphic. Source: Santander InnoVentures, Oliver Wyman & Anthemis Partners

Figure 2.

While the rise of blockchain technology is to some, extremely new and even unheard of, the first adaptations of it in financial sectors have made almost a decade ago. The evolution of blockchain technology has been gradually spotted since the design of bitcoin and the bitcoin database by an unknown programmer -or programmers- Satoshi Nakamoto. Through the development of bitcoin using blockchain technology, Satoshi Nakamoto found a way to eradicate the double-spending problem, or an error in digital money trade in which the same token -currency of value- is spent more than one time as a result to the duplication and defiling of digital files. The development of a secure digital currency therefore became possible, but the technology itself had to undergo a growing infancy. The number of centers that exchanged bitcoins to cash were sufficiently limited, and the technology itself had been quite for a long time shunned for its unconventional nature and some concerns about its future prospect. Bitcoin had also many times been tangled up with criminal activities in the black market and the deep web, for the discreet transaction of money it allowed spurred many of users with criminal intent to implement the technology for purchase and trade of drugs, firearms, and pornography. Consequently, the bubbles and bursts of bitcoin's value has continued since the genesis of is utility in 2008, as the arrows have both skyrocketed and plummeted down.

However, the growing need in the global financial market over the past decade has indeed been good to the technology in the long run. According to the Wall Street Journal, bitcoin is now "starting to look slightly more stable than gold" (Yang, 2016). The value of blockchain technology itself has also substantially grown. The Harvard Business Review reports that "in 2016 blockchain companies raised $400 million from traditional venture investors and nearly $200 million through what we call initial coin offerings". Blockchain is already stretching out its influence into fields other than financial service, for tech companies, software behemoths, and financial giants such as Microsoft and IBM are also eager to invest in its future. A report by the Wharton School quotes the senior vice president of IBM Research: "I want to extend banking to the 3.2 billion people who are going to come into the middle class over the next 15 years…So I need a much lower cost of keeping a ledger. Blockchain offers some intriguing possibilities there". Upon debating its possible applications in the future, the Forbes reported that "One group of big tech and finance companies has combined forces in the Open Ledger Project to create a wide range of different blockchain-style projects for different specialized needs, ranging from conventional supply chain management to basic administrative tasks like exchange of car titles. Some schools are even using blockchain to record students' grades and share academic certificates. And of course, there is always talk of tax being collected via blockchain at some point in the future" (Harpaz, J. 2016). Like so, much light being shone over the blockchain technology and its applications in the future is because of the enhanced speed of transaction and more efficient services it provides, along with its abilities to be applied into almost any sphere of life. It seems that perhaps the information driven era has finally met its financial companion.

Findings

It would be very easy to examine the definition of blockchain without truly understanding the ramifications of this new technology because the definition is after all, benign. The blockchain technically is a just digital ledger. One would be forgiven if one were to contemplate on such a question as: "how can a digital ledger bring about a "Revolution" in the financial industry?" To answer this question, one must examine the ramifications of this ledger and how it will change not only the financial sector but also every other industry that involves transactions.

The simple answer is Trust. For the first time in modern history, blockchain ensures "trust" among the parties to a transaction. For example, when a buyer purchases a product on Amazon, it is Amazon who ensures that the buyer will pay and who ensures that the seller will deliver the product under the traditional definition of online transaction. People purchase products on Amazon because they can reasonably assume their transaction will be completed. It is trust that allows the transaction to take place. However, with the blockchain, Amazon will be cut out of the transaction. Indeed, any 3rd party agent that plays the role of ensuring trust between the parties to the transaction will no longer be needed. The blockchain is a peer to peer application. In other words, the buyer and the seller deal with each other directly. There is no third party to the transaction. The Harvard Business Review describes this transaction as following: "Instead a series of intermediaries act as guarantors of assets as the record of the transaction traverses organizations and the ledgers are individually updated. In a blockchain system, the ledger is replicated in a large number of identical databases, each hosted and maintained by an interested party. When changes are entered in one copy, all the other copies are simultaneously updated. So as transactions occur, records of the value and assets exchanged are permanently entered in all ledgers." (Iansiti, M. 2017) The ensuring or "trust" in the transaction is provided by the blockchain ledger. The transaction will be digitally recorded in the ledger and this record will be permanent. Anyone who wants to exam the transaction may do so.

The ramification of Trust is enormous because there will be no need for 3rd party agents. Bitcoin fans have been enthralled by this idea, dubbing it "the libertarian ideal of a pure, digital currency beyond the reach of any central bank." The economist commented that "The real innovation is not the digital coins themselves, but the trust machine that mints them—and which promises much more besides." (The Economist, 2015) The business sector themselves are aware that this ramification might engender a disruption to the existing economy. Accordingly, many financial institutes are conducting research on how this will impact their business practices. After all the biggest 3rd party agents in society are financial institutions.

Ramification number 2 is Chain of Custody. Chain of Custody ensures that whatever product that is registered on the blockchain is the genuine product and not a replica or reproduction. For example, imagine that an artist creates a

sculpture. There is a digital passport that can be embedded into the work. This digital passport number is then registered onto the blockchain. Once registered, the artist will have a permanent and irrevocable chain of custody record. Anyone who wants to purchase that sculpture will now be able to track the chain of custody of that work from the time it leaves the artist hands until the time it arrives in the hands of the purchaser. The ramification is that the blockchain can ensure that any product is the genuine item. The blockchain may be able to eliminate fraudulent and knockoff products. This is not limited to just works of art. Any product's genuineness can be ensured, whether it be coffee, hand bags, clothes, or diamonds.

In real life, online P2P lodging services like AirBnB incorporates the blockchain for the very reason- the Chain of Custody. Companies like AirBnB provide a platform that enables individual home owners rent their rooms to other individuals. For systems like this, safety and credibility is easily the biggest concern. In order to ensure a level of security and credibility, the lodgings and the hosts are each given unique ID numbers, used similarly as the aforementioned digital passport. Because this ID represents the specific person or the specific lodging, it cannot be tampered with or duplicated even if the users delete their accounts and make a new one. The Goldman Sachs analyze such implementation of blockchain saying "By enabling a secure, tamper-proof system for managing digital credentials and reputation, we believe blockchain could help accelerate the adoption of P2P lodging." **(**Williams-Grut, O. 2016**)**

In sum, Blockchain does have the potential to "revolutionize" not only the financial industry but also many other industries because of these ramifications. Imagine a world where there is no need for bankers, real estate brokers, insurance agents, attorneys, or for an Amazon. Large corporations all over the world are acknowledging the potential of the Blockchain, and the extent to which the industry is growing is rather eye-opening. According to the Reuters, "American International Group Inc. (AIG.N) announced a blockchain-based insurance product. Bank of America, Citigroup, Goldman Sachs, Wells Fargo and other banks have invested in blockchain startups, and many will roll out commercial blockchain products [in 2017]. In the first quarter [of 2017], blockchain startups raised a total of $141 million from investors, a 57 percent increase over the fourth quarter […] according to data provider CB Insights." (Somerville, H. 2017) These trends are only beginning of blockchain disrupting the traditional financial systems.

It would be difficult to talk about blockchain without talking about "Bitcoin," because many people confuse the two and think that they are the same. They are not. Perhaps one should be forgiven to confuse the two since they are part of the parlance, and because the "inventor" of Bitcoin also created the idea of the blockchain. The blockchain technology has its beginnings with an unknown programmer -or programmers- using the nickname: Satoshi Nakamoto. Takemoto didn't invent crypto-currency. Crypto-currency had been around before. What Nakamoto did was he solved the double-spend problem. Satoshi Nakamoto found a way to eradicate the double-spending problem or an error in digital money trade in which the same token -currency of value- is spent more than once. In other words, how can we prevent people from using the same crypto-currency twice? Nakamoto's solution to the double spending problem is illustrated in Figure 3. Nakamoto came up with the blockchain, a digital ledger that ensures trust and a chain of custody for the bitcoin. As a result, the bitcoin does not rely on a 3rd party and also has a chain of custody to ensure legitimacy

Figure 3

Due to this feature, bitcoin became renowned for its security and reliability as a token of exchange. All of the transactions made via bitcoin are marked into a new "block" every ten minutes. Also, according to Dr. Saifedean Ammous's research, "For somebody to 'hack' into the Bitcoin network and change the issuance schedule, they would be required to marshal processing power larger than 17,000 times the power of the world's top 500 supercomputers. Alternatively, more than half of the processing power behind the distributed Bitcoin network needs to vote to change the issuance protocol. Such a change is highly impractical, for several reasons."

But, one must ask: Couldn't we apply the concept of the blockchain ledger to other valuables? Like coffee, handbags, or anything sold on Amazon? What naturally should have been a "yes," was hampered by the fact that bitcoin gained something of a bad reputation.

Implications For Education
According to D. Lavin at Edtech Strategies, the following may be methods in which blockchain technology may be utilized:
1. Records Keeping: Student transcript/degree/test score/record validation and transfer, including those associated with college admissions;
2. Educator credentialing/certification/re-certification;
3. Management and tracking of school property and assets;
4. Management of student privacy and parental records;
5. Distribution of federal/state programmatic funds or private grants;
6. Distribution and payment of student loans. (Levin, D. 2016)

Generally, any and all records kept by educational institutions can be kept on a blockchain ledger. The advantages of security, chain of custody, and transparency would be bestowed on the administrative actions of an educational institution. As the role of digital distributed ledgers systems increases in education, institutional administrators will need to develop new skills, such as an ability to make value judgments on AI products and digital ledgers, developing research skills regarding AI and blockchains, interpreting data and using them effectively in administrative tasks and record keeping, utilizing new technologies and training members of an administration on such technologies. (Luckin, R.et.al. 2016)

Conclusion
Blockchain technology provides enhanced speed for transactions and because it is so fluid in its application, it seems that finally the information driven era has finally met its financial companion. This digital ledger has promised the economy to ensure trust by eliminating the third party that has been seen as a necessity in current day transactions. Also, blockchain provides a Chain of Custody, which can prove a product is genuine and has not been replicated. It seems evident that the blockchain technology, often mentioned in relation to the crypto-currency "bitcoin," would be tangible evidence that digital decentralized ledgers are tangible.

Therefore, the evolving environment of Artificial Intelligence and blockchain requires a multidisciplinary approach. No longer can financers, educators, administrators just be satisfied with the traditional way of doing things. Future financiers and other stakeholders must first understand the challenges that these new technologies bring, including addressing the problem of bitcoin's reputation. To reach new frontiers of the blockchain technology, they must also search their own knowledge and expertise, and share their expertise and perspectives. Those who are able to adjust and adapt these technologies in their practice will be the ones will be leaders of finance and education.

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The Leadership Styles and Supervisory Competence of Master Teachers in Selected Schools in the National Capital Region as Base Reference for Competency Upgrading

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Introduction

Leadership indulged through leaders fractioned the influence of people's morale towards the organizations and its constituents. Accomplishing school endeavours was in great need of head teachers that were holistic in all aspect of leading his subordinates and his organization.

However, leader in today's environment of management who is not in an advocating change has many external environmental forces, such as economics, technology and even governmental regulations are affected in profound impact on such environment. With few resources, workers have realized that they must do more with less; they understand that jobs need to be restructured and new management systems need to be developed. They also know that if an organization is going to be efficient and effective, the work force must maximize to the fullest. Moreover, leaders' motivation towards school environment is one of the elemental notions that could largely influence their sentiments towards the institution. It's unimaginable to lead people and if teachers if teachers do not even have basic competence and feel threatened because of their lack of preparation for it.

One of the priorities of heads of school is to monitor the teaching learning process in their schools. Monitoring involves actions envisaged by the head to ensure that things are going according to the objectives set at different levels and at different points in time and also to see to it that things are revolving according to plan and in line with the target set. The purpose of monitoring is, as such, to increase efficiency and improve effectiveness of the system in place. Since teachers and heads are input variables in a school, the head, as an instructional leader must support and facilitate any initiative conceived by teachers.

Theoretical Framework

This presents related theories and concepts that will help the researcher create a clearer a picture to the research.

The path-goal theory of leadership, this theory states leader's behavior is important for good performance as a function of its impact on subordinates' perceptions of paths to goals and the attractiveness of the goals. When leader behavior clarifies these goals or makes them more attractive the satisfaction, performance, and the leader acceptance is expected to increase. The specific relationship between leader behavior and these criteria will depend upon the personality of the subordinate and the existing task environment.
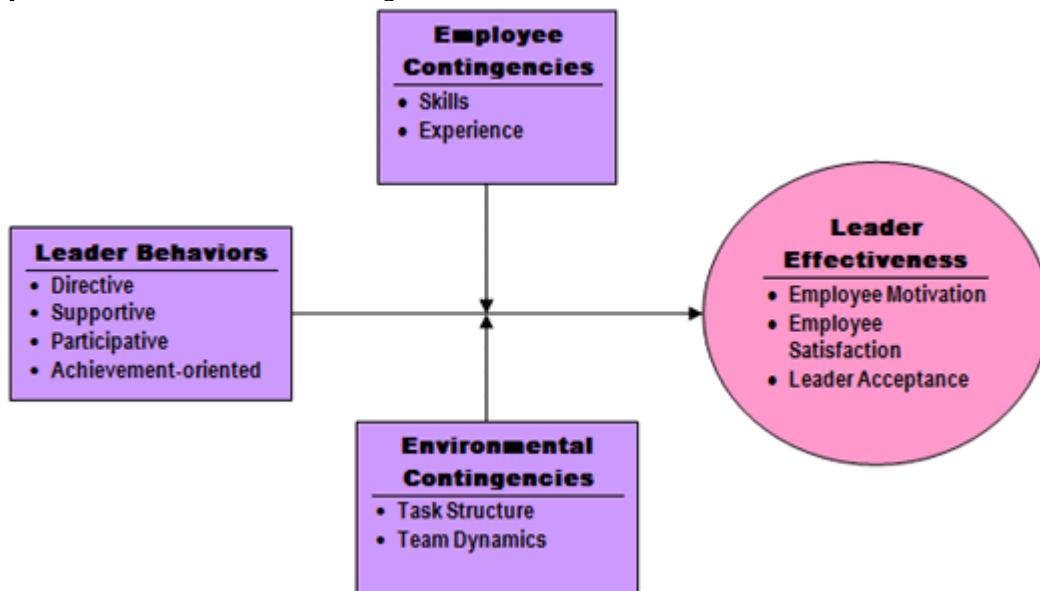
Path-goal Paradigm theory
Figure 2

Conceptual Framework

The research is guided by Path Goal Theory and researcher conceptualized an Input-Process-Output system which served as the direction of the research and it is represented in figure 2.

INPUT

1. **Leadership style of master teachers**

   1.1. Democratic leadership

   1.2 Charismatic leadership

   1.3 Autocratic leadership

   1.4 Transformational leadership

   1.5 Laissez-faire leadership

2. **Supervisory function master teachers**

   2.1 Instructional supervision

   2.2 School improvement

   2.3 Pupils development;

PROCESS

1. Assessment of the input through survey questionnaires

2. Treatment of data using statistics

3. Pr...
   i...

Output

Recommendation to upgrade competency

Research

Paradigm of the Study

Figure 6

Figure 5 shows the relationship among the I- P- O system of the research study. The system starts with the INPUT which contains the data obtained from the Leadership style of master teachers; democratic leadership, charismatic leadership autocratic leadership, transformational leadership, laissez-faire Leadership; And Supervisory function of head teachers, instructional supervision, school improvement, pupil's development; and teacher/Staff development

The PROCESS shows how the input will be processed through survey questionnaires. The data that will be gathered will be treated using statistics for presentation, analysis and interpretation of data.

Lastly, the OUTPUT shows the end result of the study which are the interventions to upgrade the teacher's level of competence.

Statement of the Problem

This study aimed to determine the leadership styles and supervisory competence of master Teachers in National Capital Region as Base Reference for Competency Upgrading

Specifically, it sought to answer the following questions.

1. What leadership styles are embraced by the master teachers?

   1.1 Democratic leadership;

   1.2 Charismatic leadership;

   1.3 Autocratic leadership;

   1.4 Transformational leadership; and

   1.5 Laissez-faire leadership

2. What is the level of competence of the respondents in the performance of their supervisory functions in the area of:

   2.1 Instructional supervision

   2.2 School improvement

2.3 Pupils development; and

2.4 Teacher/Staff development

3. Do the leadership styles of the master teachers significantly affect their level of
competence in performing their supervisory functions?

4. Based on the findings of the study, what could be recommended to upgrade
the competency of teachers?

Hypothesis

The leadership styles of the head teachers do not significantly affect their level of competence in performing supervisory competence.

Significance of the Study

The study aimed to contribute empirical data on the issues of Leadership styles and supervisory competence of master Teachers in Division of Taguig City and Pateros: Base reference competency upgrading.
he result of this study would be beneficial to the following:

Department of Education (DepEd). It helps particularly the secondary education would be provided with the prevailing leadership styles or practices which could serve as basis understanding the dynamics or performance. Likewise it would improve the scope of in-service preparations programmes for head teachers to enhance efficient and effective leadership style.

Principals . It helps them to pre-examine and appraise their own leadership and make adjustments where necessary. They may also realize their leadership styles may vary depending on who they are dealing with and the situation they are in.

Head Teachers. It helps in formulating techniques and styles of leading the group and manage his/her works in the field of his/her skills and potentials on leadership and management to enhance the effectiveness and efficiency of his or her teachers.

Teachers. It may utilize the results of this study to participate actively in the decision making process in term of curriculum, planning, improvement of subject instructional materials and enhance their teaching performance.

Students. They will receive quality education will greatly benefit from the study and may lead other people in the most and better way styles and able learn the good value of without looking for any return.

Future Researchers. They will use to guide for them who may be interested to conduct other related studies about head teachers leadership styles.

Scope and Limitation of the Study

The study is concentrated in public secondary school master teachers from 14 schools in National Capital Region . The study primarily focused on determining the leadership styles such as democratic leadership, laissez-faire leadership, autocratic leadership, transformational leadership, charismatic leadership. And focuses also on level of competence of master teachers in their supervisory functions in terms of; instructional supervision, school improvement, pupils development; and teacher/staff development.

Findings

Organized according to the specific questions in the statement of the problem, the following were the findings of the study.

1. Leadership styles are embraced by the master teachers.

The respondents' Leadership styles embraced by the head teachers. Data shows that head teachers have transformational leadership got the highest frequency of 32 or 32.99 percent.   In charismatic leadership got the frequency of 29 or 29.90 percent, while democratic leadership has a frequency of 23 or 23.71 percent. And, the laissez-faire leadership has a frequency of 11 or 11.34 percent. However, out of 5 leadership styles autocratic leadership has a frequency of 2 or 2.06 percent.

2. The Level of competence of the respondents in the performance of their supervisory functions.

    2.1 Respondents have average level of Instructional Supervision with an (over-all weighted mean = 3.04) with a verbal interpretation of competent.

    2.2. Respondents have average level for school improvement function with an over-all (X = 2.73) with a verbal interpretation of competent.

    2.3 Respondents have average level for pupil development function with an over-all (X = 3.16) with a verbal interpretation of competent.

    2.4 Respondents have average level for teacher and staff development with an over-all (X = 2.81) with a verbal interpretation of competent.

3. The leadership styles of master teachers significantly affect their level of
    Competence in performing supervisory functions.

    3.1 Respondents have average level for competence of head teachers in performing their supervisory function when grouped according to their embraced leadership styles with an overall (X^2= 2.94) with a verbal interpretation of competent.

    3.2 The respondents revealed the significant relationship between the leadership styles and the level of competence of master teachers in performing supervisory function in the area of instruction, the null hypothesis was majority rejected and the rest are accepted. In democratic leadership with a ($X^2 = 51.004$) its probability value of .045 the null hypothesis is rejected. In charismatic leadership with a ($X^2 = 42.385$) its probability value of .002 the null hypothesis is rejected. And also like with the transformational leadership with a (X^2= 36.516) and has a probability value   of .002 the null hypothesis. While, the laissez-faire leadership the ($X^2 = 32.511$) its probability value of .093 the null hypothesis is accepted. And the autocratic leadership too, with a (X^2= 27.308) its probability value of .079 the null hypothesis is accepted.

    3.3 The respondents for democratic leadership with has a (chi-square value of 56.113) its probability value of .089, charismatic leadership that a (X^2= 38.576) and has its probability value of .05 and laissez-faire leadership with a (X^2= 30.431) its probability value of .077 thus the null hypothesis is accepted, which has no significant relationship between the leadership styles and the level of competence of master teachers in performing supervisory function in the area of school improvement. While the autocratic leadership the (X^2= 24.224) its probability value of .001 while transformational leadership with a (X^2= 38.197) its probability value of .077) and the null hypothesis is rejected.

3.4 The respondents for charismatic leadership with a (X^2= 32.442) and has a (probability value of .000) while, transformational leadership with a ($X^2 = 37.776$) and has a probability value of .000 are significant thus, the null hypothesis is rejected. While, democratic leadership the (X^2= 49.152) its probability value of .078), autocratic leadership with a ($X^2 = 19.791$) its probability value of .203, laissez-faire leadership with the (X^2= 26.564) its probability of .061 thus the null hypothesis is accepted.

    3.4 In democratic leadership has a (X^2= 32.160) its probability value of .003, charismatic leadership with the (X^2= 44.251) its probability value of .000, transformational leadership the (X^2= 41.384) its probability value of .024 while, laissez-faire leadership the (X^2= 29.662) its probability value of .048) this means that are significant to the research therefore the null hypothesis is rejected, and the autocratic leadership with a   ($X^2 = 20.677$) its probability value of .083 It means it is accepted and it has no significant relationship between the leadership styles and the level of competence of head teachers in performing supervisory function in the area of teacher and staff development.

4. Base reference for competency upgrading for Head Teachers level of competence in terms of leadership styles that they may be seen for improvement.

Conclusions
    Based on the findings of this study, the following conclusions were formulated:
- Respondents have average level of leadership styles embraced by the master teachers and the level of competence in performing their supervisory function, they also vary on their embraced or used to apply or implement that they may part of their ideals.
- Level of competence in performing their supervisory function in instructional supervision, school improvement, pupil development, and teacher and staff development they had different ways of performing function that caters for their specific jobs and tasks.
- The leadership styles of the master teachers do not significantly affect their level of competence in performing supervisory functions.

- The base reference that may recommend is through improvement of in-service trainings and some various seminars, workshops and innovative team building as well, that the head teachers could utilize it in their leadership and supervisory functions and its personal enhancement as a middle manager.

Recommendations

In view of the aforementioned conclusions, the following recommendations are hereby offered:

1. The school heads should implement programs of mass awareness for leadership styles of teachers and its supervisory functions. Teachers should be given an extensive, long- term and continuous professional development plan through seminars/ trainings to improve level of competence in performing supervisory function. These trainings/ seminars should be properly evaluated. The head teacher must have a closer supervision in crafting instructional objectives.

2. The master teachers and teachers should have a shared vision so they will collaboratively relate to each other. The master teachers must provide good models for faculty members are suggested. Since, the school is an organization the head teachers must show a good model of professionalisms.

3. It is highly suggested that the master teachers must have a thorough planning in scheduling activities and the other works in achieving a common goals. The master teachers must include the teachers in identifying strategies for improving student's achievement. It is suggested that the head teachers as one of the leaders in school must assist the teachers to work towards a common goal.

4. Encourage school managers to be acquainted with the art and science of leadership and its competence to supervisory functions in order to support their teachers in schools, and recommends similar study to the future researcher to be undertaken in a broader area to include principal as respondents, other form of principal/head teachers leadership styles and performance in their supervisory functions and the other scale of teacher morale

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The Practice Of Outdoor Activities For The Teaching And Learning Of Science In Pre-Secondary And Pre-Tertiary School Settings In Nigeria

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Abstract

The importance of outdoor activities (ODA) as teaching and learning approach cannot be over emphasized. Several studies have examined this at various levels of educational setting. In Nigeria, it could be observed that (ODA) is facing a lot of challenges; hence the teachers' seldom use it. This study investigated the pre-secondary and pre-tertiary teachers' view on the use of ODA for the teaching and learning of science. Descriptive research design of the survey type was adopted for the study. The sample consisted of 200 teachers from Nursery and Primary Schools and Secondary selected using Stratified Sampling Technique. Well-structured questionnaire was used to collect data from the respondents and the data were analyzed using descriptive statistics. The results of the study indicated that the two categories of teachers had good knowledge of the learning approach. They do practice and agree that students get more excited and show more interest in learning during and after exposure to outdoor activities. The respondents agreed that there are challenges such as funding and logistics but had conflicting views about the availability of places of interest.
Keywords: *Outdoor Activities, Teaching and Learning, Pre-Secondary, Pre-Tertiary, and Curriculum implementation.*

Introduction

Many studies have indicated that the average Nigerian student be it in the University or in the lower cadres of educational pyramid has problems in mastering science concepts (Aderanti, 2001; Raimi & Adeoye 2004). For students to function as scientists, they must be trained in the basic skills and processes of science including observing, measuring, classifying, identifying problems, collecting, analyzing, interpreting data, formulating hypothesis, experimentation etc (Ige, 2003).

It was observed that student spend very little or no time in carrying out these sciences process skills both within and outside the classroom (Orimogunje, 2018). Complete science education programme should provide an opportunity for students to understand the ecology of their natural resources. One way to achieve this aim is through outdoor learning activity. There is the growing concern that opportunities for outdoor learning by science pupils and students in Nigeria have decreased substantially in recent years.

Currently, many countries have growing interest in and awareness of the outdoor education as a valuable complement to indoor teaching of science in the classroom (Dahigren, Sjolander, Szczepanski and Strid, 2007; Jordet, 2010; Ohman, 2011; Orimogunje 2018). Traditional text-based classroom learning as the only source of knowledge was challenged by the American pragmatic philosopher John Dewey at the beginning of 20th Century (1915/2011). Thorpe and Mayes (2009) echoed Dewey and argued that we must rethink context and experience in pedagogical practice as follows.

> *Pedagogical – needs to build connection across different areas*
> *of experience between the classroom, the workplace, the home*
> *and the social life, where the connections can provide points of*
> *engagement for learners and ways of enabling them to draw on*
> *the resources of their own experience. (P. 161).*

The outdoor activities recommended for science concepts include field trip, gardening, excursions etc. Most science teachers found it difficult to undertake these activities because of crowded extracurricular activities, need to plan, cost, disruption of school calendar etc. The world outside the classroom is itself a nature laboratory where various naturally occurring events, phenomena and processes exist. Such environment outside the classroom can provide stimulating and rewarding wide range of learning experiences for the students. In order, to explore the environment very well, science needs to be taken outside the classroom. Based on this, science teacher is enjoined not to limit his lessons to the classroom or laboratory only rather practical activities should be extended outside the classroom, hence the need for this study.

Concept of Outdoor Education

Outdoor education is broadly used while referring to a range of organized activities that take place in a variety of ways in predominantly outdoor environments. Outdoor education means learning "in" and "for" the outdoors. It means a curriculum extension and enrichment through outdoor experiences (Hammerman, 1980, p.33). It encompasses field experiences, trips and searching for information in the school environment as well as indoor activities like observing, or visiting a museum. Scientific picnics (as the ODA learning approach is sometimes called) demolish stereotype approach about science learning (Dovhopiata, 2016). ODA is also known as: Summer programme (Anderson, 2015), Science outside the classroom; Field trip (Ganiyu *et al*, 2015); Excursion (used interchangeably with field trip); Science picnics (Dovhopiata, 2016); and Science festivals (National Center for Nuclear Research, 2018)

It combats stereotype approach to science instruction. Outdoor environment provide spaces where students can experience familiar and unfamiliar phenomena as well as scientific concepts beyond the normal confines of the classroom. In outdoor education the emphasis for the subject of learning is placed on relationships concerning people and natural resources.

Benefits of Outdoor Activities

Outdoor learning supports the development of self-esteem and confidence in using a natural environment. Globally, the use of outdoor and indoor activities has been identified as best for imparting environmental attitudes into learners. Such activities can be conveyed using both verbal and non-verbal strategies in problem-solving approach (UNESCO – UNEP, 1990, Olagunju, 2005). In psychosocial terms, outdoor education may be defined as the use of experiences in outdoors for the development of the whole person. All these will enhance better performance of students in science.

Outdoor education is often used as a means to create a deeper sense of place for people in a community. Sense of place is manifested through the understanding and connection that one has with the area in which they reside. Sense of place is an important aspect of environmentalism as well as environmental justice because it makes the importance sustain in a particular ecosystem that is more personal to an individual (Kudryautsev, et.al, 2012). It also helps to instill the basic element of team book. Generally, exposure of students to outdoor activities will help them achieve the following attributes such as, good attitude to science, curiosity, inculcate ethics of science, direct contact with native, acquire process of science among others.

Notable barriers to the practice of ODA are fear, stress, risk and safety of students and teachers during excursion, lack of confidence of teachers in teaching outdoors, shortage of time, resources and, support from school management, rigid timetable and limited places of interest. Findings from research have shown that there is significant differences in performance in science between school students who had shown pre-visit activities and those who had not. (Ballantyne and Parker, 2002; Farmer and Wott,1995; Orwn and Hofstein, 1994).

Outdoor education has been found to be more beneficial to those students who found classroom learning more challenging Maynard, Water and Clement (2013) found in their research that underachieving students in science performed better when exposed to outdoor activities. Researchers have also shown that the absence of engagement of students in outdoor activities may be the cause of risky behaviours such as substance abuse, delinquency, premature sexual involvement and dropping out of school (Faulth, Roth & Brooks-Gunn, 2008; Fredricks&Eccles, 2006; Larson, 2000).

Outdoor learning is one part of the many opportunities and experiences that schools offer their students. It can be very exciting and memorable. In fact, Students have found outdoor activities more exciting than the usual boredom experience in the conventional classroom lectures. Outdoor activities make learning more authentic and help students connect science to real life outside the classroom. In outdoor lesson students are more engaged and attentive. The teachers could teach uninterrupted for almost twice as long as the usual lesson during the subsequent indoor lesson; it is an inexpensive and convenient way to improve students' engagement (Ming, Matthew, Browning & Milbert, 2018). ODA inspires lesson ideas that the teachers can implement in their own classrooms. With proper planning and organization, good weather and environment, learning outdoor can be quite productive.

Science concepts Teachers had taught using ODA

Model of the solar system orbits and its relative distances, Centripetal force, Distance / time and speed / time graphs, chromatography, as well as testing the supernatant as an acid/base indicator. Others are Pollution, atomic structure, Global ecology, Environmental science, Food science etc

Images of ODA for learning from a Nigerian School is presented in Appendix

Research Questions

Seven research questions were raised in this study:
1. Do teachers have clear meaning of ODA?
2. What types of activities do teachers believe constitute ODA?

3. Do teachers practice ODA?
4. What attitudes do students show towards ODA?
5. What problems do teachers encounter in ODA?
6. Is there any difference in the perception of male and female teachers on 1-5?
7. Is there any difference in the perception of primary and secondary school teachers on 1-5?

Population and Samples
The population consisted of all male and female Primary and Secondary School teachers in Ondo State, Nigeria out of which a sample of 200 was selected through stratified and systematic random sampling techniques

Instrument
A self-developed validated questionnaire which solicited information about the meaning, practice, types, students' attitudes and constraints in practicing outdoor activities was used.

Data Collection
The instrument was administered to the sample by the researchers and it was collected on the spot. Respondents were given sufficient time to complete the instrument.

Result
Question 1: Do teachers have clear meaning of ODA?
Table 1: Responses to questions on Meaning of ODA

The Meaning of outdoor activities	SA	A	D	SD
1. Learning can take place outside classroom/laboratory	92	100	8	0
2. The totality of our environment is a good place to learn science	37	95	53	15
3. The whole of Nigeria is a laboratory for the teaching and learning of sciences	32	72	76	20
4. Teachers who engage in outdoor activities are specially trained for that purpose	16	48	68	36
5. Courses on outdoor activities is not included in Teachers' training	12	60	96	32
6. Outdoor activities, ODA are not necessarily for the teaching and learning of science activities.	4	28	90	78

Majority of the teachers are of the opinion that much learning take place outdoor, but they did not fully agree that the totality of the local environment constitute outdoor learning places. Majority disagreed that teachers need special training before they could embark on ODA

2. What types of activities do teachers believe constitute ODA?
Table 2: Responses to questions on types of ODA

The Types of outdoor activities	SA	A	D	SD
1. Excursion and field trips are same as outdoor activities	80	92	24	8
2. Excursion is only meant for entertainment and pleasure	28	12	52	68
3. Field trip is more important in learning than excursion.	40	52	92	16
4. Typical places where food science can be learnt includes: garden, farm and not factories	36	60	76	20
5. Field trips facilitate effective teaching and learning of science	76	64	4	0
6. Cottage industries like soap, pure water and paints are other outdoor sites for science learning	72	116	4	8

Majority of the teachers believed that excursion, field trips and visits to places like cottage industries constitute ODA and that such visits are not meant for entertainment, rather they facilitate effective teaching and learning of science. They were however, of the opinion that not much food science can be learnt in the gardens and farms. This is contrary to Oloruntegbe (2014) that visits to local industries where Garri (fried cassava powder) is being

fried and palm oil is being processed can enhance the students' understanding of the concepts of carbohydrates and fats and oils.

3. Do teachers practice ODA?

Table 3: Responses to questions on practice of ODA

The Practice of outdoor activities	SA	A	D	SD
1. Outdoor activities are not usually practiced in urban areas	20	16	104	44
2. Outdoor activities can only be practiced in rural localities	0	12	124	44
3. Our science teaching does not support the use of outdoor activities	4	40	88	56
4. I take my students outside regularly to learn science	20	120	60	8
5. I have never taken my students outside to learn science	0	44	104	60

Majority of the teachers did not subscribe to the fact that ODA cannot take place in urban areas but only in rural ones. Majority had not taken their students out for learning; those that did said it was not on regular basis.

4. What attitudes did students show towards ODA?

Table 4: Responses to questions on student's attitude to ODA

Students' attitudes towards of outdoor activities	SA	A	D	SD
1. Students are more excited to learn outside than in the classroom	72	108	24	4
2. Students find science learning in the class/lab to be boring	24	84	84	16
3. Students connect science to real life when they learn outside the classroom	56	136	12	0
4. Students learn fast when examples of things seen outsides are made use of in the classroom	124	88	0	0
5. Science learning looks real when classroom activities are consolidated with outdoors	84	116	0	4
6. Students have a better understanding of food processing like garri, groundnut etc. than in the classroom	120	96	4	4
	40	140	12	08

Majority of the teachers said that students get excited on ODA because they easily connect science to real life especially when examples of things seen outside are made use of in the classroom. Students have better understanding of food concepts from the local processing of food they view in the farms and other visited sites.

5. What problems do teachers encounter in ODA?

Table 5: Responses to questions on Challenges of ODA in schools

Challenges of outdoor activities in schools	SA	A	D	SD
1. Outdoor activities are stressful and risky	44	116	28	12
2. Important places for learning are limited in my country/locality	24	76	84	20
3. Urbanization hinders outdoor activities	20	60	48	16
4. Lack of fund hinders outdoor activities in my school	48	100	48	20
5. Rural areas are more suitable for the learning of agricultural and food science than urban areas	116	68	40	4
6. Unavailability of internet facilities can hinder outdoor activities in rural areas	52	64	68	20
7. Rigid timetable scheduling does not allow for outdoor activities	44	88	56	16

Majority of the teachers agreed that there were challenges when implementing ODA. Problems listed include stress and risk, limited places of interest, urbanization, rigid time-table scheduling and absence of ICT and internet facilities.

6. Is there any difference in the perception of male and female teachers on 1- 5?

7. Is there any difference in the perception of primary and secondary school teachers on 1-5?
The results to these research questions are presented in table 6

Table 6: Responses to questions on perception of teachers to ODA

School		Primary				Secondary			
Gender		Male		Female		Male		Female	
S/N	VARIABLES/RESEARCH QUESTIONS	A	DA	A	DA	A	DA	A	DA
1	Do teachers have clear meaning of ODA?	95	2	44	0	88	8	36	0
2		64	32	32	16	48	48	28	4
3		65	31	32	20	40	56	20	12
4		15	80	24	20	28	68	8	25
5		2	96	12	32	52	44	16	17
6		15	79	0	48	28	72	4	29
1	What types of activities do teachers believe constitute ODA?	3	97	20	24	16	80	4	28
2		2	99	4	40	8	88	0	27
3		16	81	8	36	20	72	4	26
4		79	33	40	4	48	48	20	13
5		3	95	8	36	28	68	8	23
6		73	32	40	4	84	12	32	0
1	Do teachers practice ODA?	1	100	16	28	8	88	4	29
2		80	33	20	24	20	56	4	23
3		65	32	36	4	32	68	16	15
4		96	2	40	4	96	0	32	0
5		95	1	32	8	96	0	28	5
1	What attitudes did students show towards ODA?	93	3	36	8	76	20	28	4
2		47	48	24	20	56	40	20	12
3		99	2	36	8	88	8	28	4
4		96	1	36	0	96	0	32	3
5		98	3	44	0	100	4	32	5
6		93	1	36	4	92	8	40	13
24	What problems do teachers encounter in ODA?	56	32	24	16	68	24	32	7
25		55	48	32	8	48	48	12	19
26		33	15	20	20	36	60	16	17
27		31	64	28	16	60	36	28	5
28		96	2	24	16	68	28	28	4
29		65	33	24	16	52	44	20	11
30		79	15	16	24	60	36	28	4

Primary school teachers (Male and Female) agreed to know more on the meaning of ODA than their secondary school counterpart. The two categories of respondents (Male and Female) agreed on the types of activities that constitute ODA but disagreed that one is more important than the other and they all believe that ODA can only be practiced in rural areas. Both primary and secondary school teachers agreed that they practiced ODA and that students get excited and show more interest in learning after every ODA. They have conflicting claims on problems of implementation

Conclusions and Recommendations
Majority of the two categories of teachers have good knowledge of what ODA entails, the activities that constitute ODA. They implement and agree that student learn more after exposures to ODA. Problems of implementation are there, they agreed that if the problems, such as funding and logistics can be resolved, learning will be more meaningful and authentic. The study therefore recommends to Nigeria science teachers at primary and secondary school levels especially to consider the practice of outdoor activities in their teaching of science subjects.

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APPENDIX

(Images of Outdoor teaching Approach for Science Instruction)

a.

b.

c.

d

e.

Pictures a-e shows the processes of Palm oil production in the local community.

Pictures f-k shows the processes of Cassava flour (Garri) production in the local community.

l.

m.

n.

o.

p.
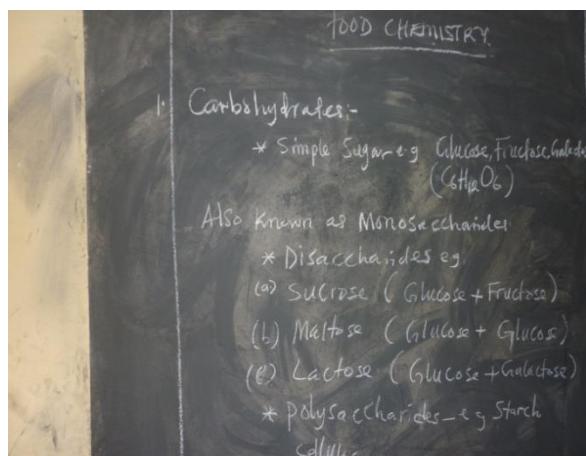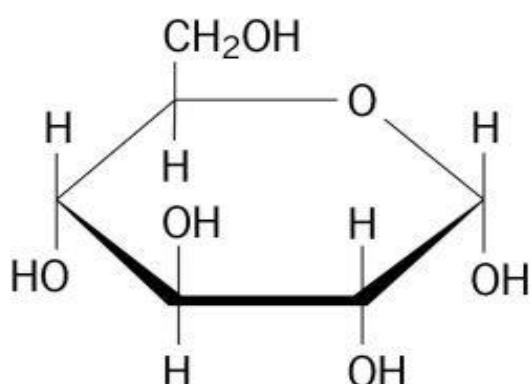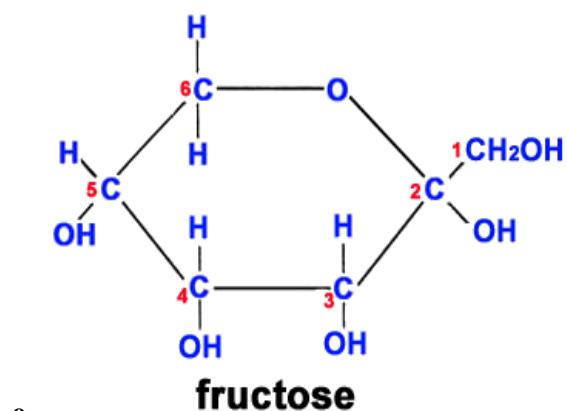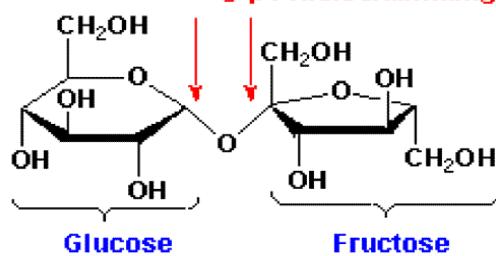
Pictures l-m shows the in-door classroom explanation approach to teaching science concepts such as n-p

The Qualities Criteria of Constructive Play and the Teacher's Role[1]

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Abstract

The purposes of this study were to identify the qualities criteria of constructive play and the teacher's role to enhance the qualities of constructive play. The participants for this study were ninety-seven 5-year-old children (53 boys and 44 girls) attending one kindergarten located in S city, K province in South Korea. Ten research assistants were in the course of the master's degree and senior majoring in early childhood education. They were trained to observe and record the qualities criteria of constructive play in block play. Ninety-seven (97) children were divided into 20 groups, each group was consisted of 5 or 6 children. They participated in 10 block play sessions twice a week. The duration of each play session was 40 minutes. During the first 10 of 40 minutes, introduction activities were conducted by research assistants and constructive play session lasted for 30 minutes. Unit Blocks were used in this study.

The results were as follows; The qualities criteria of constructive play were time (duration), diversity (number of constructions), organization, elaboration, imagination, concentration, and variety (number of blocks, shapes of blocks). The teacher's roles to improve the qualities of constructive play are teachers should encourage and support children to participate in constructive play, and provide a plenty of time, multiple open-ended materials, diverse stories, fairy tales, many play experiences, and safe environment. Teacher's guidance, preparations, support, and encouragement will promote children's high qualities of constructive play. These high qualities of constructive play maybe contribute to quality learning and development of the young children.

Introduction

Constructive play involves manipulation of materials to create things: sand, art materials (paint, large chalks, clay, paper), water, woodwork activities, sticks and stones, and a variety of different sized and different type of blocks (Wardle, 2000). Constructive play is organized, goal-oriented play in which children use play materials to create or build something (Johnson, Christie, & Wardle, 2005). Constructive play involves open-ended exploration and gradually more functional in nature, then evolving to make-believe transformations. Four-and 5-year-olds often switch back and forth between constructive and dramatic play, and it can be difficult to distinguish between the two forms of play (Kostelnik, Soderman, & Whiren, 2007; Drew, Christie, Johnson, Meckley, & Nell, 2008).

All play is a delight to the young children engaged in it. In fact, symbolic and constructive play are the hallmarks of the early childhood period (Kostelnik, Soderman, & Whiren, 2007). Rubin, Fein, and Vandenberg (1983) reported that about 50% of all play activity is constructive play at this age. Constructive play involves exploration and discovery, tactile stimulation, problem-solving, social interaction, engagement and concentration, and attention to process and outcomes. Children represent their ideas, knowledge and interests in multimodal ways such as layouts, buildings, plans, and sculptures (Wood, 2013). Constructive play seems to play a very crucial role, both high incidence in the preschool and especially in the free play setting. But most studies have been focused on the symbolic play rather than constructive play (Park & Han, 2017).

Furthermore, many of today's parents, in response to the widespread stress on cognitive development in children, are demanding that their children be exposed to a program that is more than just play. Parents may choose a program for its so-called academic focus. In response, programs often include the terms school, early learning, academy, or some such phrase in their names (Rogers & Sawyers, 1992). But children learn many things through play. Especially through constructive play, children can learn to read, write, speak, and listen. Constructive play can teach them about math, science, and social studies. Constructive play often involves cooperative, collaborative learning, which helps children grow emotionally and socially. Constructive play also enhances their physical growth and development (MacDonald, 2001). In addition, through constructive play, problem solving ability was improved (Park, 2007). To facilitate and encourage constructive play, it needs to investigate the qualities criteria of constructive play and the teacher's role to enhance the qualities of constructive play.

Research Questions

The main research questions posed in this study are as follows:

    1. What are the qualities criteria of constructive play?

2. What are the teacher's role to enhance the qualities of constructive play?

Methods

Participants

The participants for this study were ninety-seven 5-year-old children (53 boys and 44 girls) attending one kindergarten located in S city, K province in South Korea.

Procedure

Preliminary observation. Before starting main observation, preliminary observations were conducted. Through preliminary observations, some problems were founded and these problems were made up for main observation. To reduce the sound of wooden blocks, a carpet was put in the block area. To videotape children's play behavior well, two video camcorders were established opposite sides with trivet. To establish rapport between children and researcher and research assistants, we read fairy tales to the children.

Training of research assistants. Ten research assistants were trained to observe and record the qualities of constructive play in block play. Among them, seven research assistants were in the course of master's degree and three were senior (undergraduates) majoring in early childhood education. Prior to the observation, they were trained four times in total, for 3 hours per one training session, about the definition of the qualities criteria of constructive play, the method of using video camcorder, and observer's attitude etc.

One group were consisted of 5 or 6 kids, and are playing with 1 set of Unit Blocks for 30 minutes. Five research assistants observed 5 children's block play and they coded the score using the qualities criteria of constructive play. And every play session was videotaped.

As soon as each observation time was over, observers checked the scores to ensure the inter-rater reliability. Inter-rater reliability of coding scores was established as follows: (a) the research assistants coded appearing the qualities criteria of constructive play with observation forms and photographed the scene, (b) when the play session was over, they compared the coding scores with each other, and (c) if there were any differences between their scores, they discussed until they agreed on the coding scores of them.

Observation. The place of block play was set up in an extra room separated from their classroom in the kindergarten. Ninety-seven (97) children were divided into 25 groups, 5 or 6 children were grouped in one group, and they participated in block play sessions twice a week. As a result, they participated in ten-times in total. They were grouped in same classmates and 2 girls 3 boys were one group or 3 girls 2 boys or 3 girls and 3 boys were one group.

One play session lasted for 40 minutes. During the first 10 of 40 minutes, introduction activities were conducted by research assistants and constructive play session lasted for 30 minutes. They read story books to the children or they told with the children experiences about zoo, transportations, for example, airplane, ship, bus, train, etc., and Christmas. The books were predetermined to stimulate children's block construction as *The Three Little Pigs*, *Kindergarten, Zoo, The Wizard of Oz, Thomas and friends*, *Manhee's House*, Cosmos, *Block City, Transportations, and White Christmas.* The research assistants asked the children to make structures using blocks, and let them play, as they wanted. For example, when they read of *The Three Little Pigs,* children constructed three kinds of pigs houses with blocks. After they completed their block constructions, they played with construction(s) and play props or they used props as block construction. The research assistants did not interact with children when the children played with blocks. After the play session, research assistants asked them to name and describe their constructions. And the block structures were photographed to identify their structure's elaboration.

Materials for block play. Among constructive play, block play is appropriate for meeting the developmental needs of young children, providing opportunities for social, physical, and cognitive development (Han & Park, 2010). In the block center, there are no right answers. Activities are open-ended and children are free to change direction. Blocks promote children's awareness of symbols and their purposes (Wellhousen & Giles, 2005). Among blocks, Unit Blocks were used in this study. Other kinds of blocks are also available, but Unit Blocks consisted of various shapes and sizes in mathematical design and it is valuable equipment we can offer to children. In addition, it is helpful and useful to evaluate the qualities of constructive play. Unit Blocks were invented by Caroline Pratt. Unit Blocks have the basic dimensions 3.5x7x7cm, others are either multiple or divisions of the unit. Unit Blocks are consisted of unit, half-unit, double unit, quadruple unit, large arch, half circle, 1/4 circle, pillars, half pillars, small cylinders, large cylinders, ramps, circular curves, elliptical curves, large triangle, small triangle, floor board, right-angle switches, X-switches, and Y-switches. Unit Blocks are built in mathematical proportion and they are different shapes and sizes. They are made from solid hardwood (MacDonald, 2001).

In addition, props (accessories) were supplemented. The props were wooden made. These were provided in all

ten play sessions. For example, a miniature size of humans, animals, cars, trees, and traffic signs. The props had different shapes, colors, and sizes. Miniature of humans were adults, children, man, and woman. Miniature of animals were snake, elephant, crocodile, and rhinoceros. The props promoted and facilitated Unity Block play. Table 1 shows the kinds and number of Unit blocks that used in this study. These blocks were provided for one group in every play session.

Table 1. The kinds and numbers of Unit Blocks that used in this study

The Kinds of Unit Block	Number
half-unit	25
unit	50
double unit	32
quadruple unit	15
half-pillars	7
pillars	11
small cylinders	14
large cylinders	10
1/4 circle	2
half circle	4
half arch	7
large arch	4
circular curves	2
elliptical curves	2
small triangle	17
large triangle	10
floor board	9
ramps	8
right-angle switches	6
Y-switches	1
X-switches	1
props (miniature of humans, animals, cars, trees)	25
props (traffic signs)	5
The number and kind of blocks	**23**
Total	**267**

Results

1. The qualities criteria of constructive play

The sub-qualities criteria of constructive play in this study were time (duration), diversity (number of constructions), organization, elaboration, imagination, concentration, and variety (number of blocks, shapes of blocks). These sub-qualities of constructive play were evaluated at each play sessions. Table 2 shows the qualities criteria of constructive play.

Table 2. The qualities criteria of constructive play

Sub-qualities	Contents / Explanation	Examples and Scores
	- The time that children participated in	Some children play constructive play 30

Duration of play time	constructive play (The time limit of one play episode was 30 minutes in this study.)	minutes, others play 10 minutes or 20 minutes in one play session. The children who play constructive play 30 minutes get a high score.
Diversity	- The number of constructions in one play episode	For example, after reading *The Three Little Pigs,* children construct the first pig's house, the second pig's house, and the third pig's house. In this case 'diversity' is 3. If a child constructs only the third pig's house, the 'diversity' is 1.
Organization (Relationship)	- The organization of between theme and constructions - The relationship of between theme and constructions	For example, after reading *The Three Little Pigs,* if a child constructs the first pig's house, the second pig's house, and the third pig's house, the 'organization' is high score. But if a child constructs something that is no relationship with *The Three Little Pigs,* the 'organization' is low score.
Elaboration	- The degree of elaboration of construction - To evaluate elaboration researcher looked at carefully the constructions and took photos of constructions.	For example, after talking about *Transportations*, if a child constructs airplane not only inside but also constructs outside very concretely, the elaboration is high score. If a child constructs only outside of airplane roughly, the 'elaboration' is low score.
Imagination	- The degree of imagination of construction - Most children construct based on the theme of each play session predetermined books or storytelling, or some children construct using their imagination based on the theme.	For example, after reading *White Christmas,* if children construct White Christmas castle, Santa's house, and playground for Rudolf deer and his friends, the 'imagination' is high score. After reading *Hensel and Gretel,* if children construct the prison for the witch and the policeman to protect Hensel and Gretel, the 'imagination' is high score.
Concentration	- The degree of concentration on constructive play - The action or power or focusing on children's attention on constructive play	For example, when children construct their construction, if they are very concentrate on construct their construction, the 'concentration' is high score.
Variety	1) The used number of blocks in constructions 2) The number of kinds of block shapes in constructions	1) The sum of used number of blocks in one play episode. For example, children construct the first pig's house, the second pig's house, and the third pig's house, the first 'variety' means the sum of used number of blocks in three pig's house. 2) For example, children construct the first pig's house, the second pig's house, and the third pig's house, the second 'variety' means the sum of used number of different kinds of block shapes in three pig's house.

2. The teacher's role to enhance the qualities of constructive play

For optimal learning to occur through constructive play, children need support, time, and open-ended materials that stimulate the brain to think imaginatively (Drew, Christie, Johnson, Meckley, & Nell, 2008). The teacher's

roles to enhance the qualities of constructive play are as follows;

(1) Time

Research has demonstrated the importance of the length of an activity period to mature, complex forms of play. Longer play periods were associated with more constructive and dramatic play. The researchers concluded that longer time periods maybe necessary for children 'to become involved in mature, complex forms of play' (Tegano, Lookabaugh, May, & Burdette, 1991; Park & Han, 2018). The most essential condition to support constructive play is the child's sense of schedule. Play does not survive when children rushed; constructive play must be nurtured by time (Forman, 2006). Teachers should give plenty of time for constructive play.

(2) Diversity

Teachers should emphasize the process rather than the product. This will 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. Constructive play should be studied by process. Also, teachers and parents should avoid the use of adult models of art or building projects for children to copy. Rather, let children use materials in ways that are most meaningful to them (Rogers & Sawyers, 1992).

Young children bring to an exploration of building their own ideas, interests, and beliefs based in experience and culture, and tempered by their developmental level. Some children may have had more opportunity to play and build with blocks and other and other materials both indoors and out. Others may have had less opportunity. Some of girls avoid the block area and need specific encouragement to build. Having a time in the block area just for girls or connecting building with the dramatic play area are other possible strategies. (Chalufour & Worth, 2004). Thus teachers should arrange near by the block play area and dramatic play area. Because these make constructive play become more diverse and connected to symbolic play.

(3) Organization (Relationship)

To enhance organization of constructive play, teachers may talk with children about *what* they made their creation and constructions (Rogers & Sawyers, 1988). Teacher's understanding, planning, and preparation are important for high quality of organization (Koo & Lee, 1998). In constructive play, organization means children can recognize and understand the relationship between the theme and their constructions, thus teachers should plan and prepare about constructive play to help and to facilitate children's understanding. For example, fairy tales or storytelling facilitate understanding about the theme and constructions.

Books are most beneficial additions to block play, and one of the easiest to include. Books in the block center offer enjoyment, expose children to new experiences, and generate new ideas for building. As teachers select and read aloud books that relate to building, children develop new ideas and strategies for their play (Wellhousen & Giles, 2005).

(4) Elaboration

Teachers can enhance the elaboration by talking with children about *how* they made their creation and encourage children to create something concretely. Furthermore, after constructing, teachers take photos of children's constructions. These make children motivated to construct more elaborate constructions. According to Park (2007), the longer the children engaged in constructive play, the more problem-solving ability and elaboration improved. In addition, pre-experiences, before constructive play, are helpful to make constructions more elaborate.

(5) Imagination

Imagination can generate alternatives to the 'way things are' and therefore expands the range of possibilities. It is important for the development of abstract, symbolic, 'as if' thinking (Tovey, 2015). Construction requires that the child have an image in mind that he or she then represents by using familiar process. Children's imagination is central to the reasoning process and no activity is undertaken without some image of the result, whether his or her conception is accurate or not (Kostelnik, et al., 2004).

Teachers should talk with children about *what* and *why* they made their creation. Also, it is helpful to keep accessories simple and austere so children can use their imaginations and apply their own meanings (Wellhousen & Kieff, 2001).

Block accessories change the nature of the play. Accessories motivate children by adding new possibilities to their building. These additions invite different children into the action. Many children will simply be more curious about something new. Accessories can be made from just about any materials, including wood, plastic, or metal. They can be hard or flexible, real or make-believe. They can be people, animals, signs, trees, and objects. These accessories can help imagination and promote symbolic play. Accessories are the 'gate' children go through to enter the real of imagination, while others think more concretely. One never knows what accessory will strike a particular child's imagination. New accessories invite renewed interest (MacDonald, 2001).

In addition, according to Park (2007), before constructive play, reading fairy tales are useful for children's imagination in constructive play. For example, after reading *Hensel and Gretel*, a child constructed police station and put a miniature of men at the police station and put a doll of police officer nearby *Hensel and Gretel*. Research assistant asked why he or she made police station and why he or she put the police officer. A child answered, because he or she wanted to protect Hensel and Gretel from the witch. In *Hensel and Gretel* fairy tales book, there are no police station or police officer. But a child had his or her imagination from fairy tales.

(6) Concentration

Teachers can help children's concentration on constructive play by stimulating children's interests, curiosity, needs, and exploration. Children can concentrate on if they are interested in the activities. Thus teachers need to provide stories, open-ended materials, and supportive environments for constructing. The more concentrate on constructive play, the more problem solving ability improved (Park, 2007).

(7) Variety

Making sure enough blocks is very important. Generally, the number of blocks to have depends on the number of children in the center at one time. If there are too few blocks in the center, there will not be enough to go around, which can cause disagreements among the children. To figure out the best block-to-children ratio, consider the number of children who will be in the center at one time and their age. Many researchers suggest that 200 blocks for three-year-olds, 300 blocks for four-year-olds, and 400 blocks for five-year-olds and older children (MacDonald, 2001). Teachers may consider add more and more complex materials as children become more capable (Rogers & Sawyers, 1992). In addition, teachers should offer many different shapes and sizes of blocks. Variety and availability of appropriate materials will help ensure that children have many opportunities to learn through their play (Wellhousen & Kieff, 2001). Thus teachers should offer enough blocks for children.

Discussions

Constructive play is a process, and should be studied as such (Forma, 2006). Thus it needs to be studied about the qualities criteria. Constructive play involves building and making things no one has ever seen before. As young children fiddle with, sort, and arrange materials, ideas and imagination begin to flow: Questions arise naturally: They wonder: What will happen if I put this here? How tall will it go? In this way, constructive play serves to focus the minds of children through their finger and leads them to invent and discover new possibilities, to fulfill their sense of purpose (Drew, Christie, Johnson, Meckley, & Nell, 2008).

Making things is an activity that is key to successful learning for young children. Constructive play inspires creativity, stirs the imagination, and presents opportunities for meaningful problem solving. Constructive play makes learning fun (Oliver & Klugman, 2003). The ability to physically construct new connections between thoughts and objects is the act of innovation and change. Child-focused inquiry learning that involves constructive play with array of three-dimensional materials, fosters positive learning, such as enthusiasm, resilience, creativity, decision making, and persistence in completing tasks (Drew, Christie, Johnson, Meckley, & Nell, 2008). In constructive play teachers allow high degree of freedom for children to choose what they will be representing with blocks, clay, or materials to create something. Constructive play requires children to be imaginative and creative, and involve a hands-on experience of building or making a concrete, three-dimensional model. Through constructive play, children create three-dimensional construction; they can see the elements of their models from different angles and perspectives. Block construction is the transformation of an experience or object into a concrete representation of this experience or object (Han & Park, 2010). Constructive play can provide a window into children's thinking (Forman, 2006). The open-ended nature of blocks and other constructive toys provides young children with multiple opportunities to develop skills and abilities that cross all domains (Wellhousen & Kieff, 2001).

Constructive play is may facilitate problem solving ability. To improve problem solving ability, teachers should allow children to solve their own problem rather than interfering to offer teachers or parents solution. Give them the opportunity to try some unworkable solutions, and let them choose what works best for them. How can we do this? Rather than probing for one specific answer, encourage children to try out, or think of, multiple solutions. Ask questions focusing on "what if?" and "how can we …?" rather than those with a yes, no, or other specific response. So much formal schooling seems to focus on finding the one right answer and how to use things the one right way. Therefore, teachers should help children take advantage of opportunities to solve problems and think divergently (Rogers & Sawyers, 1992). If a child can construct with concrete objects, the child will learn to construct with words and ideas (Bruner, 1972). They can pretend, invent, and improvise (MacDonald, 2001). Teachers who understand and encourage this process of learning help children develop a very important talent (Drew, Christie, Johnson, Meckley, & Nell, 2008). Constructive play is similar to unstructured play. Unstructured play is just as valuable as structured play. For example, the more time children spend in less structured activities, the better their self-directed executive functioning (Trundle, 2018). Constructive play is open-ended activities allow children to design their own rules and play at their own pace. The objectives of constructive play range

widely. Children can learn about physical world, about social world, and particularly about the role of the self in the construction of knowledge (Forman & Hill, 1980).

In summary, to improve the qualities of constructive play, teachers should encourage and support children to participate in constructive play, and provide a plenty of time, multiple open-ended materials, diverse stories, fairy tales, many play experiences and safe environment. It will enhance the qualities of constructive play, time, diversity, organization, elaboration, imagination, concentration, and variety. These high qualities of constructive play maybe contribute to quality learning and development because it provided the ideal conditions in which to learn. It would make more positive effect on learning and development for the children to be engaged in the high qualities of constructive play, rather than to just participate in constructive play. Teacher's interest, preparations, support and encouragement will reinforce children's high qualities of constructive play.

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The Role Of Artificial Intelligence In Narrative Medicine

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Abstract

The advance of artificial intelligence has made many things possible. It is now involved in our everyday life as it has replaced humans in certain tasks as simple as calling to confirm an appointment or helping them in more complicated matters such as medical diagnosis. The amount of data available in the medical field requires artificial intelligence for data mining and knowledge discovery. Medicine is relying more and more on artificial intelligence to provide health care. However, there is a concern that medicine and medical staff are evermore detached from their patients. Narrative medicine seeks to humanize our modern health care by teaching narrative competence to medical staff in order to provide effective care. This is done through listening to various stories of illness, recognizing them, absorbing them, deciphering them and acting on the plights of others. Even though narrative medicine and medical artificial intelligence may seem at odds, the two seemly divergent fields may be utilized to improve the practice of medicine and ultimately provide better care to patients. This essay explores some of the AI technologies used in the medical field, namely machine learning technologies and what role it can play in the field of narrative medicine. This paper introduces narrative medicine and its methodology and finally discusses how these two fields can be utilized together towards the ultimate goal of providing better healthcare, thereby ultimately evoking changes in the curriculum of the medical field.

Introduction

Artificial intelligence (AI) has become such an integral part of our daily lives that we might not even realize how much of it we use and rely on. Intelligent digital personal assistants such as Siri or Google Now are examples of AI used by millions of people every day to list their daily schedule, to pull up information from the internet about the trendiest restaurant in town or to convert measurements from the metric system to the imperial one. AI technology recommends our movies and music, it suggests similar items to buy when shopping online, or guides our research by pulling relevant journal articles suggestions. These are just a few examples of AI used in our everyday life. Naturally, the opportunities AI presents can be applied in a number of fields such as the medical one. With the vast amount of data available, AI is being used in the medical field to aid healthcare practitioners in their clinical tasks. One of the technologies used in the medical field is machine learning (ML) technology which uses algorithms to combine raw inputs into features. In doing so, ML eases strenuous tasks of data mining and helps medical practitioners to discover new knowledge and reach better decisions to cure their patients. Thus, AI can help provide more concise and rapid care to patients.

Yet, with all the technological progress in the medical field, there is a critique to the way medicine is being practiced nowadays. Healthcare is increasingly expensive and people feel a sense of detachment from their physicians and a lack of human rapport. Physicians focus largely on curing the disease and often forget to empathize and listen to their patients. They spend time asking a series of standardized questions and doing a series of systematic tests looking for what is causing discomfort, when, sometimes, a simple conversation in which the physician listens to his or her patient can lead to a better diagnosis and understanding of what the patient is going through. Narrative medicine (NM) proposes a new approach to medical practice using narrative knowledge and skills to acknowledge, engage with, comprehend and be moved by stories of illness. NM embeds literature with medicine to enhance medical practice. It promises to arm healthcare practitioners with the narrative tools needed to provide better care by bridging this gap between physician and patient and physician and society as a whole.

The ultimate goals of medicine are to promote health by preventing disease, to relieve pain and suffering, to prevent death or aid a peaceful passage to the afterlife, to cure those who can be cured and care for those who cannot. Both Artificial intelligence applications in the medical field and the methodology advanced by narrative medicine strive to achieve these goals. So how can we use AI and NM to improve the practice of medicine and ultimately provide better care to patients?

This paper will first look at the some of the AI technologies used in the medical field, namely machine learning technologies and what they bring to the table. This paper will then introduce narrative medicine and its methodology. Finally, the paper will discuss how these two can be employed together towards the ultimate goal of providing better healthcare.

Medical Artificial Intelligence

Artificial Intelligence is increasingly being used in the medical field. As AI seeks to mimic human cognitive functions, there are even discussions about whether or not it can replace human physicians in the near future. While the technology has not yet reached the point of replacing humans, it has been developed to assist them in their daily tasks. Part of the AI technology used today focuses on big data analytic methods which take the increasingly available large healthcare data and process it to help physicians make better clinical decisions and judgement (Bacciu et al, 2018). Physicians are using AI systems to extract relevant and up to date medical information from the large amount of publications available such as journals, textbooks and clinical practices. The access to records from a large patient population allows AI technology such as machine learning to discern patterns and frequent occurrences that can help physicians properly diagnose and predict health outcomes. In other words, AI is the reason that knowledge discovery from intensive use of data can happen. The medical field as a whole has collected so much data over centuries of recorded practice that knowledge can be extracted simply by analyzing the data using advanced AI technology.

However, before physicians can use AI systems, these systems need to be developed and 'trained' to analyze data and perform tasks such as screening, diagnosis and treatment. This training consists of 'teaching' the systems to determine similar groups of subjects, to associate between subject features and outcomes of interest (Jiang et al, 2017). The clinical data used for this training consists of structured and unstructured data. Structured data is information that is highly organized and that requires rather simple search algorithms to extract information. Examples of structured data in the healthcare field are imaging data, genetic data and electrophysiological data. Contrarily, unstructured data is made of unorganized information that usually comes in the form of narrative text such as laboratory reports, physicians notes, journal articles and so on. There are two categories of AI devices to evaluate structured and unstructured data: machine learning (ML) techniques and natural language processing (NLP) methods.

Machine Learning: Classical ML application in the medical field consists of extracting features from structured data about patient traits. Patient traits data consists of demographic data such as age, gender, disease history and data pertaining to the specific disease from which the patient suffers such as a list of symptoms, medication taken, diagnostic imaging and electrophysiological data. Other data collected throughout clinical research such as medical outcomes, disease indicators, survival times and quantitative disease levels are also used to train ML systems to extract features (Jiang et al, 2017). Machine learning takes these data and constructs algorithms from which it can learn from and make predictions about certain diseases or a population group depending on guiding questions. A more recent development of machine learning technology, called deep learning (DL), relies on artificial neural networks, inspired by the biological nervous system, to extract features using multiple layers of nonlinear processing units (Ching et al, 2018). We will look at how deep learning works and how it is applied in the medical field.

Deep Learning Technology:

Deep learning refers to new groundbreaking techniques in machine learning across several fields. DL technology mimics the functioning of brain neurons and makes machines think like humans. The structure of DL imitates the human brain: an accumulation of structured data, algorithms and codes to extract features, in the form of layers to

achieve the goal that is to process information, make rational decisions and learn like a human brain (Jiang et al, 2017). Figure 1 shows how the artificial neural network used in DL is modeled after the neurons of a human brain.

Figure 1.
(Retrieved from: https://sites.google.com/site/mrstevensonstechclassroom/hl-topics-only/4a-robotics-ai/neural-networks-computational-intelligence)
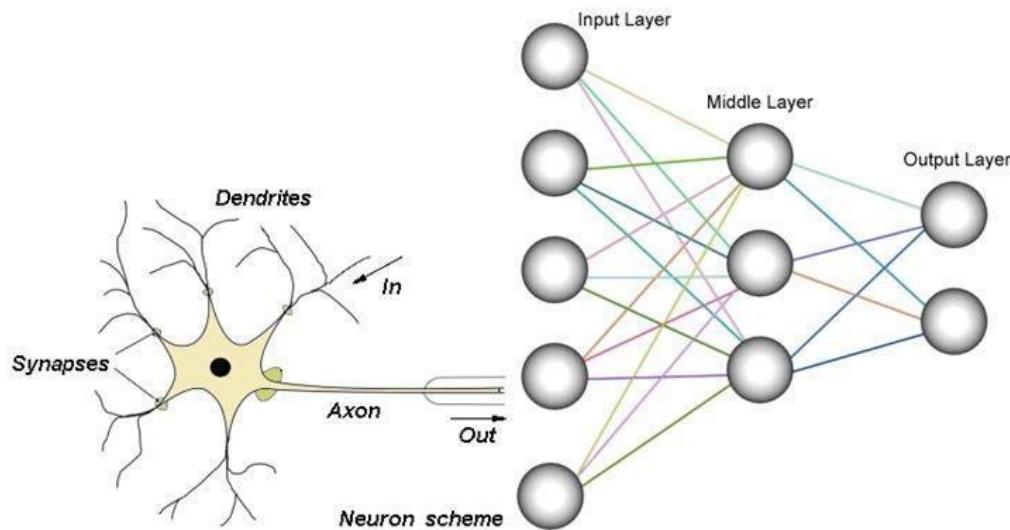
The ability of DL to process images without human help makes it very popular in the medical (Bacciu et al, 2018). As image technology is advancing, so is the medical field reliance on image data to make medical decisions. Unlike ML, DL does not need additional human assistance and therefore brings time-saving decision making support to medical staff. It is largely used in medical image analysis. The way DL works to recognize images and deduce information from them is represented in Figure 2 and an example is given on how it achieves its function (LeCun et al, 2015).

Figure 2.

(Retrieved from: https://www.quora.com/What-is-deep-learning-Why-is-this-a-growing-trend-in-machine-learning-Why-not-use-SVMs)
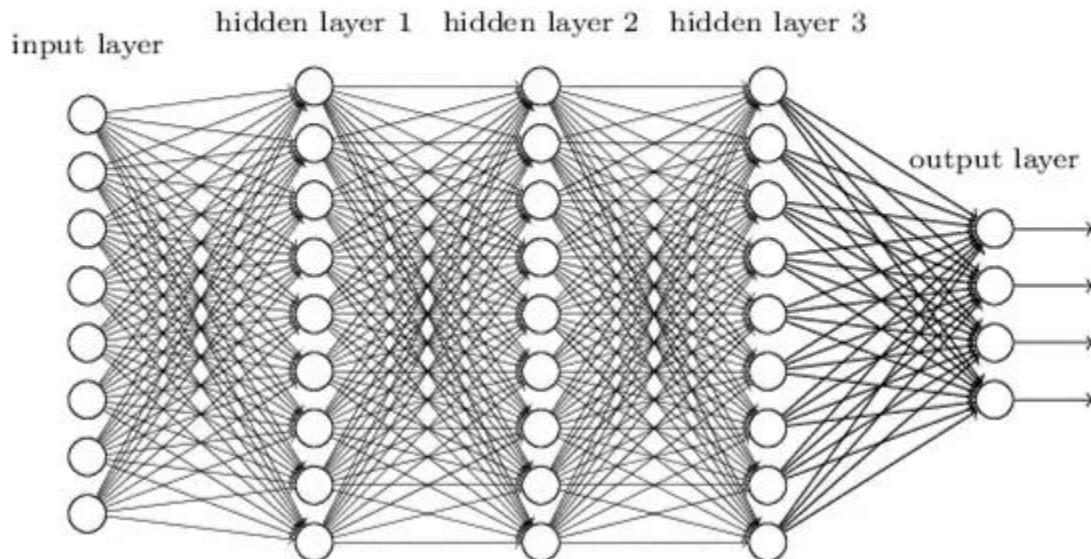
1. Input layer: an image or matrix of pixels is fed to the program as raw input.
2. Hidden layer 1: this layer converts these pixels into code to determining edges.
3. Hidden layer 2: this layer aligns and encodes edges.
4. Hidden layer 3: this layer recognizes these edges and encodes them as facial part such as a nose or mouth.
5. Output layer: Here, the program determines that the raw input or matrix of pixels represent an image of a face.

Deep learning has, thus, revolutionized the analysis of images. This is the technique websites such as Facebook use to recognize people's faces on pictures uploaded online. Similarly, this can be used on medical images such as x-rays, MRI scans and others. Using DL systems allows to classify lesions and nodules, to localize organs and segment them for clinical report (Bacciu et al, 2018). It is used in mammography images to determine cancer traces making it very useful to the physician's naked eye (Ching et al, 2018). In other words, a computer can determine which cells are cancerous and which are not much faster and more accurately than a human using his naked eye looking at each cell one by one. Furthermore, it can identify high-risk patients to whom care should be given in priority. Besides image analysis, DL is used to accurately categorize diseases and patients using information from electronic health records, diagnosis, symptoms and outcomes to mine information and discover new knowledge (Bacciu et al, 2018). DL can provide data-driven screening that could be otherwise confused by physicians due to the large number of possible diseases. By mining data, DL can be used to predict which patient will get a certain disease by comparing their medical history to the abundant amount of information available in databases (Ching et al, 2018). To conclude, DL is very useful to healthcare practitioners as it helps them analyze a large amount of data without human intervention, saves them time and assists them in their decision making process

Natural Language Processing: A large proportion of the information produced in healthcare comes in the form of narrative text. This includes physical examination, doctors' notes, laboratory reports, summaries of operations performed and so on. This information is unstructured making it impossible to process and understand by machines. Artificial intelligence technology such as natural language processing is therefore essential to extract information from narrative text to assist physicians in their clinical practice. The way it does so is by processing the text and then classifying it (Ching et al, 2018). The program identifies a chain of keywords relevant to a certain disease in clinical notes based on the historical databases (Ching et al, 2018). It then validates a refined list of keywords from the chain base on their effects on the classification of the normal and abnormal cases. Once information is extracted, it becomes structure data that supports clinical decision making (Jiang et al, 2017). The ability of natural language processing to turn unstructured data into structured one helps physicians to mine data from the large databases. The discovery of new knowledge is made possible by structuring information and can be used by healthcare practitioners to proceed with their practice.

Artificial intelligence is being used in medicine to quickly analyze the large amount of medical data available, to identify patterns and extract features, and to speed up diagnosis and treatment. It is used to get computers to take over certain human tasks relieving them from heavy loads of meticulous work. However, promising the use of AI in the medical field, it is met by some major obstacles. Most medical data is stored in numerous servers in different clinics and hospitals and getting access to all the databases can be problematic. Moreover, the logging of all this information is not standardized. Different hospitals have varying documentation and ordering patterns making it difficult to sort through information. Concern is also raised over privacy and the sharing of individuals' health records. There is a potential for using all this information to harm people and manipulate them. Accordingly, the use of AI in the medical field needs governance to make sure it is used correctly and that privacy is protected.

Narrative Medicine

There has been considerable technological progress in the medical field. New technologies are helping physicians with diagnosing and treating different diseases. Yet, despite all this progress, doctors and other healthcare practitioners seem to lack the ability to connect with their ill patients. It is hard for them to empathize with the suffering of their patients and to get a full grasp of what they are going through as human beings faced with the dire situation that is illness. This is perceived by patients as detachment and incapability of the physician to understand them. Patients often struggle to fully understand their loss of health and scientific competence and explanation alone cannot soothe their suffering. Patients need physicians who are capable of listening to their stories and give importance to their narrative in order to feel heard and understood. In order to practice medicine effectively, narrative medicine suggests that practitioners need narrative competence, that is the capacity to recognize, engage with, decipher, and act upon hearing the story and quandary of a patient (Charon, 2001). Human beings who can respond to stories by grasping them and interpreting them have narrative competence.

Narrative medicine is a model of medical practice which advances conceptual and practical methods to reach ideal care. It draws from models such as biopsychosocial medicine and patient-centered medicine to build a whole and broad perspective of the patient and of the illness (Charon, 2001). Narrative medicine focuses on connecting the physician to his or her patient on a personal level, on providing the physician with a clear understanding of his or her medical practice, on fulfilling the collective ideals of the medical profession, and on providing a space for a meaningful conversation between the medical field professionals and the society it serves.

Narrative Knowledge
Different disciplines, such as law, history and government are turning to narrative knowledge as they realized its importance in understanding and transmitting knowledge within the disciplines. The role of novels, newspaper stories, movies or stories of real life settings such as marriages, battlefields or illnesses is to give us a vibrant understanding of a character's or person's situation through space and time. People use their cognitive senses, affection, along with symbolism in order to understand the significance and meaning of a given story. This is called narrative knowledge. Narrative knowledge comes as a complement to logicoscientific knowledge. Logicoscientific knowledge consists of reproducible and conducive information that can be generated by any given observer. When dealing with a patient, logicoscientific knowledge is, for example, a list of his or her symptoms, the health records consisting of different components such as mentions of allergies, x-rays or number of times the patient has visited a medical facility for a specific issue. This type of knowledge can be recorded by any physician or healthcare practitioner making them replaceable and detached from the patient. Thus, as Dr. Rita Charon perfectly enunciated it: "logicoscientific knowledge attempts to illuminate the universally true by transcending the particular; narrative knowledge attempts to illuminate the universally true by revealing the particular" (Charon, 2001).

Narrative medicine suggests that medical practice and care can be drastically improved through narrative knowledge and competence by providing new and useful methods to assess the intricate and complex relationships between the physician and his patient, self, medical professionals and society in general.

Patient-Physician: Narrative medicine asks of the physician to engage empathetically with the patient. When a patient visits a doctor, he or she sets to count and attempts to explain a set of events describing a convoluted narrative of illness through words, gestures, silences, physical symptoms. The story the patient tells is usually composed of objective information and feelings such as fears and hopes where the patient is trying to make sense of what is happening. The narrating of the story by the patient is in a sense therapeutic. Illness brings about chaos to one's life and, just as in psychoanalysis, the ability of the patient to restrain the disarray of illness by constructing a story helps in the healing process (Charon, 2001).
Narrative medicine tasks the physician with establishing a therapeutic alliance with the patient, of carefully listening to the story of a patient to help the physician proceed through a differential diagnosis and correctly decode laboratory reports and physical findings (Johna et al, 2013). Narrative medicine also urges the physician to engage with the patients in their experience and to convey empathy for what they are going through (Johna et al, 2013). All of this

assures better and more effective care. When these tasks are not taken into consideration by the physician, the patient might refrain from telling the whole story and asking the most important questions as he or she might feel misunderstood or not heard. This could lead to a distorted diagnosis that will be more expensive and time consuming as the patient might seek another professional opinion, or as a result of a shallow and ineffective therapeutic relationship between physician and patient. NM gives physicians the skills to build a stronger rapport and connection with their patients in order to obtain important information in a limited amount of time and for the patient to feel heard.

Physician-Self: For decades, physicians were expected and sought as a goal to detach themselves from their patients and the illnesses they suffer from. Contrary to what has become a normative prescription, narrative medicine encourages physicians to engage with their patients and reflect on their own practice. Increasingly, medical schools and hospitals are holding literature seminars and study groups for healthcare practitioners to familiarize themselves with well-written stories and literature about disease (Charon, 2001). The aim of these seminars is to develop their reading, interpreting and understanding of other people's experiences and worlds. Narrative capacity helps them accept human weakness, be familiar with suffering, be capable of forgiving and being forgiven, and assert their human strength (Charon, 2001). This allows for the physicians to hold a conversation with themselves, to question themselves and better evaluate their own experience and feelings as physicians. It also helps them in diagnosis and treatment of a disease. When a physician engages his patients with concern, he or she becomes receptive of their plight; they can stand on their side through compassion and be available to them through self-reflection.

Physician-colleagues: Narrative medicine proposes that narrative knowledge can strengthen professionalism in medicine. Narrative knowledge allows physician to picture science as a series of stories helping them to make stronger significance of it. It also pushes physicians to responsibly teach their students as it enables them to connect with them individually; and to diligently give and receive reviews from their peers. Medicine and medical professionals are governed by a set of ideals which they swear by and hold each other accountable to. Presenting a mere list of charts, graphs, prescriptions and physical information to his or her does not represent the full story of a physician caring for a patient and his or her thought process through this journey. Being able to write the experience in a story form makes it more understandable to his or her peers. Through narrative medicine, they can uphold the ideals of their profession by demonstrating their honest thought process to one another during a journey of illness and care through storytelling (Charon, 2001).

Physician-society: As of late, the medical professionals and society as a whole often seem at odds. We hear about cases of negligence from healthcare professionals or court cases against physicians in the news. The general public complains about the high prices of healthcare and overbilling because it is thought that doctors overcharge in view of the fact that they hold professional knowledge that is not accessible to all. These misunderstandings can be remedied through narrative knowledge (Kalitzkus,2009). When physicians talk to patients or to the general public, they tend to use highly specialized language that does not resonate with all. It is hard for the average folk to comprehend a situation when doctors converse with them using only scientific terms and stating a list of facts. However, sophisticated narrative skills can help physicians bridge the gap as they find ways to talk in a simple, deep and honest manner to their patients and to citizens (Charon, 2001). NM can teach administrators of a hospital facing funding issues how to communicate the hospitals strengths and difficulties to staff and patients so that everyone understands the issues at hand and the need to work together. Consequently, as all parties undertake an honest conversation about pain, justice and social values, they can advance the medical system to make a system that provides effective care and that is compassionate.

Narrative medicine seeks to equip physicians with tools to help them provide better care to their patients and to humanize health care. Of course, it comes with some pitfalls. It takes a considerable amount of time and training to get healthcare practitioners to use narrative knowledge in their practice. NM asks of physicians to change the way they conduct their medical practice and this can lead to some resistance from their part as it destabilizes their very understanding of medical practice. And when physicians adopt NM methodology, it is sometimes hard to know when

to stop and how to balance logicoscientific knowledge with narrative one (Kalitzkus,2009). Even though narrative medicine comes with some drawbacks, it helps doctors master the art of caring and learning how to interact with others rather than only focusing on the science of medicine.

Discussion And Conclusion

The advance of technology is affecting our everyday life. Artificial intelligence is increasingly used to help humans achieve strenuous and time consuming tasks. This is perfectly illustrated in the use of AI in the medical field. As we have seen earlier, AI is used for data mining to discover new knowledge and assist physicians in their practice. It has reached a significant advancement in image processing and patient disease categorization. This advancement aids physicians in their clinical decision making process and in extracting features that are impossible to do by humans due to the large amount of data available. We are relying more and more on AI technology to provide timely, concise and overall improved care. However, medical care is not simply the study of the science of medicine. In order to produce better care, doctors need to join their patients in the healing process. This is exactly what narrative medicine proposes. It provides the tools to healthcare practitioners to build rapport with their patients, themselves, their peers and society as a whole through narrative competence. NM seeks to humanize health care by treating patients as individuals rather than simple cases.

Artificial intelligence cannot play a role in narrative medicine. However, in my opinion, the combination of high-tech computing and hands on medicine can transform medical care. While we task machines with extracting the logicoscientific information we need for diagnosis and/or treatment, we can allocate time to listen to patients and pick up the nuanced information that comes from narrating their stories. The new technology and NM methodology can work to complement each other. As we relieve medical professionals from strenuous tasks by training machines to take over, we can train them on the art of caring and making rapport through the methodology of narrative medicine. Both medical AI and NM still have a long way to go in the field a medicine, however we can combine what they bring to the table to reach the ultimate goals of medicine. That is to promote health by preventing disease, to relieve pain and suffering, to prevent death or aid a peaceful passage to the afterlife to cure those who can be cured and care for those who cannot.

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The Role Of Data Mining And Machine Learning In Biotechnology

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Abstract

In the recent decade of computer technology's abrupt but substantial development, significant anticipation toward the deep learning technology has been formed. Arrows in the graphs have skyrocketed, making deep learning and AI technology one of the fastest growing inventions in the history of humankind's civilization. Now machine learning takes part in almost every significant sphere of society, while its developers dream of a world in which we will, for the first time in history, have beings of higher intelligence in our command. The recent breakthrough in the field of biotechnology adds hope to such anticipation, for deep learning fueled by powerful data mining tools have yielded considerable evolution in the processes of medicine, diagnosis, medical research, and even concentrated surgery. This paper will address the nature and recent findings of deep learning technology with particular attention to artificial neural networks and data mining. Furthermore, through inspection of deep learning's structure and future potential, this paper aims to discover the roles AI may play in the next processes of saving lives.

Introduction

The possibility of deep learning as a technology is, without a grain of exaggeration, endless. Never since the dawn of human civilization has a single technology been able to be applied in so many different fields. Perhaps one of the primary reasons for deep learning's compatibility is its structure. Contrary to what most might think, deep learning does not aim to just 'make machines intelligent' – that would be a colossal understatement. Deep learning primary focuses on creating a model replica of the human brain, in similar structure and function (Ross,2016).

While this paper will address the deep learning model's structural background later, the key concept of it is this: forming artificial layers of brain tissues consisted of algorithms that will not only determine the value of input information but learn and utilize new patterns. The network of a deep learning model, also known as an artificial neural network, is demonstrated below in Figure 1.
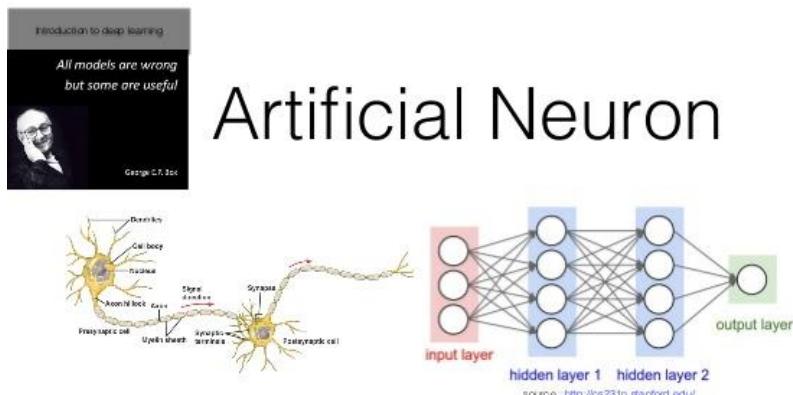
Figure 1. (Retrieved from https://www.slideshare.net/insideHPC/tutorial-on-deep-learning)

As visualized in the figure, different parts of the deep learning model serve different algorithmic functions, working together to create a collection of 'artificial neurons.' While one particle of these processors may not seem like much, but with an assorted plethora of them, deep learning can perform any mental processing and calculation able by the human brain; perhaps much more.

In 1980, an electronic engineer Kunihiko Fukushima first established neurocognition, a computational structure that could define patterns through input data. While Fukushima was the first to develop the idea of primitive machine learning, it cannot be said that he was the first to invent it, for the concept of 'intelligent machines' have existed in fiction and media for quite some time. The 'godfather of AI' Geoffrey Hinton took the baton, inventing the Boltzmann Machine, or RBM, that reformed neural networks and resolved past difficulties. Since then, along with a course of a mere couple decades, developers of deep learning have enlarged its possibilities. In 2017, deep learning technology took up four of 10 Breakthrough Technologies (MIT Technology Review, 2017) nominated by MIT, and is simply dominating computer science in every field in life. A researcher once quoted that deep learning will, in the course of a few years, 'bring forth the fourth global industrial revolution.' He was completely right. Once humankind's civilization flourished in the form of hardware – automobiles, tall buildings, and steam engines. Now it entered the era of software: programs of endless potentials.

As crucial as health and well-being are in life, endeavors to utilize deep learning in medicinal science and biotechnology have been constant. However, a majority of them have ended just scratching the surface for a few reasons. First, for deep learning models to be intelligent and reliable, they must undergo a considerable amount of learning, training, and testing. The resources for these procedures come from mined data, mostly owned by corporates. Therefore, the most valuable and contemporary resources have been unreachable without both trust and sufficient funds. Another factor of past failures is the lack of hardware technology. AI in medicinal uses rely on not only statistics and data but also hugely on relatively new technologies such as nanotech. The lack of completeness in similar hardware had been a vital issue in gaining the trust of financial patrons and patients.

Upon resolving these problems, deep learning in biotechnology and medicine is rigorously reaching towards eradicating harm from the human body, slowly but steadily taking part in fields from lab assistants to genetic analysts. Desktop Genetics, CRISPR libraries, and H2O.ai are all deep learning based programs that offer its user's gene editing and healthcare (Snyder, 2017). Like so, scientists have already touched the surface of what has been long considered impossibility, or even heresy: editing genes to eradicate not only diseases but also any genetic inferiority. While these 'open-source platforms' are extremely valuable in analyzing the customer's data and offering healthy lifestyles – and perhaps "genetically perfect organisms," they are also valuable tools for wide-range data mining and excellent lab assistants. Genomic research utilizing AI and huge databases, or Deep Genomics, is anticipated to "use its platform to unlock new classes of antisense oligonucleotide therapies that were previously inaccessible or out of reach, and advance them for clinical evaluation" (Deep Genomics, 2017).

AI powered by a substantial pool of data is also believed to save both time and energy in future medicinal practices aside from genetic analysis. For instance, in 2017, FDA approved the application of Arteries System, which "takes an average of 15 seconds to produce a result for one case which would take a professional human analyst between 30 minutes to one hour" (Bethencourt, 2017). The ability of AI to do most jobs cheaper, quicker, and more precise is also being applied in drug discovery. Partnerships and technology startups in the drug industry are quickly being formed, as the amount of genetic data and sequencing skyrockets. Furthermore, companies like Mendel.ai are "focusing on unleashing machine learning on understanding individual cancer cases and at first, recommending clinical trials." What is significant in such endeavors is that deep learning in biotechnology is granting what could have never been accomplished in the past: individual attention. Researchers assert that in the course of a decade, healthcare programs fueled by unparalleled amounts of data and financial reinforcements will be involved in everyday health care, medicine, and even surgery and genetic editing for everyone their clients (Sengupta, 2017).

In the case of biomedical research, data is usually spread across the globe and often guarded by individual organizations, schools, and facilities. Biostorage Technologies argues that while these data are in the form of complex worldwide ecosystems, "collaborations among these entities, including innovative partnership models, customer engagement, and trust in data is of paramount importance" (Sengupta, 2017). Needless to say, as we leap toward the

future in which enhanced AI will most likely affect all individuals, the existence of strong collaborations and stable platforms worldwide will be of vital importance.

Biotechnology Applications

I.   Technology of Editing Genomes

One of the most prestigious applications of deep learning in biotechnology is the one in genomics: the map of human creation. Companies that dream of researching and even altering genes are steadily building their platforms, mainly utilizing crowdsourcing and patient analysis (Deep Genomics, 2017).

Genetic research in the past has illuminated the existence of 'inferior genes' and 'superior genes.' While whether a gene is 'inferior' or 'superior' does not precisely decide whether it is beneficial or harmful, it is clear that genes are the building block of any trait. As seen in Figure 2, scientists have already succeeded in genetically engineering and distributing crops and small animals. The experiments in the recent past have proved that humankind could now alter the basic building blocks of an organism. By further enhancing the possibility of gene editing, and finally establishing concise determination of which gene to be changed, humankind will be able to eradicate all genetic diseases – both physical and mental – in the book.

Figure 2. Retrieved from https://gmo.geneticliteracyproject.org/FAQ/which-genetically-engineered-crops-are-approved-in-the-us/
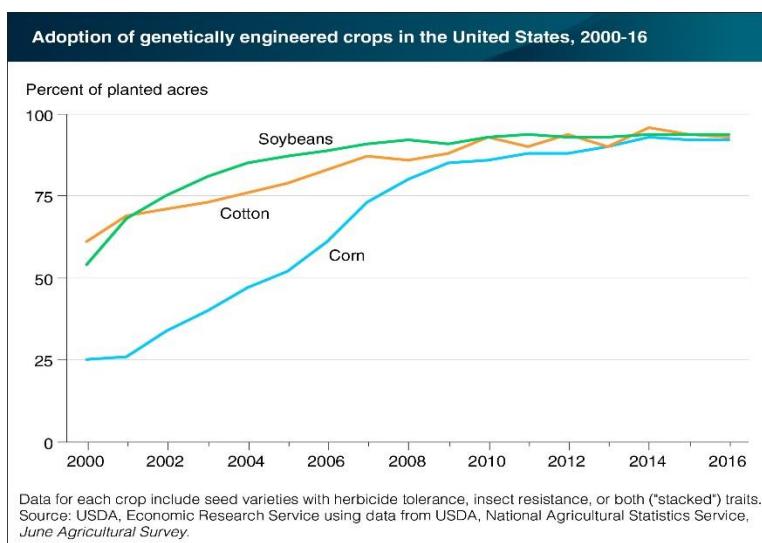
Furthermore, the existence of a 'genetically perfect' organism will become possible. While seemingly impossible yet, this application may lead to not only the eradication of disease but also the perfection of humanity, while creating an almost infinite source of food and organic materials.

Deep Learning Models

As briefly illustrated above, the deep learning model is an artificial replica of the human brain, both in structure and function. While the brain consists of intertwined neurons in the form of tissues, the deep learning model can be seen as a combination of processors, or nodes, that form a network responsible for trafficking and evaluating stimuli.

Deep neural network

Figure 3. Retrieved from http://nnet.readthedocs.io/en/latest/user/basics.html
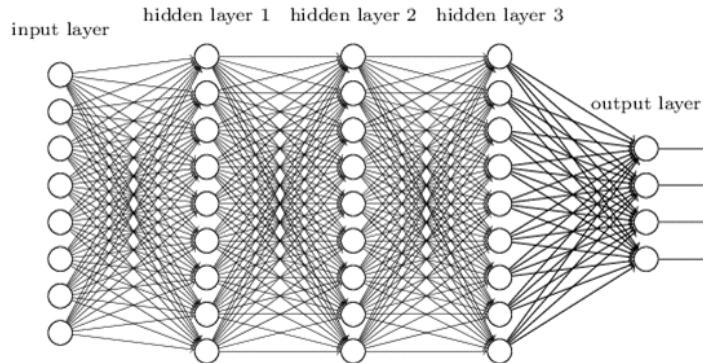
As a single neuron in the human brain is of small significance, a single node is no more useful than a simple mathematical equation. However, as more interconnections are made between different nodes, the network intensifies and becomes capable of much more complex duties. As seen in Figure 3, nodes in a deep learning model are usually divided into three major sections according to their functions. Allegorically speaking, the input layer acts as the first genuine receiver of a stimuli, or input data, which is then transported to the one or more hidden layers – there are usually more than one hidden layer in a sophisticated deep learning program, although the amounts of hidden layers do not always signify the superiority of the model. These hidden layers are like the processors in the brain, which examine and determine the value and significance of the input data. Furthermore, through the hidden layer, the model gains theoretical insight toward all data, meaning that it develops an abstract knowledge of specific patterns. This particular trait is what differentiates a deep neural network from the conventional models and allows it to learn and think similar to a human brain. After the data passes through the hidden layer, the output layer determines the errors in the past processes and wraps up the steps (McCarthy, 2007).

Of course, a deep neural network is never finalized with a few processes of data. A deep learning program must undergo multiple training and testing procedures based on substantial, reliable databases. Two major procedures must occur during the training procedures: Forward Propagation and Back Propagation (Figure 4). As the names hint, Forward Propagation refers to a step in which a predicted value of the input data is generated. Back Propagation is when that expected value is compared with the actual value. These two processes are critical to a deep learning model, for they allow constant adjustments in the neural networks, as spiders densify their nests over time (Ross, 2016).
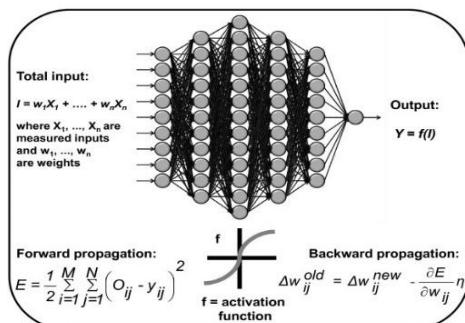
Figure 4. Retrieved from https://www.researchgate.net/figure/51200358_fig3_Illustration-of-the-architecture-of-the-back-propagation-neural-network-BPNN-The-BPNN

Implication For Education And Teachers

Even among the rapid tide of technological evolution, many have deemed that AI in its current stage is yet unfit to serve the role of a teacher. However, judging from the speed machine learning is growing, the possibility of the intelligent machine acting as tutors in the future may never be undermined. Therefore, it is crucial that researchers embrace the genuine potential of deep learning in the classrooms and curriculums, and furthermore contemplate on how the next generation may better face the future era.

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 use AI data and incorporate them into the curriculum
4. an ability to manage AI resources effectively. (Luckin, R.et.al. 2016)

Conclusions

Among the almost infinite possibilities the deep learning technology offers to the current era, its potentials in the field of biotechnology and medicine are perhaps the greatest. In the past few years, researchers have established grounds on which patients worldwide can consult, be diagnosed, and be cured individually. Deep learning in genetic science is gathering, even more, anticipation, as scientists now reach toward the ability to create the 'ideal gene.' It may be true to assert that by overcoming obstacles such as scattered data and the lack of technological distribution in some parts of the world, humankind is genuinely in the midst of reaching ideal well-being.

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The Role Of Machine Learning In The Field Of Physical Science

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Abstract

Through millennials, humankind has established discoveries and experiments that have changed the course of history and greatly benefited further advancements. However, contemporary researchers contend that deep learning based artificial intelligence is now also not only capable of these feats but also capable of surpassing the calculations of humans in speed and proficiency. Furthermore, recent breakthroughs in various fields of science continues to create expectations among researchers, for machine learning will most likely exceed the boundaries of basic calculation and programmed manufacture. This paper focuses on AI's recent achievement in the field of physics, with a specific focus on how its structure and algorithmic figure allows for such evolved   progress.

Introduction

In the year 1924, a physicist named Bose sent Albert Einstein his prototype of a theory regarding light particles. Einstein jointly hypothesized that if a gas state of a specific atom were to be cooled abruptly, the molecules would consolidate in the "lowest possible energy state" (Cornell, 2001). This process of creating a hyper-cold gas, also known as the Bose-Einstein condensate (Figure 1), was never successfully conducted until seventy years after its birth in theory. In 1995, physicists Cornell and Wieman "produced a pure condensate of about 2000 rubidium atoms" upon years of research and experiments, and were rewarded with the Nobel Prize in Physics in the year 2001. 16 years later, an AI system recreated and successfully conducted the same quantum experiment from scratch in less than an hour.

Figure 1.
Retrieved from http://slideplayer.com/slide/9072567/
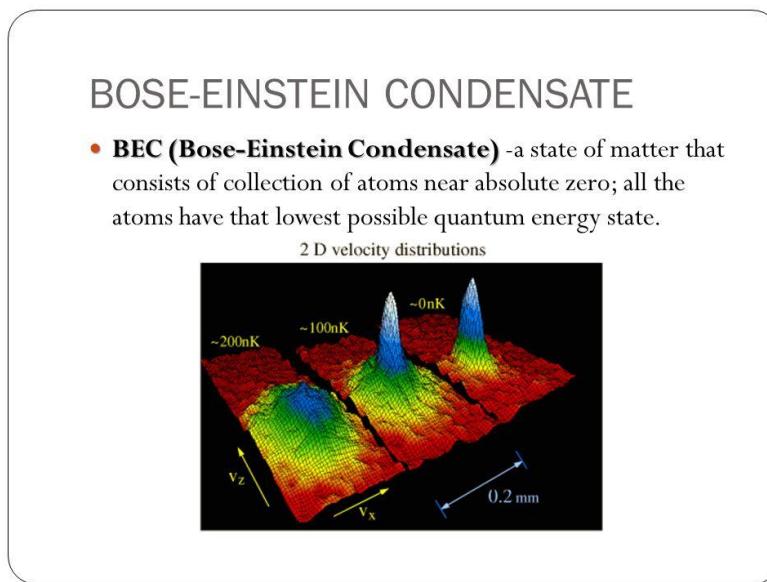
There is no longer doubt against the statement that deep learning and its state of an application, AI, are some of the swiftly and most vigorously advancing technologies in the history of humankind. What had begun as a complication of algorithms has now become a source of future success in not only programming but also in the fields of science, journalism, finance, and even art. The core reason that guarantees the triumphant march of applied deep learning is simple: deep learning is an artificial recreation of the human brain. While further details about the structure of deep learning models and machine learning will be discussed later in the paper, it is crucial to realize that an artificial neural network is capable of learning, utilizing and even conjuring abstracts of information and statistical patterns. This unique characteristic not found in any other form of computer programming that came before it allowed machines to serve the roles of humankind's most glorified secretaries.

However, it may even be correct to say that now, with its processing velocity and its infinite source of data – the internet, of course – artificial intelligence has the probability to be smarter than any human being could ever be.

A Chinese proverb "give a man a fish and you feed him for a day; teach a man to fish and you feed him for a lifetime" is perhaps the most adequate way of explaining how contemporary machine learning works. By programming a deep learning model, one is coding a computer for not a single task but the ability to learn from input data and furthermore adapt to multiple tasks: speaking in parables, by programming a deep learning model, one would be teaching the computer ability to fish. This small breakthrough in the history of computer science has changed everything in the past few decades. An AI informed with the rules of multiple board games and strategies have beaten a world-class player in the highly complicated game of GO, and software developed by Google learned how to create original art pieces inspired by styles of all the artists who have ever lived. Upon describing the Arteries System, a medical analyst software, researchers stated that machine-learning-trained programs now "take an average of 15 seconds to produce a result for one case which would take a professional human analyst between 30 minutes to one hour" (Bethencourt, 2017). Now programmers have come to the point of discovering that AI is capable of recreating and even enhancing upon the most extensive input data experiments that took humankind almost a quarter century to thoroughly evaluate.

While the idea that AI is surpassing human beings in complicated intelligence may sound threatening to some – intelligent machines have been portrayed, in most cases, as foes rather than friends in literature and mass media – researchers are more fascinated than afraid of AI's future potentials, especially in the field of physics. One of the biggest reasons for such fascination is the astounding compatibility and convenience artificial intelligence offers. "It -AI- may be able to come up with complicated ways humans haven't thought of to get experiments colder and make measurements more precise" says Wigley, the co-leader of a physics research team from the University of Adelaide and the University of South Wales Australian Defense Force Academy (Parnell, 2016). "It's cheaper than taking a physicist everywhere with you." Most scientists, like Mario Krenn at the University of Vienna, believe that conducting experiments "in the field" is a key factor in discovering the true value of AI's ability to learn from experience. Krenn asserts that if an AI finds one good solution, "it stores the good solution and can use it for follow-up experiments. This improves its speed significantly, by more than one order of magnitude."

While this statement sums up the essence of deep learning's objective, it also highlights the amount of influence that deep learning may have in the field of physical science especially. Which is another reason that machine learning's utility in this field specifically has been gaining much celebration and anticipation: advancements in the field of physics will lead breakthroughs that were deemed limited, and even impossible, in the past. Technical difficulties that hindered deep-sea or extraterrestrial expeditions would likely be breached, and a better understanding and generation of energy may lead to the birth of safe, renewable sources. While recent studies prove that it is yet inefficient for AI to conduct independent experiments or technological applications deliberately, it will be able to "lead to the discovery of ingenious new ways to deal with known problems, or to finding solutions when clear instructions are not available." (Revell, 2016).

Past Depictions In Mass Media
It could be said that in every science fiction film, especially those set in futuristic, sometimes extraterrestrial environments, AI in physical science serves significant roles. It is perhaps because of the same reason why most of such works were predominantly dystopian, often starring intelligent machines that have assumed physical, mental power over human beings: for a significant knowledge over physical science and mechanics would undoubtedly lead to overwhelming force. That said, the glum depictions of AI in past SF films can mostly be attributed to the lack of public knowledge and familiarity with the deep learning technology. Through decades of technological advancements, the viewpoints towards and depictions of deep learning and AI have, in turn, changed significantly. This section of the paper aims to address great details or settings from past mass media -movies, novels, shows – that depict the usage of deep learning and artificial intelligence in physical science.

Extraterrestrial ventures have always been the most prominent topic in the science fiction industry. Due to monumental pieces such as the Star Wars and Star Trek franchises, huge, self-navigating spaceships that perform quantum miracles, such as traveling at the speed of light, have become the norm. In most films that star spaceships, human drivers hold the steering wheel, handling them at their disposal. However, the film Wall-E (2008), produced by Pixar, introduces a chilling, somewhat disturbing turn of the tables. Later in the plot of this movie, it is exposed that AUTO (Figure 2), a navigating program, has been intelligent enough to not only point a space shuttle in the

right direction but also to manipulate its every mechanics according to its whim, thus enslaving its courses of action and even its passengers, the last survivors of earth. Possibly influenced by the exterior and character of HAL-9000 from 2001: A Space Odyssey, AUTO was notably one of the first artificially intelligent antagonists in Pixar history. Furthermore, the character set-up of this manipulating antagonist proves that the increasing mainstream popularity of and anticipation towards deep learning and AI technology has even led production companies that aim towards the younger audience have begun to follow suit in depicting them in their works.

Figure 2.

Retrieved from https://nkvdexistentialanalysis.weebly.com/plot.html

Advanced boxing robots from the world-renowned film Real Steel (2011) are yet another breed of machines equipped with applied physical science. Amongst numerous fighting machines that appear in the movie, Zeus, forged and programmed by a global corporation, stands at the pinnacle at both intelligence and brute force. During an interview with excited reporters, the programmer of Zeus announces that "Zeus is autonomous and constantly evolving during the fights. With his adaptive operating system, he recognizes patterns and rewrites his fights instantaneously." The most interesting thing about this line is that aside from the powerful wording, it also summarizes the essence of modern deep learning technology in a nutshell. Similarly, simulations powered by artificial intelligence are utilized today in almost every field, including athletics, finance, physics, and even warfare. The ability of deep learning to "recognize patterns and rewrite movements instantaneously" is anticipated to guide humankind to better decisions in the future.

Applications In Physics

    I.   Application in Quantum Science and Space Travels

Using deep learning technology's ability to discover ideal solutions for unsolved problems in the field of quantum physics while aiding the simplification of issues relating to space travels. Furthermore, AI-powered machines would serve as intelligent and insightful scouts in future astronomical discoveries. Researchers at NASA's Jet Propulsion Laboratory have predicted that "in the future, the behavior of space probes will be governed by AI rather than human probes from earth." (Ward, NASA: AI Will Lead the Future of Space Exploration) Consequently, investments and funding in machine learning in space technology have skyrocketed in the past few years (Figure 3).

Figure 3.

Retrieved from https://www.techemergence.com/ai-applications-for-satellite-imagery-and-data/
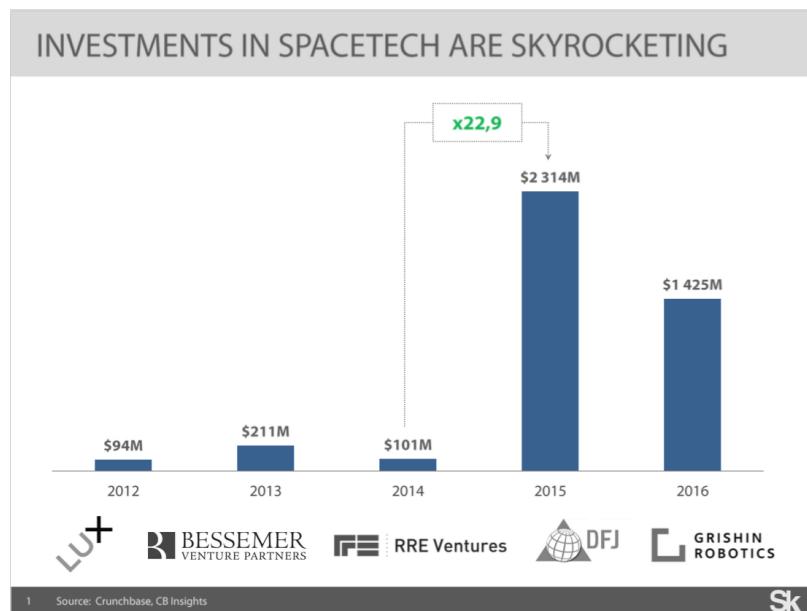
AI in space exploration will allow humankind to reach further out to the stars, exploring where no human being could achieve and collect complete and comprehensive data about the astral zone.

Deep Learning Models

As mentioned in the Introduction, a deep learning model is an artificial replica of the human brain. What does this mean? Precisely, a single node, or perceptron, in a deep learning model parallels the neuron of the human brain in function. While the human brain could be described as layers of interconnected neurons that interact to process information, a deep learning system is a structure of interconnected nodes and algorithms that ultimately allow it to recognize, traffic, and even though learn and utilize input data (Montanez, 2016).

Figure 4.

Retrieved from https://analyticsindiamag.com/10-machine-learning-algorithms-every-data-scientist-know/2000px-artificial_neural_network-svg/

A successful deep learning model (Figure 4) usually consists of multiple nodes, divided into three hierarchies

most commonly known as layers. The input layer's nodes mainly serve the function of receptors, recognizing the input data and passing it onto the hidden layers. Neural networks usually have multiple hidden layers, while more hidden layers do not necessarily mean a more advanced model. The hidden nodes are generally in charge of determining the value, or the weights, of the input data. Through this process the deep learning model independently rids itself of systematical errors and incorrect formulas. It also accumulates new information and establishes abstract patterns for future use before passing the data to the output layer to finalize the procedure. This ability to 'weigh' data and construct its database of information and standards is the critical factor that truly allows the intelligence of AI to parallel that of the human being (Montanez, 2016).

To be finalized and fully functional, the neural network must undergo several final steps, among which Forward Propagation and Back Propagation (Figure 5) are the most significant procedures. Forward Propagation can be described as a step in which a predicted value of the input data is formed. Back Propagation is when that expected value is compared with the actual value. Through these procedures, a network gains both calculative precision and intellectual insight, the primary traits that differ deep learning neural networks from conventional computer programs and assimilate them to the human brain in intelligence.

Figure 5.

Retrieved from https://www.researchgate.net/figure/51200358_fig3_Illustration-of-the-architecture-of-the-back-propagation-neural-network-BPNN-The-BPNN

Implication For Education And Teachers
Amongst the rapid tide of technology, deep leaning is quickly becoming one of the most influential one in all fields. While AI has not yet completely taken over the job of teachers, however, it is only valid to assume that soon intelligent machines will be a common sight in the average classroom. Therefore, it is essential that one recall the real potential and compatibility of this extraordinary technology and begin to shape curriculums and policies to better embrace the changes it will make in the future. The figure and numbered list below demonstrate H. Luckin's assertion of how the individuals of this era may prepare for deep learning's further influences in the future education system.

Figure 6.

ROLE OF TEACHERS

As the role of AI increases in the sphere of education, teachers will be required to develop new skills.

According to the creators of the AI Education system (Luckin, R.et.al. 2016), these requirements will likely be:

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 resources effectively. (Luckin, R.et.al. 2016)

Conclusions

Deep learning's recent feats remind us of the Confusion saying, "know one and thus understand everything." The recreation of the Bose-Einstein condensate highlights that artificial intelligence has become sophisticated enough to not only mimic human feats but also establish a more proficient way of achieving them. As researchers worldwide are sure of, this may be a feat that will transform the future of physical science and furthermore humankind as a race. Will artificial intelligence continue to serve as a secretary, an errand boy, or will it escalate to becoming a vital promoter of future discoveries? The answer is yet unclear, but it is now accurate to assert that AI has taken a considerable step toward dominating all parts of human life.

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The Role of the Family in fostering Children's Rights and Early Education in Anambra State of Nigeria

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Abstract
Children's rights include the right to health, education, family life, play and recreation, an adequate standard of living and to be protected from abuse and harm. Children's rights cover their developmental and age-appropriate needs that change over time as a child grows up; therefore the family role in this regard is so indispensable. This paper examines parents' knowledge about their role in family in fostering children's rights and early education in Anambra state of Nigerian; The sample of the study consisted of three hundred (300) parents of children whose ages ranged from 6 to 16 years old, after a careful review of theoretical and experimental literature related to family and child's rights, the researchers developed a survey instrument named Scale of Family Role in Children's Rights and Early Education. Demographic data were summarizing the research participants and their responses regarding their children. All responses on the scale of family needs were coded, entered into the computer and analyzed using the Statistical Package for Social Sciences (SPSS). The data collected were analyzed and then expressed through means and standard deviations. The t-test for an independent sample was used as the main statistical techniques in the study. Results revealed that parental and teacher involvement has a very big influence on fostering children's rights and early education. It was recommended that teachers should scale down their pedagogy in such a way that the child will learn about their rights during early education practice throughout their training experience.
Keywords: *Family, Children, Rights, Early Education, parental involvement*

Introduction
The family is one of the most important social institutions that functions as organizer and stabilizer of social values of a given society. The universality of the family therefore makes it the primary social institution common in most communal enclaves across the globe (Nwosu & Uche, 2017). Parents are the most important persons who could give a critical analysis about their children's performance during the assessment process (Brink, 2002). Among the many tenets of the educational reform efforts is the idea that (PI) is an essential element in children's academic achievement and social adjustment (Jeynes, 2012). Fagbeminiyi (2011) examined the role of parents in early education in Lagos State and found that parental involvement and support has a very big influence on early education, particularly the academic performance of the child and this helps to broaden the child's horizon, enhance social relationships, and promote a sense of self-esteem and self-efficacy.

Children have 'the right to survival; to develop to the fullest; to protection from harmful influences, abuse and exploitation; and to participate fully in family, cultural and social life (George, Schmidt, Vella & McDonagh, 2017). In recent time, there has been massive number of researchers advocating for implementation of child's right laws in Nigeria in relation to their education at the early stage. Nwosu & Uche (2017) examined child rights campaign and the Nigerian family considering the implications for effective child development system in Africa. Pećnik, Matić & Tokić (2016) considered children's and parents' views on fulfillment of the child's participation rights in the family and the child's psychosocial adjustment. The right to be heard and taken seriously is fundamental to human dignity and healthy development of every child and young person (Council of Europe, 2012). Lansdown (2001) offers a number of reasons why it is desirable to get adults to listen to, hear and take into account the child's perspective.

Children's rights have been argued about for centuries, and the concept touches raw nerves when adult decisions and actions are put to the test (Stainton Rogers, 2004; Fagbeminiyi 2011). 'Rights are entitlements, valuable commodities' which we 'do not have to grovel or beg to get (Freeman, 1996). Reynaert, Bouverne-de-Bie & Vandevelde (2009) reviewed children's rights literature since the adoption of the United Nations Convention on the Rights of the Child and upheld that the children's rights discourse is also embedded within the evolution of professionalization, a blue print of the educationalization process. Haugen & Klörudóttir (2015) examined the involvement of family in child protection cases in Iceland and concludes that Icelandic child protection workers seem to strive to involve family in child protection cases. Kelly, Jones, Wilson & Lewis (2012) argued that the acceptance of children's rights within the acute care setting is treated as a given but such a given requires a more systematic analysis. Wijemanne (2017) considered various child rights imperatives for children in alternative care, the study emphases childhood disabilities and other factors which contribute to institutionalization and its impact on the well-being of children.

Parental involvement according to Miksic (2015) can be broadly defined as the ways in which parents support their children's education in word and deed. Parents can be involved in the school setting or at home. Studies have

shown that a change in parenting skills is one of the key factors for change in child behaviour and early childhood development (Gardner, Burton, & Klimes, 2006). Crozier (2001) contended that parent involvement strategies will ultimately fail until the needs of ethnic minorities are recognized and addressed. Öztürk (2013) studied family partnership in early childhood assessment; he upheld that family could be considered as one of the most important assessment supporters for educators. It can be inferred thus that establishing high levels of parental involvement in schools is necessarily component to provide the best possible early education (Holloway, Yamamoto, Suzuki, & Mindnich, 2008). Therefore parents who are active in their child's education gain knowledge about school activities, child development, and assessment process and develop their selfefficacy and self-confidence (Baum & McMurray-Schwarz, 2004).

Acar & Akamoğlu (2014) evaluated practices for parent participation in early childhood special education, they upheld that strategies to promote family involvement provided a direct way to understand how early education programs influence family participation. This may be associated with the understanding that parents share cultural values, beliefs, rules, and expectations with their children, transferring patterns of behaviors and cognitions to their children (Bornstein & Cote, 2006; Derman-Sparks & Olsen, 2010).

Despite the central role for responsive and participative parenting in different research frameworks, much of what we know about role of the family in fostering children's rights and early education are from experimental studies, new research is needed to further delineate this specificity between children's rights and early education. Expanding our understanding on the parental views on their roles in fostering children's rights and early education would add to the development of a more highly specified model of participative parenting. From the foregoing, the need to explore parental perspectives on role of the family in fostering children's rights and early education has become very imperative. The objective of this study therefore is to evaluate the family responsibilities as regards their child's right and training during early stage in Anambra state of Nigeria.

Purpose and Significance of the Study
The main purpose of the study is to evaluate the role of family in fostering children's rights and early education in Anambra State of Nigeria; it considers the perception of parents on family roles in fostering children's rights and early education. For the research, the study will serve as a reference material in carrying out their research work. For the community, school authority, education and curriculum planners, government and the society at large, the study will help them plan, arrange, and development programmes and curriculum on child rights and their education at early stages.

Research Questions
> The following research questions were formulated to guide the study:
> ➢ What are the perception of father and mother on the family roles in fostering Children's Rights in Anambra state?
> ➢ What are the perception of father and mother on the roles of the family in enhancing early education in Anambra state?
> ➢ What are the factors affecting parental involvement in early child hood education in Anambra state?

Hypothesis
> ➢ There is no significant difference on perception of father and mother on the family roles in fostering Children's Rights in Anambra state
> ➢ There is no significant difference on perception of father and mother on the roles of the family in enhancing early education in Anambra state

Design of the Study
Descriptive Survey design was used in order to carry out the study. A survey research is one in which a group of people or item is studied by collecting and analyzing data from only few people or item considered to be representative of the entire group (Gay and Airasian, 2003).

Area of the Study
This research was carried out in Anambra State, Anambra is a state in southeastern Nigeria. Its name is an anglicized version of the original Oma Mbala, the Igbo name of the Anambra River. The capital and seat of government is Awka. Onitsha, an historic port city from pre-colonial times, has developed as by far the largest urban area in the state.

Population, Sample and Sampling Techniques
The target population for this study was parents attending Parent Teachers Association (PTA) meeting in primary schools in Anambra State. The sample of the study consists of three hundred (309) parents selected through purposive sampling techniques, this comprised two hundred and three (203) mothers and one hundred and six

(106) fathers; a total of 100 schools were selected from the 254 secondary schools in 21 local government of the state.

Instrument for Data Collection

The instrument used for data collection is a questionnaire titled: 'Scale of Family Role in Children's Rights and Early Education' (SFRCREE). The SFRCREE contained thirty items on a four point scale of strongly agree SA, Agree A, Disagree D and strongly disagree SD. The overall theme of the items is based on role of family in children's rights and early education.

Validation of the Instrument

In order to ascertain the face and content validity of the instrument, the questionnaire was given to two experts in home economics and early childhood education to examine and make necessary corrections and remark. These experts were given the purpose of the study and the research questions along side with the questionnaire items to examine and make necessary corrections and remark. Their input was used by the researchers to modify the items of the questionnaire before final draft.

Reliability of the Instrument

The researchers used twenty (20) parents who were not participating in the main study, copies of the questionnaire were given to them to fill and these were collected immediately. The items of the questionnaire were reshuffled and re-arranged and then administered to the same parents two weeks later. These were collected and tested using the test-retest reliability method. The scores of data collected were correlated using person product moment correlation.

Method of Data Collection

The researchers administered the questionnaire personally. They administered 309 copies of questionnaire to the selected respondents. They were collected from the respondents almost immediately, 300 copies of the questionnaire comprising of 100 fathers and 200 mothers were retrieved which yielded 98% return rate.

Method of Data Analysis

In analyzing the data, the researchers used Mean & Standard Deviation answering the research question. The acceptance point for the items stood at 2.5 Mean score equally (ie SA^4, SA^3, SD^2, D^1) totaling 10. Therefore Mean score equal $\frac{10}{4}$ = 2.5. Also t-test statistics was also used to test for hypothesis.

Results and discussion

RQ1: What are the perception of father and mother on the family roles in fostering children's rights in Anambra state?

Table 1: Mean and standard deviation of responses on perception of father and mother on the family roles in fostering children's rights in Anambra state

I/N	ITEM	Father		Mother	
		$\bar{X}$	STD	$\bar{X}$	STD
Item 1	The child has right to survival entails the right to a healthy life	2.97	1.28	2.89	1.19
Item 2	Children should be rightfully assured of adequate nutrition and quality healthcare	3.43	1.01	3.09	1.11
Item 3	Infant and child mortality should be curtailed and malnourishment should not be a concern	3.30	0.75	2.71	0.98
Item 4	Every child has the right to development that lets the child explore his/her full potential	3.03	0.94	2.77	1.04
Item 5	The child has right to an education that not only lead the child to a path of learning but promotes understanding, tolerance and friendship among all nations and racial or religious groups.	2.27	1.11	2.92	1.14
Item 6	The child has right to Protection from exploitation, abuse, neglect and harmful influences	3.24	1.01	1.97	1.3
Item 7	The child has right to expression, information, thought and religion	1.47	0.74	1.81	1.2
Item 8	The child has right to parenting that provides positive affection and high levels of warmth	2.80	0.91	2.88	0.91
Item 9	The child has right to provision of support necessary for multiple aspects of a child's learning	2.64	1.15	2.71	0.96

Item 10	The child shall be registered immediately after birth and shall have the right from birth to a name, the right to acquire a nationality.	2.59	1.11	2.65	1.04
	TOTAL	**27.74**	**10.01**	**26.4**	**10.87**

Table 1 above indicated that items 1-4, 6, and 8-10, were perceived by fathers as major family roles in fostering children's rights in Anambra state with the mean of 2.97, 3.43, 3.30, 3.03, 3.24, 2.80, 2.64, 2.59 and standard deviation of 1.28, 1.01, 0.75, 0.94, 1.01, 0.91, 1.15, 1.11. Similarly, mothers considered items 1-5 and 8-10 as major family roles in fostering children's rights in the state with the mean of 2.89, 3.09, 2.71, 2.77, 2.92, 1.97, 1.81, 2.88, 2.71, 2.65 and standard deviation of 1.19, 1.11, 0.98, 1.04, 1.14, 0.91, 0.96 and 1.04.

RQ2: What are the perception of father and mother on the roles of the family in enhancing early education in Anambra state?
Table 2: Mean and standard deviation of responses on perception of father and mother on the roles of the family in enhancing early education in Anambra state?

I/N	ITEM	Father		Mother	
		$\overline{X}$	STD	$\overline{X}$	STD
Item 11	Parents should spend time with their child and provide a supportive environment in the house	2.08	1	2.78	1.16
Item 12	Parents should connect with their child's school teachers and discuss their problems with them	3.14	1.08	2.53	1.07
Item 13	Parents should keep an eye on their child's activity and advise the child about how to develop study habits	2.84	1.11	2.90	1
Item 14	Parents should maintain a balance between love and strictness and monitor how the child learns	3.43	0.75	2.08	0.9
Item 15	Parents should ensure that their child is not over-scheduled and set aside time to read together	2.81	1.04	3.17	0.85
Item 16	Our attitude towards education can inspire the child and show them how to take charge of their own educational journey	3.14	0.77	3.20	0.91
Item 17	Parents should give their child the best learning experience and help them succeed with good academic performance	2.61	1.08	2.71	1.16
Item 18	Through proper guidance, parents can help their child organize their time to learn new things in and out of school	2.63	1.17	2.90	0.99
Item 19	The quality of home learning affects the quality of school learning and has a critical influence on future literacy / numeracy attainment	2.66	1.3	3.15	0.86
Item 20	Parents can engage in meaningful and skill-enhancing activities with their child and other children in the context of the classroom	3.43	0.91	3.07	0.84
	TOTAL	**28.77**	**10.21**	**28.49**	**9.74**

Table 2 above indicated that items 1-10 were perceived by fathers as their roles in enhancing early education in Anambra state. Their mean scores are 3.14, 2.84, 3.43, 2.81, 3.14, 2.61, 2.63, 2.66, 3.43 and standard deviation of 1 1.08, 1.11, 0.75, 1.04, 0.77, 1.08, 1.17, 1.3, 0.91 respectively. Furthermore mothers perceived items 11-13 and 15-20 as their roles in enhancing early education in Anambra state. Their mean scores are 2.78, 2.53, 2.90, 3.17, 3.20, 2.71, 2.90, 3.15, 3.07 and they had standard deviation of 1.16, 1.07, 1, 0.85, 0.91, 1.16, 0.99, 0.86 and 0.84.

RQ3: What are the factors affecting parental involvement in early education in Anambra states?
Table 3: Mean and standard deviation of responses on factors affecting parental involvement in early education in Anambra state

I/N	ITEM	Father		Mother	
		$\overline{X}$	STD	$\overline{X}$	STD
Item 21	One of the most difficult challenges for early educators is figuring out how to better engage parents in their child's learning	3.13	1.02	2.94	1.08
Item 22	Parents' socio economic status which include parents' level of education, occupation status and income	2.93	1.11	2.92	1.06
Item 23	Parents with low self-efficacy are more likely to avoid contact with schools	1.74	0.99	2.77	1.24

Item 24	The teachers' attitudes especially to poor parents may send messages that they have nothing of educational value to give to their children	1.81	0.99	3.02	0.77
Item 25	Marital disruption in the family can lead to low levels of involvement by reducing the amount of time parents spend with children	3.47	0.84	3.01	1.03
Item 26	parenting style influence the level of involvement	3.57	0.78	2.55	0.91
Item 27	Lack of knowledge and confidence about curriculum	3.26	0.9	2.97	0.96
Item 28	Lack of transportation facilities	3.32	1.09	3.05	0.94
Item 29	Language barriers	3.50	0.91	3.13	1.01
Item 30	cognitive development of parents during their own childhood and that of their children	2.91	0.68	2.82	1.06
	TOTAL	**29.64**	**9.31**	**29.18**	**10.06**

Table 3 above indicated that items 21, 22 and 25-30 were perceived by fathers as major factors affecting parental involvement in early education in Anambra state with the mean of 3.13, 2.93, 1.74, 1.81, 3.47, 3.57, 3.26, 3.32, 3.50, 2.91 and standard deviation of 1.02, 1.11, 0.84, 0.78, 0.9, 1.09, 0.91, 0.68. Similarly, mothers perceived items 21-30 as factors affecting parental involvement in early education with the mean of 2.94, 2.92, 2.77, 3.02, 3.01, 2.55, 2.97, 3.05, 3.13, 2.82 and standard deviation of 1.08, 1.06, 1.24, 0.77, 1.03, 0.91, 0.96, 0.94, 1.01, 1.06.

Hypothesis 1: There is no significant difference on perception of father and mother on the family roles in fostering children's rights in Anambra state

Table 4: Summary of t-test on perception of father and mother on the family roles in fostering children's rights in Anambra state

Source	N	Mean	Std. dev	t-cal	t-crit	d$_f$	P. Value
Father	100	27.74	10.01				
				1.06	1.97	298.00	0.29
Mother	200	26.4	10.87				

Sig < 0.05

Table 4 shows that at 0.05 level of significance and 298 degree of freedom, the calculated t = 1.06 is less than the critical t = 1.97, therefore the null hypothesis is accepted, the researchers conclude that there is no significant difference on the perception of father and mother on the family roles in fostering children's rights in Anambra state.

Hypothesis 2: There is no significant difference on perception of father and mother on the roles of the family in enhancing early education in Anambra state

Table 5: Summary of t-test on perception of father and mother on the roles of the family in enhancing early education in Anambra state

Source	N	Mean	Std. dev	t-cal	t-crit	d$_f$	P. Value
Father	100	28.77	10.21				
				0.23	1.97	298.00	0.82
Mother	200	28.49	9.74				

Sig < 0.05

Table 5 shows that at 0.05 level of significance and 298 degree of freedom, the calculated t = 0.23 is less than the critical t = 1.97, therefore the null hypothesis is accepted as the P value is greater than 0.05, the researchers conclude that there is no significant difference on the perception of father and mother on the roles of the family in enhancing early education in Anambra state.

Conclusion

The role of mother and father in fostering children's rights and early education in anambra state of Nigeria was considered differently in this study. Both mother and father were of the view that engaging in meaningful and skill-enhancing activities with their child and other children in the context of the classroom will significantly in enhance early education in the state. Among other rights, the parents believed that children should be rightfully assured of adequate nutrition and quality healthcare. Although, the positive influence of parental involvement has been investigated by a large amount of research, the present study evaluated factors affecting parental involvement in early education in Anambra states and found that parenting style influence the level of involvement; however, parental involvement should be considered as a foundation of the school-family partnerships assessment system.

In general, child right and early education cannot be ensured in isolation of other variables affecting it. It is part and parcel of societal activities that are prone to impact factors arising from socio-economic and cultural changes. Engaging young children in decision making is a key factor in promoting child rights and responsibilities. Social workers, supervisors, case reviewers, and state and federal monitors need to ensure that family engagement is being pursued; teachers should also scale down their pedagogy in such a way that the child will learn about their rights during early education practice throughout their training experience.

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APPENDIX I: Questionnaire entries on perception of father and mother on the family roles in fostering children's rights in Anambra states

S/N	Item	father								mother							
		SA	A	D	SD	total	$\bar{X}$	STD	Dec	SA	A	D	SD	total	$\bar{X}$	STD	Dec
1	Item 1	55	12	8	25	100	2.97	1.28	A	88	45	24	43	200	2.89	1.19	A
2	Item 2	71	12	6	11	100	3.43	1.01	A	98	56	12	34	200	3.09	1.11	A
3	Item 3	45	43	9	3	100	3.30	0.75	A	56	48	77	19	200	2.71	0.98	A
4	Item 4	39	32	22	7	100	3.03	0.94	A	67	44	65	24	200	2.77	1.04	A
5	Item 5	18	25	23	34	100	2.27	1.11	R	87	45	33	35	200	2.92	1.14	A
6	Item 6	59	13	21	7	100	3.24	1.01	A	51	12	16	121	200	1.97	1.3	R
7	Item 7	2	9	23	66	100	1.47	0.74	R	36	21	12	131	200	1.81	1.2	R
8	Item 8	23	44	23	10	100	2.80	0.91	A	61	66	61	12	200	2.88	0.91	A
9	Item 9	32	23	22	23	100	2.64	1.15	A	46	75	54	25	200	2.71	0.96	A
10	Item 10	31	26	30	23	110	2.59	1.11	A	60	34	81	25	200	2.65	1.04	A

Key: STD: Standard Deviation
Dec: Decision
A: Accepted
R: Rejected

APPENDIX II: Questionnaire entries on perception of father and mother on the roles of the family in enhancing early education in Anambra States

S/N	Item	father								mother							
		SA	A	D	SD	total	$\bar{X}$	STD	Dec	SA	A	D	SD	total	$\bar{X}$	STD	Dec
1	Item 1	14	12	42	32	100	2.08	1	R	77	40	44	39	200	2.78	1.16	A
2	Item 2	55	15	19	11	100	3.14	1.08	A	38	82	28	52	200	2.53	1.07	A
3	Item 3	35	34	11	20	100	2.84	1.11	A	76	41	69	14	200	2.90	1	A
4	Item 4	56	34	7	3	100	3.43	0.75	A	11	56	71	62	200	2.08	0.9	R
5	Item 5	29	40	14	17	100	2.81	1.04	A	88	60	49	3	200	3.17	0.85	A
6	Item 6	37	41	21	1	100	3.14	0.77	A	87	85	8	20	200	3.20	0.91	A
7	Item 7	26	29	25	20	100	2.61	1.08	A	61	72	15	52	200	2.71	1.16	A
8	Item 8	33	21	22	24	100	2.63	1.17	A	73	50	61	16	200	2.90	0.99	A
9	Item 9	42	13	14	31	100	2.66	1.3	A	84	68	41	7	200	3.15	0.86	A
10	Item 10	66	17	11	6	100	3.43	0.91	A	70	82	40	8	200	3.07	0.84	A

Key: STD: Standard Deviation
Dec: Decision
A: Accepted
R: Rejected

APPENDIX III: Questionnaire entries on factors affecting parental involvement in early education in Anambra States

S/N	Item	SA	A	D	SD	total	$\bar{X}$	STD	Dec	SA	A	D	SD	total	$\bar{X}$	STD	Dec
		father								mother							
1	Item 1	50	22	19	9	100	3.13	1.02	A	91	27	61	21	200	2.94	1.08	A
2	Item 2	44	19	23	14	100	2.93	1.11	A	74	66	29	31	200	2.92	1.06	A
3	Item 3	9	12	23	56	100	1.74	0.99	R	83	41	22	54	200	2.77	1.24	A
4	Item 4	10	10	31	49	100	1.81	0.99	R	59	88	51	2	200	3.02	0.77	A
5	Item 5	66	19	11	4	100	3.47	0.84	A	76	80	13	31	200	3.01	1.03	A
6	Item 6	72	16	9	3	100	3.57	0.78	A	30	77	65	28	200	2.55	0.91	A
7	Item 7	50	33	10	7	100	3.26	0.9	A	66	83	29	22	200	2.97	0.96	A
8	Item 8	66	14	6	14	100	3.32	1.09	A	79	66	41	14	200	3.05	0.94	A
9	Item 9	71	16	5	8	100	3.50	0.91	A	92	66	17	25	200	3.13	1.01	A
10	Item 10	10	80	1	9	100	2.91	0.68	A	67	59	44	30	200	2.82	1.06	A

Key: STD: Standard Deviation
Dec: Decision
A: Accepted
R: Rejected

The Status Of Education In The Value Hierarchy From The Perspective Of Youth With Intercultural Family Backround

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Abstract
This study deals with value preferences from the perspective of youth with intercultural family backround, specifically of Anglophone youth living in the Czech Republic, i.e. a country with a small ethnic diversity. In the first research phase, the participants first replied in a written task, using the Credo Mem projective method. After creating a hierarchical pyramid of the participants' value preferences, which is highly interesting, seven most comprehensive replies were selected and analysed using the Interpretative Phenomenological Analysis. This step makes clear the emphasis put by participants on the value of education, reasons for it and the associated values. Education is becoming a kind of imaginary building block, forming a foundation of their lives, on which they may continue building.

1. Cultural Capital As The Cornerstone Of Values

Hofstede (1984) described values as tendencies to prefer certain states of affairs over others, which cause that an individual's rational understanding is subjective. Values from different cultures may mutually combine to form the cross-section and diversity of understanding individual values (Berry et. al., 2011), which implies that they are culturally determined. Inglehart (2010) states that values help directing human behaviour on their way to satisfy their needs and life opportunities, they help the man in orienting in what is important to him, thus maximizing his satisfaction in life.

The cultural capital influencing the creation of values comprises of types of knowledge providing its holders certain benefits. Katrňák (2004) defines the cultural capital as a skill acquired by the man in the family environment and the knowledge gained there. They may be understood as cognitive cultural abilities passed by parents onto their children. The cultural capital may also mean cultural activities, active spending of family leisure time, reading, and the accessibility of books. If a child grows up in a family having a cultural capital, it has much better chances for a better and higher-quality educational career. His habits allow him to transform relatively easily and favourably the family's cultural capital in a good school record, which then leads to his overall school success. Education as a value is related to the school environment and in the Western society it always occupies one of the highest positions in the whole value range. Majority youth, similarly to youth from intercultural families, deem it highly important; however, each group attributes a different significance to education (Staňková & Venterová, 2017).

2. Values In Relation To The School Environment

The value range, as was mentioned above, covers a lot of diverse values, education being one of them. The importance attributed to this value by youth, or specifically by pupils, is influenced not only by their cultural environment but also by schools they attend and by the school environment. Just behind the family, the school is another social institution highly influencing human values and value preferences. It influences the values of pupils in diverse ways, developing their relationship to education. The desired values are transferred by texts in textbooks, school rules, and in particular by teachers themselves. Much attention was paid also to preferences of the students themselves (Divisenko, 2009; Sheldon, Krieger, 2004). Several studies focus on comparing the value preferences of students of various fields of study (Parsons, 1989; Shaw & Duys, 2005; Myyry & Helkama, 2001). The idea of values can be found within the centre of gravity of all reflections on school- as well as on extracurricular education. Education as a value in the value system is then crucial for the area of pedagogy. The meaning attributed to this value determines significantly the educational process itself. The importance and meaning of values accompanying the child entering the school educational process show that the environment of origin influences significantly the pupil's perception of the role of education in society (Katrňák, 2003). Providing education is one of the main functions of the modern state and the level of education of the nation is an expression of its cultural level and cultural maturity (Michalík, 2013).

The Czech Republic is a small country in the middle of Europe, the history of which was affected by the Soviet occupation from 1968 and the subsequent closure of borders for many years to come. The intercultural relations were therefore until 1989, the year of the Velvet Revolution, only formed within this small ethnic diversity. The situation changed after 1989 when higher numbers of foreigners started arriving in the Czech Republic and gradually also

settling there permanently. According to the Czech Statistical Office (CZU, 2016), there were 480,294 foreigners lawfully living in the country for more than twelve months in 2016. That means that the English-speaking community is not only relatively young, but also comparatively small. However, with an increasing number of intercultural partner relationships and with the related intercultural family environments, this community is growing as well. Research conducted in the past only focused on raising children and teaching them, or it simply compared them to different groups around the world (Du Plessis, 2006). No research has been conducted yet on identifying their value preferences.

Methodology

The key objective of the research is to establish the meaning associated by youth coming from intercultural family environments (specifically the Anglophone youth) with the Education value, and reasons for that.
The main research question therefore is: "What do you consider important in your life and why?"

This wide and not too specific question was selected deliberately, even though it may seem that it has nothing to do with education. The question follows the method of a written task, the Credo Mem qualitative technique (Klouzes & Posner, 1998). The persons interviewed were encouraged by this question to contemplate priorities rooted in their lives, and their leading principles. The participants thus had an opportunity for a completely free expression of their thoughts and priorities without any interference or deliberate directing to describe specifically the value of education. The advantage of this qualitative method, compared to the quantitative questionnaire survey, is that students were not presented values for mere numbering or completing.

 The partial objectives were set as follows:

· Identify the position of education in the value preferences.

· Identify why education is important or not for participants compared to other values among their preferences.

Our research sample criteria were as follows:·

· Youth from the sixth to ninth grades (ISCED 2) in the Czech Republic

· Anglophone youth (having command of both Czech and English on a native level)

Data Analysis

Fifty participants who met the research criteria took part in the first research part. The participants were given enough time to think about their replies and write them. When writing, their task was to let their thoughts run free, they therefore could freely cross out and rewrite. Anonymity was guaranteed to participants.
A hierarchical pyramid of values was made based on their answers, see [Figure 1].

Figure 1: A hierarchical pyramid of values

Source: Own Research (2018)
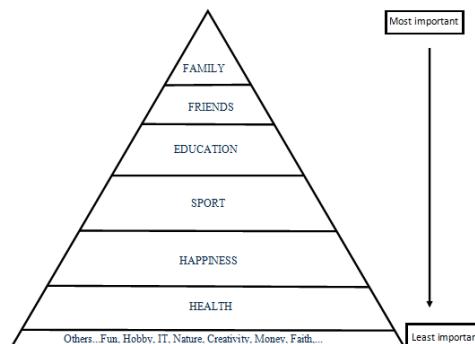
As the Figure 2 makes it clear, the importance of the value of education, which takes the third position just behind the family and friends, was most frequently accompanied by the following reasons:

Figure 2: Notes, written by the participants related to the topic educationl value

Source: Own Research (2018)
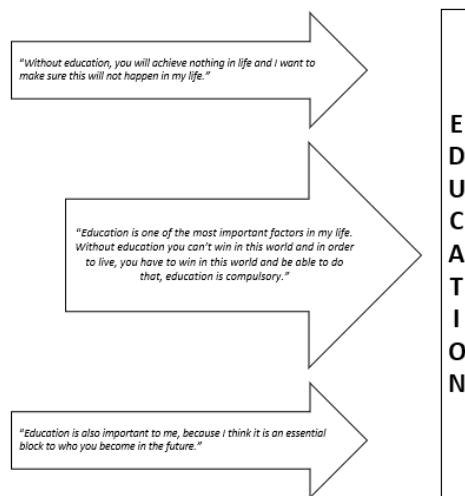
Subsequently, after creating the hierarchical pyramid of values, seven most comprehensive, very detailed descriptions were selected and analysed using the Interpretative Phenomenological Analysis (IPA). This method was selected because it both allows to make space and conditions for the participants' self-expression, and also a detailed examination of the participant's view of the research subject, i.e. understanding the depth and structure of individual experience or the meaning of such experience – the essence of the phenomenon (Gulová & Šíp, 2013). As Smith, Flowers & Larkin (2009) add, a small, homogenous research sample is typical for IPA, which in our case is formed by seven participants. Again, all these participants meet the above research criteria and participated in the Credo Mem projective method where they answered the question in a great detail.

In accordance with recommendations of Smith, Flowers & Larkin (2009), individual works of participants were read repeatedly and data fragments we deemed significant were underlined. At the same time, raw data were appended with descriptive comments related to the text content, as well as with conceptual comments, the core of which were our considerations and questions regarding the statements. In this phase, we focused both on convergences and divergences, as well as on nuances emerging from the data. For these purposes, each emergent topic was recorded in a table and supplemented with the location of the data fragment representing the topic. At the same time, a union of related topics into parent topics was made, which were subsequently supplemented with subtopics. With regard to this, three parent topics were identified in the data, the frequency of which is expressed in table one.

***Table 1**: List of topics created by using IPA analysis and their graphical representation*

Source: Own research (2018)

1. Topic: Free Time							
Participant	R1	R2	R3	R4	R5	R6	R7
Subtopic 1a: Friends							
Spending Time Together	*						
Hanging Out	*						
Talking, Having Fun	*	*	*				

Relate to the Problems		*	*			
Support			*			
Makes me Feel Happy					*	
Subtopic 1b: Computer						
Youtube		*				
Can Play Games		*				
Subtopic 1c: Nature						
Walk in the Forest		*				
Clear my Mind		*				
Calm Down		*				
Subtopic 1d: Music						
Feeling Freedom	*					
Wanna Dance and Sing	*					
Can't Be Said with Words	*					
Nostalgia		*				
Fun Memories		*				
Makes My Day Better				*		
Subtopic 1e: Hobby						
Having Good Time				*		
2. Topic: Certainty						
Subtopic 2a: Family						
Support	*	*	*	*	*	*
Feeling Happy	*			*	*	*
Giving me Home		*				
Doesn't Judge					*	
Subtopic 2b: Faith						
Makes me Feel Happy					*	
Subtopic 2c: Animals						
Makes me Laugh	*					
Like my Brother		*				
3. Topic Education						
Become Sucessfull			*		*	*
Essencial Building Block					*	

Our next step proceeded in accordance with works of Osborne & Smith (2003), Smith, Flowers & Larkin (2009), and Gulová & Šíp (2013) to identify the links between the topics and subtopics identified, see [Table 1]. When realizing this intention, we were supported specifically by conceptual comments revised during analysis and compared with raw data. The output of this analytical phase is a diagram showing the links and influences of individual topics, which will at the same time become our point of reference when interpreting the research results, see [Figure 3].

Figure 3*: Diagram illustrating linking and influencing topics, identified in the IPA analysis.*

Source: Own research (2018)
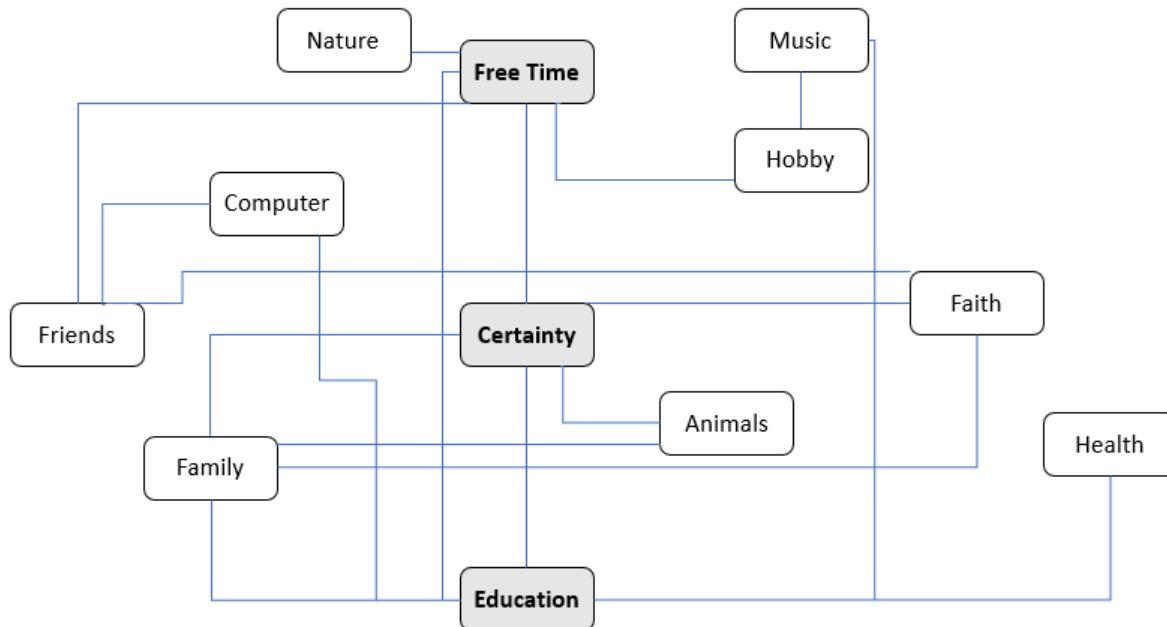
Results and Interpretation

The analysis and the data showed that the central, i.e. the parent topics, which are at the centre of all the others, are ***education, leisure time, and assurance***. The participants named these topics most frequently as the indispensable ones.

A parent topic (value), which is very important and may look standing alone according to table 1, is ***education***. However, another more exact view shows that it is interweaving with many subtopics, such as e.g. the family, computer, music, which is going to be explained below with more accurate descriptions of individual parent topics. A more detailed view of the table shows that the subtopics are actually values selected by the pupils and then described by them. The topic of education represents a value as well; however, as it stands completely alone at first sight, it is not divided into a parent topic and a subtopic because this was not necessary.

Education is a value occupying the important third position in the hierarchical pyramid, see [Figure 1]. As mentioned below by one of the participants, specifically by R7, he values education as much as his health. The participant R6 compares education to building blocks of his life, which form the foundations of an imaginary building and without those foundations, the construction may not proceed. *"Education is also important to me because I think it is an essential building block to who you become as a person leads you into a better future."* (R6). Another participant refers specifically to a quality future that may not be achieved without education. *"Without education you will achieve nothing in your life and I want to make sure this will not happen in my life*." (R3). If we compare life to a competition, we may state that "*without good education you can't win this world and in order to live, you have to win this world and to be able to do that the education is compulsory."* (R7) The participant therefore realizes that compulsory schooling in the Czech Republic is a very important element of education quality. It should be noted that the participant who mentioned this has experience with education in a country where uschooling of children is made possible.

As a significantly most comprehensive parent topic, the participants mentioned leisure time, which covers five subtopics representing individual values: friends, computer, music, hobby, and nature. The topic of leisure time is

closely linked to the topic of education. From the leisure time category, education is most influenced by friends and the computer. Although the computer topic may be linked to a hobby because computer work may seem a hobby to our research sample, participants mostly mentioned it separately in a separate category as an item serving them during their free time but also educating them, e.g. in the form of youtubing: *"I watch youtube all the time because I can learn from it."* (R2). At the same time, the computer does not pertain to the parent topic of education because R2 states that the computer represents playing games to him and a thing that causes: *"It makes me cry when I play The Avengers."* A hobby means to them rather something that allows them to relax, as the participant R2 states, when gaming, adrenalin causes varied reactions in him. Hobby is also perceived as a form of informal education, which is allowed to participants not only via their computers but also through afternoon leisure activities.

The "Friends" value took the second position in the hierarchical pyramid, just behind the family. It is therefore a highly important subtopic. This value fulfils the leisure time of participants, it is the time when they are among their peers and they feel relaxed. *"They like to spend time with me and we can hang out and do stuff. They like to talk with me and share what they are thinking."* (R1). *"They are extremely important to me because they can relate to my problems and are great to talk to."* (R2). None of the participants links friendship to the education value, which occupied the third position in the hierarchical pyramid just behind friendship, see [Figure 1]. The value of friendship is associated with support, similarly to the association of friendship with the family. *"Less important, but still casually valid things for me include friendship and support. Both given from you and to you, because I think you need these things to be happy."* (R6). The same participant associates support with the family: *"[...] my family, because they will always be there for you and have been through struggles with you."* (R6).

Similarly to friends, also the value of music is controversial, as participants did not classify it as a hobby, but rather an emotional necessity that makes them happy. *"One thing that is really important for me is good music. It makes me happy. When I am sad, I just go to sleep and listen to music."* (R4). *As his hobby, this participant stated: "My hobby makes me who I am. It's really a good time for not thinking about problems and do something I want to do."* (R4). Music also relaxes: *"Music means a lot to me, when I listen to music, I feel free like I could do anything I want. It brings me joy inside."* (R1). Music therefore takes individual participants in a very different world, that of emotions where they can take a break from education and everyday worries.

The second, in the number of subtopics, the most extensive parent topic is ***assurance***. It is a topic containing subtopics, which are these values: ***Family, Faith, Animal, and Health***. Even though the parent topic of assurance is not the most comprehensive one, Figure 1 shows that it includes values having the highest positions in the hierarchy. These are family and friends. The participants associate family with happiness and the opportunity to study and they often attribute it the same meaning as the friends value. *"So, on first place, family and friends. My friends and family is the most important thing in my life. My family and friends are always with me never let me down."* (R4). The participant R5 even attributes the family the same meaning as faith: *"Three F' – family, friends and faith [...] all of these things make me feel very happy and content about myself as they play a big role in my life."* (R5). However, faith is regularly placed to bottom positions in the value hierarchy of Anglophone students, so this participant is rather exceptional. Some mention the family separately, positioning friends behind it: *"I consider a lot of things important, but the first thing I consider the most important is my family. I don't know what I would do without them, they mean everything to me."* (R3) *"[...] my family cares about me and love me. They make me super happy inside [...]"* (R1) The participants deem pets family members as well. *"My cat is basically my brother [...]"* (R2) If we consider the family's attitude to studying, participants appreciate the family environment giving them the opportunity to study and supporting them: *"My family supports me in my study"* (R3)

The research participants attend the 6 to 9th primary school grades (ISCED 2). At this age they are already aware of the value of health. In their value hierarchy they rate it as the sixth. Four of seven respondents mentioned it spontaneously when writing replies to the research question, even though it has not been pointed out in any way. Similarly, they also mentioned values such as family, friends, and education; however, the researcher was surprised by the value of health and its fragility and irreplaceability, which they realize. *"Health is also very important, because if you are not healthy, you can't be truly happy."* (R6) *"Health is really important because you live only once."* (R3) One participant assigns health the same position as education: *"Health is equally important to education. If you are not healthy, you are not able to do many things that you desire to do if you are unhealthy and you can't win the life."* (R7).

Conclusion

This study focuses on the importance of the value of education within value preferences from the perspective of youth coming from intercultural family environments (specifically the Anglophone environment). This choice was made under the influence of the fact that all previous research focuses its attention on the linguistic area only (e.g. Irujo, 1998; DuPlessis, 2006) and none focuses on value preferences and the value of education as such.

This is partly due to the fact that this group is relatively new in the Czech Republic and it is still in search of its position in the country. Our intention therefore was to shift the state of knowledge in this area towards value preferences, accenting the value of education in the perspective of specifically this youth as it occupies a different position in the value preference scale (Staňková & Venterová, 2017). Neither the quantitative approach, nor survey research were used on purpose, so as to avoid presenting values to participants. The Credo Mem qualitative method (Klouzes & Posner, 1998) was applied instead, in which the participants were given a written task, space and sufficient time to write extensively; a subsequent detailed analysis of the seven most in-depth descriptions using the Interpretative Phenomenological Analysis followed.

Inglehart (2010) states that values help directing human behaviour on their way to satisfy their needs and life opportunities; therefore we focused at the beginning of the research on individual values and their position in the value hierarchy as such. The resulting hierarchical pyramid of values shows (see Fig. 1) that the researched value of education took the third position, just behind the family and friends. The fourth position was occupied by value of sport. Hofstede (1984) described values as tendencies to prefer certain states of affairs over others, which cause that an individual's rational understanding is subjective. The data from a more detailed examination of the value of education showed that pupils perceive education as building blocks for their lives, without which they would fail to succeed in life. They appreciate that compulsory schooling is stipulated by the law in the Czech Republic (according to Act on preschool, primary, middle, higher vocational and other education 561/2004 Coll.), specifically because it will help them to prove their worth in their lives. The participant (R7) compared life to competition, saying that if one was to win, one would have to educate oneself, which is supported inter alia by compulsory schooling. Providing education is one of the main functions of the modern state and the nation's education level is an expression of its cultural standard and cultural maturity (Michalík, 2013). In addition to the already mentioned schooling, it is the support of their families, which they associate with support and safe harbour, which helps them in accessing varied forms of education. Furthermore, it is the computer, which they perceive not only as a hobby but predominantly as something offering them self-education and leisure activities perceived by youth, apart from a form of spending their free time, also as informal education made accessible to them through their own families.

Acknowledgement

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The Use Of Deep Learning In The Gamification Of Teaching And Learning

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Abstract

The question of the role of Data Mining and Deep Machine Learning in the relatively new field of Gamification has not been adequately explored, with deep learning models usually primarily being focused on such programs as face recognition, speech recognition and natural language processing. However, the power of Deep Learning to aid in the process of utilizing Gamification in teaching and learning has not been adequately harnessed. My paper addresses the advances and issues of using Deep Learning to solve problems in Gamification with special attention to the use of Artificial Neural Networks. Specifically, this paper will be looking at the use of Deep Learning to drive the changes in the relatively new field of Gamification by which student's motivations in the classroom can be increased. This paper will also discuss the future role of Deep Learning in teaching the various fields of Gamification, and juxtapose them against traditional teaching methods of motivating students, in order to contrast the increasing role that Algorithms will play in the 21st-century educational curriculum. This paper argues that, indeed, Deep Learning will be able to increasingly affect how we solve various Gamification problems and that this development will profoundly change the way Gamification can be utilized in a classroom curriculum. In conclusion, this project, by closely examining the role of Deep Learning, sheds new light on the rapidly developing changes in the Gamification of teaching and learning.

Gamification

Games and the elements of games have begun to flood our routine lives. Gamification, which is the utilization of game paradigms, dynamics, and mechanism to encourage desired behaviors, has found its way into domains such as business, politics, health and fitness, with analysts predicting that it will become a multi-billion-dollar industry by 2020. Game designer Jesse Schell, who is the author of the classic The Art of Game Design: A Book of Lenses, predicts in his visions of game apocalypse talk: "Games and real life are reaching out to each other with such force that we might come to a condition of "gamepocalypse——-where every second of your life you're playing a game in some way." (Schell, 2008) Although perhaps hyperbole, the potential of gamification is undeniable. The potential of gamification, for instance, goes much beyond promoting marketing and healthy behavior. In fact, Gamers voluntarily invest countless hours in developing their problem-solving skills, while playing a game. They subconsciously or consciously know the value of extended practice, and develop personal qualities such as persistence, creativity, and grit through long hours of play. What if we were to harness this seemingly natural power to motivate? (Schell, 2008)

Gamification, then, is the ability to harness this inherent motivational power of games and adapt it to solve real-world problems – such as the motivation and engagement at schools. Motivation and engagement are critical challenges for the American educational system. While we have statistics that indicate that the overall high school dropout rate is falling, there still exist a significant percentage of disposed who seem to fail because they feel unengaged by the American educational system. (Lee & Hammer, 2011)

However, while most believe in the use of gamification techniques, the problem remains: HOW specifically should we use gamification paradigms in schools? Actually, schools already employ several gamification concepts. Grades can be seen as "badges." Furthermore, schools reward good behavior and punish undesired behavior. Grade status such as "Freshman," "Sophomore," "Junior, and "Senior," is just a form of "leveling up" at the end of every academic year. Granted these features, it would seem that school should already be the ultimate gamified experience. However, something about this environment fails to engage students. (Bridgeland, Dilulio, & Morison, 2006)

Understanding the role of gamification in education, therefore, means understanding under what circumstances game elements can drive learning behavior. Making use of Salen and Zimmerman's Rules, Play, and Culture framework we can better break down the impact of gamification. According to Salen and Zimmerman, we can divide the framework into three paradigms:

Cognitive. Salen and Zimmerman illustrated that games provide complex systems of rules for players to explore through active experimentation and discovery. For example, the apparently simple mobile game Angry Birds asks players to knock down towers by launching birds out of a slingshot. Players must experiment with the game to figure out the physical properties of different tower materials, the ballistics of the slingshot, and the structural weaknesses of each tower. They launch birds, observe the results, plan their next moves, and execute those plans.

In short, players' desire to beat each level makes them small-scale experimental physicists. (Salen & Zimmerman, 2003)

Emotional. Furthermore, Salen and Zimmerman demonstrated that games invoke a range of powerful emotions, from curiosity to frustration to joy. They provide many positive emotional experiences, such as optimism and pride. Crucially, they also help players persist through negative emotional experiences and even transform them into positive ones. (Salen & Zimmerman, 2003) According to the researchers, the most dramatic example of emotional transformation in a game is around the issue of failure. Because games involve repeated experimentation, they also involve repeated failure. In fact, for many games, the only way to learn how to play the game is to fail at it repeatedly, learning something each time. Games maintain this positive relationship with failure by making feedback cycles rapid and keeping the stakes low. (Lee & Hammer, 2011) Gamification offers the promise of resilience in the face of failure, by reframing failure as a necessary part of learning. Gamification can shorten feedback cycles, give learners low-stakes ways to assess their own capabilities, and create an environment in which effort, not mastery, is rewarded. Students, in turn, can learn to see failure as an opportunity, instead of becoming helpless, fearful or overwhelmed. (Lee & Hammer, 2011)

Social. Finally, Salen and Zimmerman demonstrated that games allow players to try on new identities and roles, asking them to make in-game decisions from their new vantage points. In video games, players may take on the roles of gun-toting mercenaries, speedy blue hedgehogs, elven princesses, and more. Players also adopt roles that are less explicitly fictional, exploring new sides of themselves in the safe space of play. For example, a shy teenager might become a guild leader, commanding dozens of other players in epic battles against legions of enemies. A well-designed gamification system can help players take on meaningful roles that are fruitful for learning. By making the development of a new identity playful, and by rewarding it appropriately, we can help students think differently about their potential in school and what school might mean for them. (Lee & Hammer, 2011)

Artificial Intelligence
If we assume that gamification elements should be employed in schools, then, how can we harness the power of Artificial Intelligence to assist with gamification.
There are three Major Branches of AI
1. Learning system: Computer changes how it functions or reacts to situations based on feedback
2. Natural language processing: Computers understand and react to statements and commands made in a "natural" language, such as English
3. Neural network : Computer system that can act like or simulate the functioning of the human brain

Neural network
I will be addressing the third network. We can program artificial neural networks to create behavior change games. Behavior Change Games use game design elements and the power of communities to motivate people to achieve challenging tasks. By utilizing machine learning concepts, we can achieve a synergy by which we can utilize artificial intelligence to bolster and create better gamification games to motivate learners.
Perhaps the best explanation for this possibility of intelligent machines utilizing gamification principles lies in deep learning's design. The deep learning model is consisted of layers of interactive algorithms, which simultaneously classify intricate structures from inputted 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. For example, deep learning models can tell us in real time which gamification techniques are effective and which are not.

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. (McCarthy, 2007)

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. (McCarthy, 2007)

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. (McCarthy, 2007)

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. (McCarthy, 2007)

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. (McCarthy, 2007)

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. (McCarthy, 2007)

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

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 gamification and education 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. 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 gamification. (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 increased use of gamification in schools. Furthermore, even the field of gamification 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 gamification 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 gamification 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 gamification.

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 gamification 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 AI and games may move and entertain its creator.

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The Usefulness Of Artificial Intelligence To Solve Underwater Egress Technology Challenges

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Abstract

In the field of underwater egress technology, a rebreather is a breathing apparatus that recycles the carbon dioxide within a diver's exhalation by extracting the surplus oxygen content inherent in the breath. The recycled oxygen is, then, made available and replaces the oxygen already used by the diver. Unlike an open-circuit breathing apparatus, this closed circuit breathing system does not expel any gas directly into the immediate environment. The advantage of such a system allows underwater divers to descend to deeper depths and stay submerged for longer lengths of time. However, the disadvantage of this system requires that the mixture of gases to create this closed circuit system is limited by the complexity of calculating the correct ratio and amount of gases that are necessary. Because rebreathers are a relatively new technology in the field of underwater egress, calculations to obtain the correct ratio of gases must be done by hand; computer programs have yet to make the arduous task easier. This paper proposes that artificial intelligent machines and software can fill this inadequacy by automating many of the calculations. This paper proposes that such programs will aid students who are new to underwater egress.

The Dangers: Case Study The Death Of David Shaw

In all rebreather diving, survival is a matter of constant decisions and careful choices. The wrong choices can unexpectedly turn deadly. Some poor choices are made with the best of intentions but based on faulty or incomplete information. All divers must be concerned with common misconceptions and how they may affect their decisions. A well-documented diving fatality involved the well-known and record setting Australian diver, David Shaw. The videotape of the last minutes of David's life has been viewed extensively on the internet. David was an Air Bus pilot for Cathay Pacific. Pilots are immersed in a culture of safety and attention to detail. David recorded detailed plans for the dive to recover the body of a diver who died in the 890 feet (271 meter) deep Boemansgat Cave of South Africa 10-years before. Despite his extensive preparations his dive proved fatal.

Deep diving with a rebreather has risks and even minor emergencies at depth can turn deadly especially when physical exertion levels are high. Unlike other types of SCUBA, a rebreather is entirely powered by the respiratory cycle. That means you move the breathing gas through the circuit or "Loop", entirely with the power of your respiratory muscles. On a dive to 890 feet, you are exposed to 28 times normal pressure, and breathing gas more than five times denser than normal. A rebreather scrubber canister contains granular absorbent through which a diver has to breathe. David wanted to use a single rebreather that would accomplish two tasks, provide a long duration gas supply and CO2 absorbing capability for a dive lasting over nine hours, and provide a low work of breathing so he could ventilate adequately at the deepest depth. To ensure the "scrubber canister" would last as long as possible, he chose the finest grain size available. The smaller the size of granules you're breathing through, the harder it is to breathe. Think of breathing through a child's ball pit versus breathing through sand. Perhaps if David had maintained a resting work rate throughout the deepest portion of his fatal dive, he might have had a chance of survival. After all, he had done it before.

But the unexpected happens. He became fouled and was working far harder to maintain control of the situation than he had anticipated. That meant his need to ventilate, to blow off carbon dioxide from his body, increased precipitously. A sure sign of high breathing effort is that you cannot ventilate as much as is necessary to keep a safe level of carbon dioxide in your blood stream. CO2 can build rapidly in your blood, soon leading to unconsciousness. Had David been fully aware of the insidious nature of carbon dioxide intoxication from hypo-ventilating at depth, he may have chosen to conduct the dive differently. An alternative would be to use a larger granule size absorbent in a rebreather at 100 meters and deeper and to reserve the fine-grain absorbent for use in a separate rebreather shallower than 100 meters. David chose the fine-grain absorbent because of the longer dive duration it made possible. Although fine grains are more difficult to breathe through than large grain absorbent, fine grain absorbent lasts longer than large grain absorbent.

But that long duration is only needed during decompression which is accomplished far shallower than the deep portions of the dive. The time spent deep where work of breathing is a threat is relatively short. He did not need the capabilities of a long duration, fine grain absorbent.

From the U.S. Navy experience, there are other problems with this dive which might have hastened the end result. A rapid and deep descent causes the oxygen pressure within the rebreather to climb to potentially dangerous levels; a phenomenon called oxygen overshoot. Thus he might have been affected somewhat by oxygen toxicity. A rapid descent might also have induced the High Pressure Nervous Syndrome which would affect manual dexterity. As the death of David Shaw illustrates, the use of rebreather in great depths calls for a re-evaluation of the methods employed to calculate underwater egress. This paper proposes that, with recent advances in artificial intelligence, we may find some solutions to these problems.

Deep Learning Models

As mentioned in the Introduction, a deep learning model is an artificial replica of the human brain. What does this mean? Precisely, a single node, or perceptron, in a deep learning model parallels the neuron of the human brain in function. While the human brain could be described as layers of interconnected neurons that interact to process information, a deep learning system is a structure of interconnected nodes and algorithms that ultimately allow it to recognize, traffic, and even though learn and utilize input data (Montanez, 2016).

Figure   4.
Retrieved from https://analyticsindiamag.com/10-machine-learning-algorithms-every-data-scientist-know/2000px-artificial_neural_network-svg/

A successful deep learning model (Figure 4) usually consists of multiple nodes, divided into three hierarchies most commonly known as layers. The input layer's nodes mainly serve the function of receptors, recognizing the input data and passing it onto the hidden layers. Neural networks usually have multiple hidden layers, while more hidden layers do not necessarily mean a more advanced model. The hidden nodes are generally in charge of determining the value, or the weights, of the input data. Through this process the deep learning model independently rids itself of systematical errors and incorrect formulas. It also accumulates new information and establishes abstract patterns for future use before passing the data to the output layer to finalize the procedure. This ability to 'weigh' data and construct its database of information and standards is the critical factor that truly allows the intelligence of AI to parallel that of the human being (Montanez, 2016).

To be finalized and fully functional, the neural network must undergo several final steps, among which Forward Propagation and Back Propagation (Figure 5) are the most significant procedures. Forward Propagation can be described as a step in which a predicted value of the input data is formed. Back Propagation is when that expected value is compared with the actual value. Through these procedures, a network gains both calculative precision and

intellectual insight, the primary traits that differ deep learning neural networks from conventional computer programs and assimilate them to the human brain in intelligence.

Figure   5.
Retrieved from https://www.researchgate.net/figure/51200358_fig3_Illustration-of-the-architecture-of-the-back-propagation-neural-network-BPNN-The-BPNN

Using the properties of AI, this paper proposes that the learning capabilities of the deep learning process will be able to simulate the conditions of rebreather diving. By such simulations, AI programs will be able to learn the dangers of deep sea diving and will be able to aid human divers in determining conditions that are safe for rebreather application. Future data collection will also be inputted into the AI programs to further accuracy. By collecting such data, human divers will have a data bank of conditions and AI assistance on the issue of whether rebreather conditions are safe for the particular dive that they are about to proceed in.

Implication For Education And Teachers
Amongst the rapid tide of technology, deep leaning is quickly becoming one of the most influential one in all fields. While AI has not yet completely taken over the job of teachers, however, it is only valid to assume that soon intelligent machines will be a common sight in the average classroom. Therefore, it is essential that one recall the real potential and compatibility of this extraordinary technology and begin to shape curriculums and policies to better embrace the changes it will make in the future. The figure and numbered list below demonstrate H. Luckin's assertion of how the individuals of this era may prepare for deep learning's further influences in the future education system.

Figure 6.

ROLE OF TEACHERS

As the role of AI increases in the sphere of education, teachers will be required to develop new skills.

According to the creators of the AI Education system (Luckin, R.et.al. 2016), these requirements will likely be:

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 resources effectively. (Luckin, R.et.al. 2016)

Conclusions

Deep learning's recent feats remind us of the Confusion saying, "know one and thus understand everything." The recreation of the Bose-Einstein condensate highlights that artificial intelligence has become sophisticated enough to not only mimic human feats but also establish a more proficient way of achieving them. As researchers worldwide are sure of, this may be a feat that will transform the future of physical science and furthermore humankind as a race. Will artificial intelligence continue to serve as a secretary, an errand boy, or will it escalate to becoming a vital promoter of future discoveries? The answer is yet unclear, but it is now accurate to assert that AI has taken a considerable step toward dominating all parts of human life.

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The Utility Of Child Psychological Concepts To Motivate Learners

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Abstract

The inquiry into how learners are motivated has been widely debated among educators. However, today with the advent of new psychological concepts, new perspectives on this very old question of increasing stimulus can be re-examined in order to shed light on how child education will continue to unfold. This paper begins a discourse on the use of child psychological concepts to analyze how and why learners become motivated to learn. Particularly, this thesis will examine the structure of theories of cognition, learning, memorization, and milestones by which young learners interact and influence their environments. This paper will discuss the future trends in child development and its predicative effects in student's classrooms. This paper asserts that concepts in child psychology will continue to address a significant role in education when it comes to the 21st century classroom and that educators must familiarize themselves with this increased influence. In conclusion, this project, by closely examining the role of child psychology, sheds new light on how young students will be motivitaed to learn in future classrooms.

Introduction – Developmental Psychology

To understand psychological concepts to motivate learners, we must first begin by defining some concepts. Developmental psychology, also known as human development, is the scientific study of systematic psychological changes that occur in human beings over the course of the life span. Originally concerned with infants and children, the field has expanded to include adolescence and adult development, aging, and the entire life span. However, my paper will focus on the development related to young children. This field examines change across a broad range of topics including motor skills and other psycho-physiological processes; cognitive development involving areas such as problem solving, moral understanding, and conceptual understanding; language acquisition; social, personality, and emotional development, and self-concept and identity formation.

Developmental psychology includes issues such as the extent to which development occurs through the gradual accumulation of knowledge versus stage-like development, or the extent to which children are born with innate mental structures versus learning through experience. Many researchers are interested in the interaction between personal characteristics, the individual's behavior, and environmental factors including social context, and their impact on development; others take a more narrowly focused approach.

Piagetian Stages Of Cognitive Development

The first theory we will examine are the Piagetian Stages. Piaget was a French-speaking Swiss theorist who posited that children learn through actively constructing knowledge through hands-on experience. He suggested that the adult's role in helping the child learn was to provide appropriate materials for the child to interact and construct. He would use Socratic questioning to get the children to reflect on what they were doing. Piaget would try to get them to see contradictions in their explanations. He also developed stages of development. His approach can be seen in how the curriculum is sequenced in schools, and in the pedagogy of preschool centers across the United States. (Piaget, 1958)

Vygotsky's Cultural-Historical Theory

Vygotsky was a theorist from the Soviet era, who posited that children learn through hands-on experience, as Piaget suggested. However, unlike Piaget, he claimed that timely and sensitive intervention by adults when a child is on the edge of learning a new task, called the "zone of proximal development," could help children learn new tasks. This technique is called "scaffolding," because it builds upon knowledge children already have with new knowledge that adults can help the child learn.

Vygotsky was strongly focused on the role of culture in determining the child's pattern of development, arguing that development moves from the social level to the individual level. (Vygotsky,1998)

Ecological Systems Theory
Also called "Development in Context" or "Human Ecology" theory, Ecological Systems Theory, originally formulated by Urie Bronfenbrenner specifies four types of nested environmental systems, with bi-directional influences within and between the systems. The four systems are Microsystem, Mesosystem, Exosystem, and Macrosystem. Each system contains roles, norms and rules that can powerfully shape development. Since its publication in 1979, Bronfenbrenner's major statement of this theory, The Ecology of Human Development has had widespread influence on the way psychologists and others approach the study of human beings and their environments. As a result of this conceptualization of development, these environments — from the family to economic and political structures — have come to be viewed as part of the life course from childhood through adulthood. (Bronfenbrenner, 1979)
Attachment Theory

Attachment theory, originally developed by John Bowlby, focuses on close, intimate, emotionally meaningful relationships. Attachment is described as a biological system or powerful survival impulse that evolved to ensure the survival of the infant. A child who is threatened or stressed will move toward caregivers who create a sense of physical, emotional and psychological safety for the individual. Attachment feeds off of body contact and familiarity. Later Mary Ainsworth developed the Strange Situation Protocol and the concept of the secure base. Unfortunately, there are situations that inhibit a child from forming attachments. Some babies are raised without the stimulation and attention of a regular caregiver, or locked away under conditions of abuse or extreme neglect. The possible short-term effects of this deprivation are anger, despair, detachment, and temporary delay in intellectual development. Long-term effects include increased aggression, clinging behavior, detachment, psychosomatic disorders, and an increased risk of depression as an adult. (Ainsworth & Bowlby, 1991)

Nature/Nurture Theories
A significant issue in developmental psychology is the relationship between innateness and environmental influence in regard to any particular aspect of development. This is often referred to as "nature versus nurture" or nativism versus empiricism. A nativist account of development would argue that the processes in question are innate, that is, they are specified by the organism's genes. An empiricist perspective would argue that those processes are acquired in interaction with the environment. Today developmental psychologists rarely take such extreme positions with regard to most aspects of development; rather they investigate, among many other things, the relationship between innate and environmental influences. One of the ways in which this relationship has been explored in recent years is through the emerging field of evolutionary developmental psychology.
One area where this innateness debate has been prominently portrayed is in research on language acquisition. A major question in this area is whether or not certain properties of human language are specified genetically or can be acquired through learning. The empiricist position on the issue of language acquisition suggests that the language input provides the necessary information required for learning the structure of language and that infants acquire language through a process of statistical learning. From this perspective, language can be acquired via general learning methods that also apply to other aspects of development, such as perceptual learning. The nativist position argues that the input from language is too impoverished for infants and children to acquire the structure of language. Linguist Noam Chomsky asserts that, evidenced by the lack of sufficient information in the language input, there is a universal grammar that applies to all human languages and is pre-specified. This has led to the idea that there is a special cognitive module suited for learning language, often called the language acquisition device. Chomsky's critique of the behaviorist model of language acquisition is regarded by many as a key turning point in the decline in the prominence of the theory of behaviorism generally. But Skinner's conception of "Verbal Behavior" has not died, perhaps in part because it has generated successful practical applications.

Mechanisms Of Development
Developmental psychology is concerned not only with describing the characteristics of psychological change over time, but also seeks to explain the principles and internal workings underlying these changes. Psychologists have attempted to better understand these factors by using models. Developmental models are sometimes computational, but they do not need to be. A model must simply account for the means by which a process takes place. This is sometimes done in reference to changes in the brain that may correspond to changes in behavior over the course of the development. Computational accounts of development often use either symbolic, connectionist (neural network), or dynamical systems models to explain the mechanisms of development.
Cognitive Development

Cognitive development is primarily concerned with the ways in which infants and children acquire, develop, and use internal mental capabilities such as problem solving, memory, and language. Major topics in cognitive development are the study of language acquisition and the development of perceptual and motor skills. Piaget was one of the influential early psychologists to study the development of cognitive abilities. His theory suggests that development proceeds through a set of stages from infancy to adulthood and that there is an end point or goal. Other accounts, such as that of Lev Vygotsky, have suggested that development does not progress through stages, but rather that the developmental process that begins at birth and continues until death is too complex for such structure and finality. Rather, from this viewpoint, developmental processes proceed more continuously, thus development should be analyzed, instead of treated as a product to be obtained.

Social And Emotional Development
Developmental psychologists who are interested in social development examine how individuals develop social and emotional competencies. For example, they study how children form friendships, how they understand and deal with emotions, and how identity develops. Research in this area may involve study of the relationship between cognition or cognitive development and social behavior.

Future Trends In Child Development
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. (Goodfellow, Bengio, & Courville, 2016)

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 child development signifies something wholly another level.

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.

In the past, child development concepts lacked the data to support many of its concepts. But by using artificial intelligence to mine data, stakeholders will now be able to demonstrate with more certainty whether child development concepts is supported by the data. As such, 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. While the term itself if quite

self-explanatory, it can also be misleading, for data mining focuses on the extraction of patterns and knowledge rather than the extraction itself.

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.

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. (Goodfellow, et al. 2014)

Data mining, like child development concepts, was first developed as a way to furnish models.
Therefore, it used to focus mainly on structured data, which had a fixed formality of researchable topics.
However, soon data mining began to research unstructured data – searches on the internet, photos, and purchase histories – as well. 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 foundation for accuracy.   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. For instance, Sequence or Path Analysis parameters search for patterns where one factor leads to another, while a classification parameter looks for new trends and predicts variables according to other details from the database. Clustering parameters group, a set of factors, usually previously unknown, based on their similarity to each other. (Goodfellow, et al. 2014)

Conclusion

As briefly described above, data mining was first utilized in fields such as mathematics, genetics, and marketing. The area of economics and commercialization primarily benefited from past data mining technologies, 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, and the data via the internet became more sophisticatedly correlated, the data mining technology began to adapt to almost every sphere of life. Especially in the field of psychology, the ability to uncover hidden patterns and correlations in data meant that researchers are not more than ever test their developmental theories.

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The Utility Of Deep Learning To Aid In The Curriculum Of Design Projects

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Abstract

Practitioners in the field of design widely accept the utility of computer and machines to aid in the production of materials such as the blueprints of an architectural layout or the 3D model of a structure. Furthermore, practitioners normally utilize computer software programs to decrease physical labor, creating digital models rather than tangible models. In the past, designers had to endure hundreds of hours of physically intensive work while meticulous planning and carefully setting the groundwork before a single work of design could be completed. Fortunately, however, the recent synchronization of machine learning and the field of design is anticipated to eradicate the most arduous processes from the world of functional, aesthetic, and innovative design creation. This paper discusses the genesis and contemporary application of the deep learning technology in the sphere of design with particular attention to both graphic and object design. By unveiling the most recent triumphs in the field of deep learning, this article also aims to discover the roles artificial intelligence may undertake in the industry of design and to discover whether such roles will have an impact on the curriculum of design education.

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/)
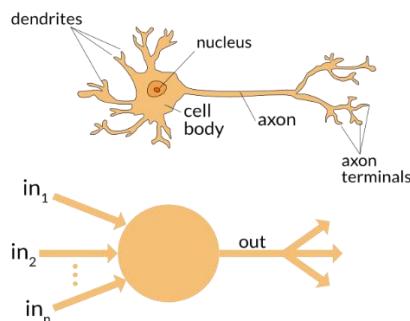
Similar to a human brain, deep learning uses previous data and experience to put out the best solution to a challenge. While the similarity had evoked a hunch of dystopian uneasiness to countless writers and technology conservatives, it has also become the main reason why deep learning applies to almost 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.
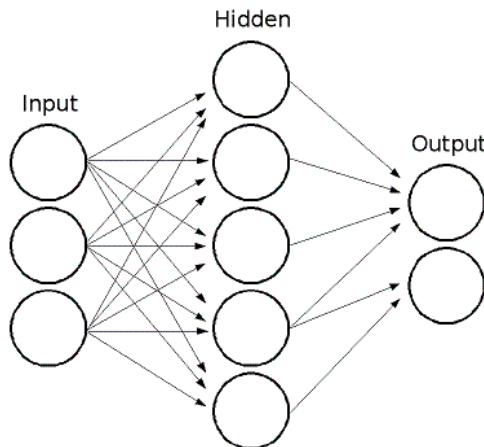
Figure 2.
(Retrieved from https://jaygshah22.quora.com/Neural-Networks)

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.
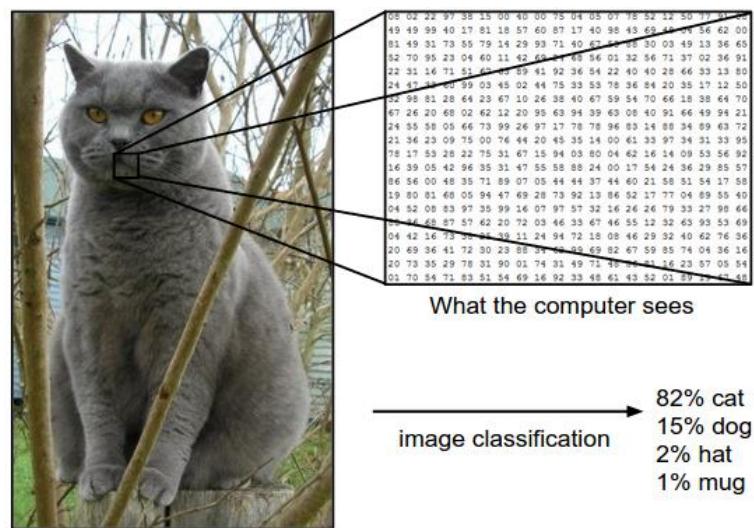
Figure 2.
(Retrieved from https://medium.com/the-data-experience/building-a-data-pipeline-from-scratch-32b712cfb1db)

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 Utility Of Gamification To Engage And Motivate Learners

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Abstract
The question of the role of gamification, a new trend in education, has begun a debate in both teaching and technology fields with some schools already utilizing gamification methods in the classroom to motivate students. Furthermore, this new trend has caught the attention of venture-capitalist showing a determination to invest in specialized education programs based on gamification principles. Amongst this buildup, however, the question of whether gamification is an effective instrument with which learners can be engaged and motivated has not been adequately addressed. This paper attempts to address that need by evaluating the future role of gamification with a particular focus on whether gamification will change the traditional classroom scene. Also, this article will be looking at interactive gamification to show benefits and limitations of these systems while acknowledging the certainty that the field of education is one of the many spheres of human life that will be influenced by gamification principles.

Behavior Change Games

People -- citizens and consumers, change-makers and entrepreneurs, artists and hackers – are creating the future of engagement, not organizations and corporations. So, organizations can learn best practices from entrepreneurs and change-makers and adapt them in their own engagement efforts. The shared purpose that fuels engagement is either a sense of citizenship, or a desire for self-improvement. Sustainability, wellness and learning are the three most powerful areas not only for grassroots change movements and collaborative social innovation, but also for behavior change games.

This is not surprising. Game researcher Jane McGonigal, who is also the author of *Reality is Broken: Why Games Make Us Better and How They Can Change the World* explains why such games work: "Gamers spend on average 80% of their time failing in game worlds, but instead of giving up, they stick with the difficult challenge and use the feedback of the game to get better. With some effort, we can learn to apply this resilience to the real-world challenges we face." Most behavior change games include four game design mechanisms: setting goals and missions, tracking progress, receiving incentives, and receiving support. The first step in most behavior change games involves setting a goal and missions, quests or challenges to achieve the goal. Players have missions assigned to them, choose from a set of pre-configured missions, or create their own missions.

Missions range in difficulty, and new players are encouraged to start with easier missions before proceeding to more difficult ones. *On Mint* and *Payoff* typical goals include paying off a credit card debt or buying a house, while on *Fitocracy* and *Super Better* typical missions include eating healthier or working out. Most behavior change games track progress by asking players to complete virtual or self-report on their progress while some automatically track data through sensors and feeds. Most games use points, rankings, levels and leader boards to help players measure their progress and compare their performance to friends, similar others, and other players. For instance, *OPower* compares players' energy consumption to that of their neighbors and *Mint* compares peoples' spending habits across categories such as coffee, phone bills and gas. These benchmarks help players reevaluate their missions and encourage a healthy sense of competition, both to beat their own best performance and that of their friends. Players receive incentives when they accomplish tasks such as completing their profile, inviting friends, sharing their progress, or achieving a milestone. Incentives range from rewards like points, virtual goods and unlocked content; recognition through badges, levels, titles and special privileges; and in some cases real-life prizes including cash prizes and holidays packages.

Incentives are effective in attracting first-time players, helping them get started and creating fun and excitement. After they are hooked and begin to successfully complete missions, players receive the ultimate incentive to keep playing – they see a change in their behavior and experience a sense of pride and self-empowerment. Behavior change games work best when they are designed with wonder, playfulness and storytelling at their core. In spite of the hype around gamification and the success of white label gamification solutions like *Badgeville, Bunchball*, and *BigDoor*, it's not enough to just add community or game elements to boring tasks. Game researcher Nicole Lazzaro explains why we play games: "Wonder, one of the strongest emotions of game design, rivets player attention and unleashes

powerful neurochemicals that facilitate learning. At the heart of every intellectual pursuit, at the root of nearly all engagement, wonder keeps players coming back."

Game researcher Raph Koster argues in his book *Theory of Fun for Game Design* that games and stories have a complimentary role: "Games tend to be experiential teaching; stories teach vicariously. Games are good at objectification; stories are good at empathy. Games tend to quantize, reduce, and classify; stories tend to blur, deepen, and make subtle distinctions. Games are external – they are about people's actions; stories are internal – they are about people's emotions and thoughts." Understanding the role of gamification in education, therefore, means understanding under what circumstances game elements can drive learning behavior. (Koster, 2005)

The idea is that gamification satisfies motivational needs and stimulates retention. Two motivational types are to be distinguished: intrinsic and extrinsic. Intrinsic motivation is motivation the user obtains from internal factors, e.g. ethical values. Extrinsic motivation is motivation that is external to the individual, e.g. material rewards. To enhance motivation, the initial extrinsic motivation should be boosted, but intrinsic motivation should stay intact. This does not always happen with gamification. For example, time constraint helps the student get extrinsically motivated, but can harm internal motivation if the pressure is too high to accomplish anything. This does not mean every attempt at extrinsic motivation is doomed There are other sources of motivation such as self-efficacy, group identification and social approval that can also be supported by gamification techniques. These result in long-term engagement as it makes people feel good about themselves. A badge, for example, is not new. The U.S.A. boy scouts have made badges a tradition, because they understood that rewarding someone with a badge functions both as extrinsic and as intrinsic motivator. Extrinsic because it is a material reward for an act. But on a deeper level, the badge is stimulating the intrinsic motivation of the scout by providing him with a feeling of belonging. The same goes for gamified badges. This example is called the achievement principle, basically meaning that even though the object used to motivate is purely external, the motivation it generates might affect both internal and external gratification. We believe that we are only beginning to understand the potential of behavior change games to create meaningful change for individuals, communities and the world, and also their many risks. In the future, behavior change games that tap into the power of games, networks and data will become pervasive across business, civil society and government organizations and permeate all aspects of society. After developing from a long tradition and fighting for legitimacy, gamification can be defined as the use of game elements in a non-gaming context. These game elements can affect learning on two levels, namely boosting user experience and increasing user engagement.

When talking about learning, user experience is especially important. Having fun can make learning a side of play. Games are known to be addictive, so the idea is to use this mechanism to boost learner's motivation. Gamification can only boost extrinsic (or external) motivation. However, intrinsic (or internal) motivation has to remain intact. (Koster, 2005)

Understanding the role of gamification in education, therefore, means understanding under what circumstances game elements can drive learning behavior. Making use of Salen and Zimmerman's Rules, Play, and Culture framework we can better break down the impact of gamification. According to Salen and Zimmerman, we can divide the framework into three paradigms:

Cognitive. Salen and Zimmerman illustrated that games provide complex systems of rules for players to explore through active experimentation and discovery. For example, the apparently simple mobile game Angry Birds asks players to knock down towers by launching birds out of a slingshot. Players must experiment with the game to figure out the physical properties of different tower materials, the ballistics of the slingshot, and the structural weaknesses of each tower. They launch birds, observe the results, plan their next moves, and execute those plans. In short, players' desire to beat each level makes them small-scale experimental physicists. (Salen & Zimmerman, 2003)

Emotional. Furthermore, Salen and Zimmerman demonstrated that games invoke a range of powerful emotions, from curiosity to frustration to joy. They provide many positive emotional experiences, such as optimism and pride. Crucially, they also help players persist through negative emotional experiences and even transform them into positive ones. (Salen & Zimmerman, 2003) According to the researchers, the most dramatic example of emotional transformation in a game is around the issue of failure. Because games involve repeated experimentation, they also involve repeated failure. In fact, for many games, the only way to learn how to play the game is to fail at it repeatedly, learning something each time. Games maintain this positive relationship with failure by making feedback cycles rapid and keeping the stakes low. (Lee & Hammer, 2011) Gamification offers the promise of resilience in the face of failure,

by reframing failure as a necessary part of learning. Gamification can shorten feedback cycles, give learners low-stakes ways to assess their own capabilities, and create an environment in which effort, not mastery, is rewarded. Students, in turn, can learn to see failure as an opportunity, instead of becoming helpless, fearful or overwhelmed. (Lee & Hammer, 2011)

Social. Finally, Salen and Zimmerman demonstrated that games allow players to try on new identities and roles, asking them to make in-game decisions from their new vantage points. In video games, players may take on the roles of gun-toting mercenaries, speedy blue hedgehogs, elven princesses, and more. Players also adopt roles that are less explicitly fictional, exploring new sides of themselves in the safe space of play. For example, a shy teenager might become a guild leader, commanding dozens of other players in epic battles against legions of enemies. A well-designed gamification system can help players take on meaningful roles that are fruitful for learning. By making the development of a new identity playful, and by rewarding it appropriately, we can help students think differently about their potential in school and what school might mean for them. (Lee & Hammer, 2011)

Artificial Intelligence
If we assume that gamification elements should be employed in schools, then, how can we harness the power of Artificial Intelligence to assist with gamification.
There are three Major Branches of AI
1. Learning system: Computer changes how it functions or reacts to situations based on feedback
2. Natural language processing: Computers understand and react to statements and commands made in a "natural" language, such as English
3. Neural network : Computer system that can act like or simulate the functioning of the human brain

Neural network
I will be addressing the third network. We can program artificial neural networks to create behavior change games. Behavior Change Games use game design elements and the power of communities to motivate people to achieve challenging tasks. By utilizing machine learning concepts, we can achieve a synergy by which we can utilize artificial intelligence to bolster and create better gamification games to motivate learners.
Perhaps the best explanation for this possibility of intelligent machines utilizing gamification principles lies in deep learning's design. The deep learning model is consisted of layers of interactive algorithms, which simultaneously classify intricate structures from inputted 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. For example, deep learning models can tell us in real time which gamification techniques are effective and which are not.

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. (McCarthy, 2007)

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. (McCarthy, 2007)

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. (McCarthy, 2007)

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. (McCarthy, 2007)

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. (McCarthy, 2007)

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. (McCarthy, 2007)

Figure 3
(Retrievedfrom:
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

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 gamification and education 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. 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 gamification. (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 increased use of gamification in schools. Furthermore, even the field of gamification 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 gamification 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 gamification 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 gamification.

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 gamification 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 AI and games may move and entertain its creator.

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The Utility Of Machine Technology To Solve Mechanical Engineering Problems

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Abstract

That deep learning technology comprises both computer programming and mechanical engineering concepts remains a largely unexplored theory because the question of the role of machine learning and deep learning models in the mechanical engineering field has not been inadequately explored. While there have been some attempts to apply machine technology to solving engineering problems, most machine technology has usually revolved around the use of face recognition, speech recognition, and natural language processing patterns to solve problems in computer science. With an emphasis on the use of Convolutional Neural Networks, this paper addresses the methodology of using machine learning, including limitations, to solve complicated mechanical engineering problems. Primarily, this paper will illustrate the modification deep learning is producing and will continue to create 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. By exploring such developments, this paper will also address how the field of engineering education will be affected in the future.

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)
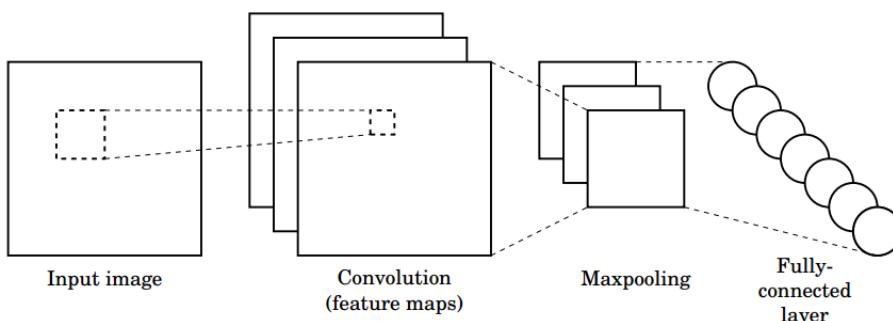
Figure 1.

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.)
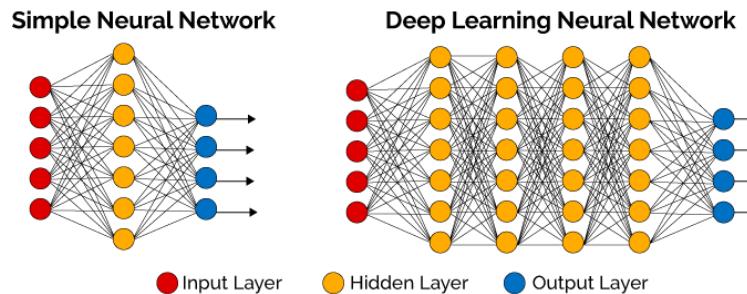
Figure 2

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)
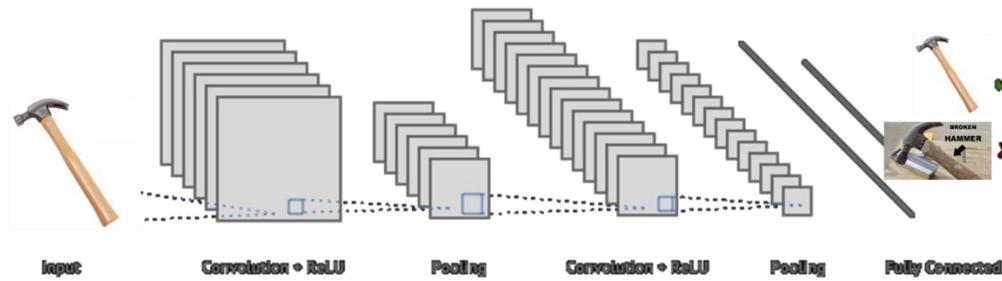
Figure 3.

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)
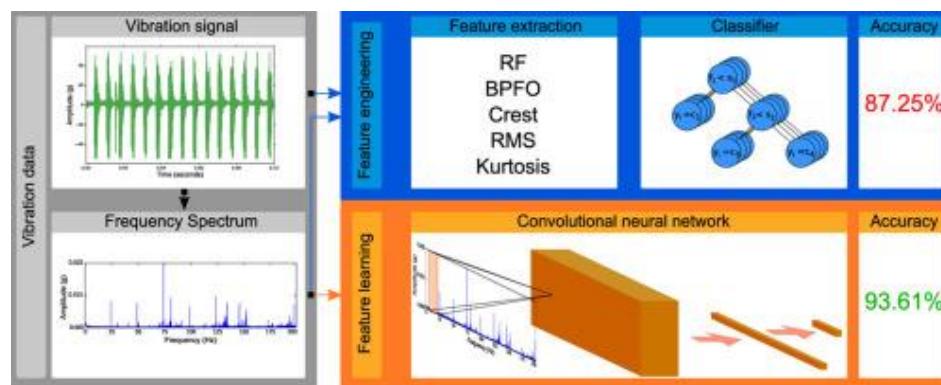
Figure 4.

(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.

Example Of Cnn Code

The following below is an example of computer code of Python, a computer program commonly used to code AI applications for convolutional neural networks, the foundational principle of machine learning. Using this capacity, given an image, the AI could predict imminent failure in a mechanical instrument, and in another project, predict failure in a motion mechanism through vibrations given off by the machinery, highlighting the potential uses of AI in future machine design.

The below AI program that could possibly predict errors in instruments or failures in machine systems based on machine learning analysis of operational images. The AI algorithm could analyze the images of normal operational instruments or machines. With these variables and a defined purpose, the AI can be given training sets by inputting previously instances of systems failures and successes so that the AI can adjust its weights to create an accurate prediction. By utilizing such a program, engineers will be able to predict systems defects and improve the design of machines.

```
# Convolutional Neural Network

# Installing Theano
# pip install --upgrade --no-deps git+git://github.com/Theano/Theano.git

# Installing Tensorflow
# pip install tensorflow

# Installing Keras
# pip install --upgrade keras

# Part 1 - Building the CNN

# Importing the Keras libraries and packages
from keras.models import Sequential
from keras.layers import Conv2D
from keras.layers import MaxPooling2D
from keras.layers import Flatten
from keras.layers import Dense

# Initialising the CNN
classifier = Sequential()

# Step 1 - Convolution
classifier.add(Conv2D(32, 3, 3, input_shape = (64, 64, 3), activation = 'relu'))

# Step 2 - Pooling
classifier.add(MaxPooling2D(pool_size = (2, 2)))

# Adding a second convolutional layer
classifier.add(Conv2D(32, (3, 3), activation = 'relu'))
classifier.add(MaxPooling2D(pool_size = (2, 2)))

# Step 3 - Flattening
classifier.add(Flatten())

# Step 4 - Full connection
classifier.add(Dense(units = 128, activation = 'relu'))
classifier.add(Dense(units = 1, activation = 'sigmoid'))

# Compiling the CNN
```

```
classifier.compile(optimizer = 'adam', loss = 'binary_crossentropy', metrics = ['accuracy'])

# Part 2 - Fitting the CNN to the images

from keras.preprocessing.image import ImageDataGenerator

train_datagen = ImageDataGenerator(rescale = 1./255,
                    shear_range = 0.2,
                    zoom_range = 0.2,
                    horizontal_flip = True)

test_datagen = ImageDataGenerator(rescale = 1./255)

training_set = train_datagen.flow_from_directory('Wrencher Categorizer Dataset/training_set',
                        target_size = (64, 64),
                        batch_size = 32,
                        class_mode = 'binary')

test_set = test_datagen.flow_from_directory('Wrencher Categorizer Dataset/test_set',
                        target_size = (64, 64),
                        batch_size = 32,
                        class_mode = 'binary')

classifier.fit_generator(training_set,
                steps_per_epoch = 30,
                nb_epoch = 2,
                validation_data = test_set,
                nb_val_samples = 10)

# Part 3 - Making new predictions

import numpy as np
from keras.preprocessing import image
test_image = image.load_img('Wrencher Categorizer Dataset/Single Prediction/examplewrencher.jpg', target_size =
(64, 64))
test_image = image.img_to_array(test_image)
test_image = np.expand_dims(test_image, axis = 0)
result = classifier.predict(test_image)
training_set.class_indices
if result[0][0] == 1:
    prediction = 'wrencher'
else:
    prediction = 'inoperable'
```

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 Utilization Of Digital Distributed Ledgers In Economics Theory

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Abstract
Although the field of digital distributed ledgers is still in its infancy, this relatively new field has begun to establish niches in various fields. In fact, distributed ledgers are currently being utilized in microfinancing and international currency remittance systems. Stakeholders in the industry predict an ever increasing trend of rapid growth in the technology market relating to the utilization of digital distributed ledgers, foreseeing a need to evaluate the impact on economics theory. The increasing utility of distributed ledgers in various spheres of life has established a debate among academians about the general opinion of how far this new technology would intervene in the curriculum of economics. This paper addresses the methodology of using both centralized and decentralized peer-to-peer digital ledgers to resolve various issues in the field of economics with particular attention to the effects on micro-economics theory and consequently its outgrowths on the methods of education. Particularly, this treatise will be looking at the current and the future use of digital ledgers in the field of business and economics, while noting the breakthroughs and possible limitations in the process. Specifically, this paper will be looking at the use of distributed ledgers to drive the changes in economic theory, thereby evoking the need to examine the processes of future economic curriculums.

Introduction To Distributed Ledger Technology

DLT is a protocol for building a replicated and shared record ledger system. Such a system may be used to record a wide range of items, such as asset ownership, asset transfer transactions, and contract agreements. While its ledger function is similar to that of a conventional paper-based or electronic-based ledger system, its capabilities go much further. It provides a new way of constructing a secure record system that offers stakeholders more transparency, and that encourages member participation in its operations. DLT is built upon a series of networks of databases that allow participants to create, disseminate and store information in an efficient and secure manner. These networks of databases can operate smoothly and securely without the need for any central party or central administrator that every participant knows and trusts. (ASTRI, June 2018)

At the same time, these networks make constantly available for examination a full audit trail of information history, which can be traced back to the moment when a piece of information was created for the first time. Furthermore, unauthorized changes to the information and its history are very difficult, if not impossible, to make. In other words, DLT operations are designed in such a way that information stored and communicated through the networks has a high level of trustworthiness, and every participant in the network can get simultaneous access to a common view of the information. Structurally speaking, a blockchain may be considered as a series of blocks of information that are securely chained together. Any given digital record of an asset, be it a copy of the title deeds of a bricks-and mortar property or a virtual commodity, can be stored in a block. New blocks are formed whenever participants create a piece of new information or change an existing piece of information about an asset, for example by entering transaction records, changes of status, new market prices, or new owners. (ASTRI, June 2018)

All blocks newly formed after the first block are securely chained to the previous one, thus ensuring their authenticity and creating a trustworthy audit trail. In fact, one of the earlier uses of DLT was in the area of virtual commodities for which change in the ownership of a commodity is recorded in the blockchain. (ASTRI, June 2018)

Figure 1. (Retrieved from: http://blockchain.open.ac.uk/)

According to the Wharton School of the University of Pennsylvania, blockchain is "a distributed database of computers that maintains records and manages transactions" (Knowledge @ Wharton, 2016). Unlike the orthodox financial system that is based upon a central authority -most commonly a bank- blockchain utilizes "blocks" to record transactions in the permanent database. The blocks, that may contain and record anything that may be of value, from money to equities, bonds, titles, deeds, and contracts, are then linked to each other in the form of a chain in linear, chronological order. A graphic illustration of this concept may be seen in Figure 1 above.

Furthermore, instead of storing all the information in one central database, blockchain is distributed across all computers around the world that are connected to its network clients: an advantage over any other financial model that make it nearly impossible to be hacked, for an attack would have to include accessing every copy of the database simultaneously to succeed. Wharton School eagerly reports that "The ability of the (blockchain) technology to provide an unforgeable record of identity, including the history of an individual's transactions, is one are being eagerly explored." The graphic in Figure 2 below illustrates the difference between the traditional methods of recording a transaction on a ledger and the blockchain method of recording a transaction. In the traditional method (illustrated on the right) the transaction record is kept by the clearing house in one location. This makes it vulnerable to attack and hacking because any attack must only breach the security of the clearing house. In a blockchain, however, the ledger is kept by multiple parties to the blockchain. Therefore, any attack must breach the security of multiple keepers of the ledger, an almost impossible task. The blockchain, then, provides a much more secure method of keeping a ledger.

Figure 2. (Retrieved from: /https://www.uktech.news/news/distributed-ledger-technology-wheres-the-value-20160328)

It would be very easy to examine the definition of blockchain without truly understanding the ramifications of this new technology because the definition is after all, benign.

The blockchain technically is a just digital ledger. One would be forgiven if one were to contemplate on such a question as: "how can a digital ledger bring about a "Revolution" in the financial industry?" To answer this question, one must examine the ramifications of this ledger and how it will change not only the financial sector but also every other industry that involves transactions.

One would be forgiven if one were to contemplate on such a question as: "how can a digital ledger bring about a "Revolution" in the financial industry?" To answer this question, one must examine the ramifications of this ledger and how it will change not only the financial sector but also every other industry that involves transactions.

The simple answer is Trust. For the first time in modern history, blockchain ensures "trust" among the parties to a transaction. For example, when a buyer purchases a product on Amazon, it is Amazon who ensures that the buyer will pay and who ensures that the seller will deliver the product under the traditional definition of online transaction. People purchase products on Amazon because they can reasonably assume their transaction will be completed. It is trust that allows the transaction to take place. However, with the blockchain, Amazon will be cut out of the transaction. Indeed, any 3rd party agent that plays the role of ensuring trust between the parties to the transaction will no longer be needed. The blockchain is a peer to peer application. In other words, the buyer and the seller deal with each other directly. There is no third party to the transaction. The Harvard Business Review describes this transaction as following: "Instead a series of intermediaries act as guarantors of assets as the record of the transaction traverses organizations and the ledgers are individually updated. In a blockchain system, the ledger is replicated in a large number of identical databases, each hosted and maintained by an interested party. When changes are entered in one copy, all the other copies are simultaneously updated. So as transactions occur, records of the value and assets exchanged are permanently entered in all ledgers." (Iansiti, M. 2017) The ensuring or "trust" in the transaction is provided by the blockchain ledger. The transaction will be digitally recorded in the ledger and this record will be permanent. Anyone who wants to exam the transaction may do so.

The ramification of Trust is enormous because there will be no need for 3rd party agents. Bitcoin fans have been enthralled by this idea, dubbing it "the libertarian ideal of a pure, digital currency beyond the reach of any central bank." The economist commented that "The real innovation is not the digital coins themselves, but the trust machine that mints them—and which promises much more besides." (The Economist, 2015) The business sector themselves are aware that this ramification might engender a disruption to the existing economy. Accordingly, many financial institutes are conducting research on how this will impact their business practices. After all the biggest 3rd party agents in society are financial institutions.

Ramification number 2 is Chain of Custody. Chain of Custody ensures that whatever product that is registered on the blockchain is the genuine product and not a replica or reproduction. For example, imagine that an artist creates a sculpture. There is a digital passport that can be embedded into the work. This digital passport number is then registered onto the blockchain. Once registered, the artist will have a permanent and irrevocable chain of custody record. Anyone who wants to purchase that sculpture will now be able to track the chain of custody of that work from the time it leaves the artist hands until the time it arrives in the hands of the purchaser. The ramification is that the blockchain can ensure that any product is the genuine item. The blockchain may be able to eliminate fraudulent and knockoff products. This is not limited to just works of art. Any product's genuineness can be ensured, whether it be coffee, hand bags, clothes, or diamonds.

In real life, online P2P lodging services like AirBnB incorporates the blockchain for the very reason- the Chain of Custody. Companies like AirBnB provide a platform that enables individual home owners rent their rooms to other individuals. For systems like this, safety and credibility is easily the biggest concern. In order to ensure a level of security and credibility, the lodgings and the hosts are each given unique ID numbers, used similarly as the aforementioned digital passport. Because this ID represents the specific person or the specific lodging, it cannot be

tampered with or duplicated even if the users delete their accounts and make a new one. The Goldman Sachs analyze such implementation of blockchain saying "By enabling a secure, tamper-proof system for managing digital credentials and reputation, we believe blockchain could help accelerate the adoption of P2P lodging." (Williams-Grut, O. 2016)

In sum, Blockchain does have the potential to "revolutionize" not only the financial industry but also many other industries because of these ramifications. Imagine a world where there is no need for bankers, real estate brokers, insurance agents, attorneys, or for an Amazon. Large corporations all over the world are acknowledging the potential of the Blockchain, and the extent to which the industry is growing is rather eye-opening. According to the Reuters, "American International Group Inc. (AIG.N) announced a blockchain-based insurance product. Bank of America, Citigroup, Goldman Sachs, Wells Fargo and other banks have invested in blockchain startups, and many will roll out commercial blockchain products [in 2017]. In the first quarter [of 2017], blockchain startups raised a total of $141 million from investors, a 57 percent increase over the fourth quarter [...] according to data provider CB Insights." (Somerville, H. 2017) These trends are only beginning of blockchain disrupting the traditional financial systems.

It would be difficult to talk about blockchain without talking about "Bitcoin," because many people confuse the two and think that they are the same. They are not. Perhaps one should be forgiven to confuse the two since they are part of the parlance, and because the "inventor" of Bitcoin also created the idea of the blockchain. The blockchain technology has its beginnings with an unknown programmer -or programmers- using the nickname: Satoshi Nakamoto. Takemoto didn't invent crypto-currency. Crypto-currency had been around before. What Nakamoto did was he solved the double-spend problem.

Satoshi Nakamoto found a way to eradicate the double-spending problem or an error in digital money trade in which the same token -currency of value- is spent more than once. In other words, how can we prevent people from using the same crypto-currency twice? Nakamoto's solution to the double spending problem is illustrated in Figure 3. Nakamoto came up with the blockchain, a digital ledger that ensures trust and a chain of custody for the bitcoin. As a result, the bitcoin does not rely on a 3rd party and also has a chain of custody to ensure legitimacy.

Figure 3

Due to this feature, bitcoin became renowned for its security and reliability as a token of exchange. All of the transactions made via bitcoin are marked into a new "block" every ten minutes. Also, according to Dr. Saifedean Ammous's research, "For somebody to 'hack' into the Bitcoin network and change the issuance schedule, they would be required to marshal processing power larger than 17,000 times the power of the world's top 500 supercomputers. Alternatively, more than half of the processing power behind the distributed Bitcoin network needs to vote to change the issuance protocol. Such a change is highly impractical, for several reasons."

But, one must ask: Couldn't we apply the concept of the blockchain ledger to other valuables? Like coffee, handbags, or anything sold on Amazon? What naturally should have been a "yes," was hampered by the fact that bitcoin gained something of a bad reputation.

Implications For Education

According to D. Lavin at Edtech Strategies, the following may be methods in which blockchain technology may be utilized:

1. Records Keeping: Student transcript/degree/test score/record validation and transfer, including those associated with college admissions;
2. Educator credentialing/certification/re-certification;
3. Management and tracking of school property and assets;
4. Management of student privacy and parental records;
5. Distribution of federal/state programmatic funds or private grants;
6. Distribution and payment of student loans. (Levin, D. 2016)

Generally, any and all records kept by educational institutions can be kept on a blockchain ledger. The advantages of security, chain of custody, and transparency would be bestowed on the administrative actions of an educational institution. As the role of digital distributed ledgers systems increases in education, institutional administrators will need to develop new skills, such as an ability to make value judgments on AI products and digital ledgers, developing research skills regarding AI and blockchains, interpreting data and using them effectively in administrative tasks and record keeping, utilizing new technologies and training members of an administration on such technologies. (Luckin, R.et.al. 2016)

Conclusion

Blockchain technology provides enhanced speed for transactions and because it is so fluid in its application, it seems that finally the information driven era has finally met its financial companion. This digital ledger has promised the economy to ensure trust by eliminating the third party that has been seen as a necessity in current day transactions. Also, blockchain provides a Chain of Custody, which can prove a product is genuine and has not been replicated. It seems evident that the blockchain technology, often mentioned in relation to the crypto-currency "bitcoin," would be tangible evidence that digital decentralized ledgers are tangible.

Therefore, the evolving environment of Artificial Intelligence and blockchain requires a multidisciplinary approach. No longer can financers, educators, administrators just be satisfied with the traditional way of doing things. Future financiers and other stakeholders must first understand the challenges that these new technologies bring, including addressing the problem of bitcoin's reputation. To reach new frontiers of the blockchain technology, they must also search their own knowledge and expertise, and share their expertise and perspectives. Those who are able to adjust and adapt these technologies in their practice will be the ones will be leaders of finance and education.

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The Utilization Of Game Theory Concepts To Improve Cooperation And Competion In Education

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Abstract

The question of why cooperation or conflict arises has been widely debated. However, today with the advent of game theory, new perspectives on this very old question of cooperation and competition can be re-examined in order to shed light on how education will evolve. This paper addresses the use of game theory to analyze how and why learners cooperate or compete with each other. Specifically, this project will examine the structure of systems in which stakeholders interact and the influence of such structures to impact inherent outcomes. This paper will discuss the future trends in game theory and its foreseeable effects in future classes. This paper argues that concepts in game theory 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 game theory, sheds new light on how learners will be taught in classrooms of the future.

Conflict And Cooperation

In a famous experiment, The Robbers Cave Experiment: Intergroup Conflict and Cooperation by Muzafer Sherif, O. J. Harvey, and William R. Hood, two dozen twelve-year-old boys in summer camp were formed into two groups, the Rattlers and the Eagles, and induced first to become militantly ethnocentric, then intensely cooperative. Friction and stereotyping were stimulated by a tug-of-war, by frustrations perceived to be caused by the "out" group, and by separation from the others. Harmony was stimulated by close contact between previously hostile groups and by the introduction of goals that neither group could meet alone. The experiment demonstrated that conflict and enmity between groups can be transformed into cooperation and vice versa and that circumstances, goals, and external manipulation can alter behavior. Sherif argued that intergroup conflict (i.e. conflict between groups) occurs when two groups are in competition for limited resources. This famous experiment was a prototype of principles advocated by game theory, which has been commonly defined as "a body of knowledge that deals with making decisions when two or more intelligent and rational opponents are involved under conditions of conflict and competition." (Sherif, 1958)

Instead of making inferences from the past behavior of the opponent, "the approach of game theory is to try and determine a rival's most profitable counter-strategy to one's own 'best' moves and to formulate the appropriate defensive measures." The term 'game' represents a conflict between two or more parties. There can be several types of games, e.g. two-person and n-person games, zero-sum and non-zero-sum games, constant-sum games, co-operative and non-co-operative games, pure strategy games and mixed strategy games, etc. Game theory had a major influence on the development of several branches of economics (industrial organization, international trade, labor economics, macroeconomics, etc.) Over time the impact of game theory extended to other branches of the social sciences (political science, international relations, philosophy, sociology, anthropology, etc.) as well as to fields outside the social sciences, such as biology, computer science, logic, etc. (Osborne, 2004)

Von Neumann and Morgenstern indicated the immediate utility of their work on mathematical game theory by linking it with economic behavior. Models can be developed, in fact, for markets of various commodities with differing numbers of buyers and sellers, fluctuating values of supply and demand, and seasonal and cyclical variations, as well as significant structural differences in the economies concerned. Here game theory is especially relevant to the analysis of conflicts of interest in maximizing profits and promoting the widest distribution of goods and services. Equitable division of property and of inheritance is another area of legal and economic concern that can be studied with the techniques of game theory. In the social sciences, n-person game theory has interesting uses in studying, for example, the distribution of power in legislative procedures. (Neumann & Morgenstern,1945)

This problem can be interpreted as a three-person game at the congressional level involving vetoes of the president and votes of representatives and senators, analyzed in terms of successful or failed coalitions to pass a given bill. Problems of majority rule and individual decision making are also amenable to such study. (Osborne, 2004)

Sociologists have developed an entire branch of game theory devoted to the study of issues involving group decision making. Epidemiologists also make use of game theory, especially with respect to immunization procedures and methods of testing a vaccine or other medication. Military strategists turn to game theory to study conflicts of interest resolved through battles where the outcome or payoff of a given war game is either victory or defeat. (Osborne, 2004) Game Theory and Artificial Intelligence are two mature areas of research, originating from similar roots, which have taken different research directions in the last 50 years. Recent research however shows that the connections between these areas are deep, and that the time had come for bridging the gap between these research disciplines. For example, the now famous match between Alpahgo and South Korea's Go champion Lee Se-dol illustrates what can now be achieved when game theory and artificial intelligence is connected.

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. (Goodfellow, Bengio, & Courville, 2016)

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.

As AlphaGo has demonstrated, the potential of applying artificial intelligence to support game theory with data mining is vast. In the past, game theory lacked the data to support many of its concepts. But by using artificial intelligence to mine data, stakeholders will now be able to demonstrate with more certainty whether game theory concepts related to conflict and cooperation is supported by the data. As such, 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. While the term itself if quite self-explanatory, it can also be misleading, for data mining focuses on the extraction of patterns and knowledge rather than the extraction itself.

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.

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. (Goodfellow, et al. 2014)

Data mining, like game theory, was first developed as a way to furnish marketing strategies.
Therefore, it used to focus mainly on structured data, which had a fixed formality of researchable topics.
However, soon data mining began to research unstructured data – searches on the internet, photos, and purchase histories – as well. 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 foundation for social power. 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. For instance, Sequence or Path Analysis parameters search for patterns where one factor leads to another, while a classification parameter looks for new trends and predicts variables according to other details from the database. Clustering parameters group, a set of factors, usually previously unknown, based on their similarity to each other. (Goodfellow, et al. 2014)

Conclusion
As briefly described above, data mining was first utilized in fields such as mathematics, genetics, and marketing. The area of economics and commercialization primarily benefited from past data mining technologies, 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, and the data via the internet became more sophisticatedly correlated, the data mining 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.

Data-related technologies along with game theory concepts are the sword and shield in today's global power distribution because these concepts coupled together can prescribe the when parties may cooperate or compete.
In these terms, the artificial intelligence to mine data married with game theory are not so different from the past technological revolutions: the power to use it for the ultimate good of humanity lies in the hands of those who wield it.

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The Value System As A One Of The Determinants Of The Educational Process: The Case Of Pupils From Roma Families

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Abstract
The topic of values as a current topic in terms of educational priorities becomes even more important in the context of educational value. Work with pupils from different cultural backgrounds, characterized by a different value system, makes the whole topic is even enhancing.
In our research, we concentrate on Roma pupils (the Roma minority is one of the several ethnics and nationalities living in the Czech Republic), especially because the socialization of this group is influenced by important determinants, specific to their social and cultural environment, as well as by their living in the areas affected by social exclusion and many other negatives such as pathological and social phenomena. In the context of reproduction theory in our society and the subsequent theory of social and cultural reproduction, Roma children are in risk because of their early withdrawal from education system.
Our goal in this research project is to analyse the value system of Roma pupils from secondary school and to capture what values and why they prefer in their lives. We believe that the identified data will bring rare findings into the mosaic of important aspects that must be considered in the educational process of Roma pupils and enrich the teachers who work with these pupils.

Introduction

According to the most recent source, the Report on the State of the Roma Minority in the Czech Republic for 2016 (Zpráva o stavu romské menšiny za rok 2016), the Roma population is the most numerous ethnic minority living in the Czech Republic. (However, like in other countries, statistic data about the Roma people are distorted as some of them have become reluctant to admit their nationality.) Informed estimates by the coordinators of the Roma Minority Affairs organization claim that in 2016, the Roma population in the Czech Republic numbered 245,800, which is 2.3% of the total population of the Czech Republic. The 2003 United Nation Development Report states that the situation of the Roma population in the Czech Republic is better in other countries of Central and Eastern Europe and that their social and health conditions are better. This is partly a result of the comprehensive welfare system and the overall economic situation in the Czech Republic. However, social exclusion, often in the form of ghettoization, continues to be an urgent problem due to its negative effect on all areas of life, including education. The EC's Special representative for Roma issues (report from July 2012) estimates that around 11 million Roma live in Europe, of which 6 million are settled in the EU. In the comparison of the EU countries, the Roma population in Bulgaria (9.9%), Slovakia (9%), Romania (8.6%) and Hungary (7.5%) is larger than that of the Czech Republic. (Zpráva o stavu romské menšiny za rok 2016; Vláda ČR ©2017; Brüggemann, 2012).

There was practically no Roma population on the territory of the present Czech Republic after World War II. Roma people settled here during the migration wave of Slovak Romani people initiated within the resettlement of the borderland. From 1948 on, there were attempts to assure equal rights on one hand, but on the other hand, forced assimilation of the Roma people took place. In practice, this meant that the Roma people were to be incorporated in the rest of the society and the things that distinguished them from others were to be eradicated. In the area of the "Roma policy", the aim of the political system, which lasted until the revolution in 1989, was to eliminate illiteracy and to introduce compulsory education. The purpose was not to increase the level of education among the Roma population, but to make young Roma qualified as workers. These political decisions resulted in supressing the cultural specificity of this ethnic group. The Roma were forced to adopt the value system of the majority, rather than upholding their own tradition. By destroying the traditional Roma settlements, the family-based communities were disintegrated, and Roma people from various groups were forcibly resettled together. The previous harmonious coexistence within the community was thus destroyed and violence and criminal offense began to occur. Over time, Roma population began to be consider a pathological group. Their supressed cultural and ethnic specificity was viewed as the manifestation of mental backwardness. Although in the 1970s, there were attempts to socially integrate the Roma population through material and social benefits to bring them closer to the majority standard, the situation did not improve. There was no significant progress in the area of education either, and its level was not sufficient. Grade retention was very common among Romani pupils, together with bad marks for behaviour. They were often transferred or put directly into special schools and often finished compulsory education before even finishing the last year of elementary school. There was also the issue of the Roma nationality not being officially recognized throughout the post-war years and until 1989, the justification for this being the claim that the criterion of the nation as such is not met in this case, mainly because of the absence of own territory

and economic life. Therefore, Romani people were perceived as those who needed to be re-educated. Yet even after being recognized as an ethnic group after 1989, their status did not change much in Czechoslovakia, and later in the Czech Republic. The economic transformation brought frequent layoffs and increasing demands on qualification, and so many Roma people lost their jobs. As far as education is concerned, the chances of Roma children did not improve much at the time. Roma children continued to be excluded from the mainstream education. From 2005 on, due to the abolition of "special schools", there were attempts to change the situation. However, the special schools were replaced by "practical schools" and some standard elementary schools, which were segregated. The issues with Roma children facing unequal chances in education remained. (Horváthová, Buryánek, 2002; Davidová, 2004; Matějů, 2010).

The Study
Research and studies show that the majority of Czech Roma end up with the same social statues as their parents. According to Šotolová (2000, p. 39), for many Romani, finishing the compulsory schooling unfortunately means the end of their education. Those that do decide to continue their education at a secondary level often do apprenticeship. However, only a few complete the entire course of education. Most drop out within first few months. This has a negative effect on their later chances on the labour market, as having only elementary education, they are offered positions of unqualified labour, which are not very well paid, and many struggle with long-term unemployment.

Educational trajectories and educational chances of Roma pupils were examined by the GAC (2009) research that concentrated on the situation in locations in the Czech Republic where marginalized Roma groups are settled in the Czech Republic. The study confirmed the hypothesis that the educational trajectories of the Roma and the other children educated in the vicinity of these locations differ. The research consisted of several parts and the data were collected from 8,462 children, the majority of were educated in an elementary school within the mainstream education system. All analyses confirmed the hypothesis that Roma children are less successful in education than other pupils. While in the case of the Roma children half of them leave their original class, in the case of the majority population, approximately one of twenty girls and one of ten boys leave the original class. In both sample groups, the situation is worse in the case of boys. Romani pupils are approximately half as likely to finish the elementary education with their peers, in the same class they started their school with. Marginalized Romani children hardly ever manage to finish the eighth year - only four out of ten. For other Roma children (where social marginalization is not so marked) it is seven out of ten. In general, two years are critical - the first and the fifth. If a Romani child manages to finish the first year, the likelihood of their remaining at the elementary school increases by one fourth. The greatest differences between the Roma and the other children occurs in the first year. The number of Roma pupils transferred to special-needs schools is the double of that of other pupils.

There are several possible reasons for pupils from Roma families being less successful at school that the children of the majority population. Many publications agree that one of the major factors causing the high rate of school failure among Roma pupils is their different socio-cultural background, which influences them during the process of socialization (comp. Gulová, 2010; GAC, 2007). Their decisions about further education are also influenced by other factors, which are of rather subjective nature – motivation, disposition, attitudes, and aspirations. Nevertheless, these subjective factors are also conditioned by the social class a child belongs to. Although all social classes put some kind of emphasis on education, the lower the class the lower the number of those that put education in a prominent place.

According to the GAC research report (2009, p. 8), the causes and manifestations of educational inequality can be divided into two main groups.

Family environment
- ✓ the family's material background
- ✓ the position of education in the value system
- ✓ social and symbolic capital School as an institution
- ✓ increasing or decreasing the educational disadvantage
- ✓

Concerning the family background, GAC (2009, p. 7-8) sees as the most significant mechanisms causing educational disadvantage in these aspects:
- ➤ Underdeveloped cultural capital of the child's family (in practice, this means that the cultural competencies of the child's family do not meet the school's expectations, which require a certain scope of general cultural experience (knowledge, skills, ability to evaluate, but also availability of books, cultural experience, etc.).
- ➤ Less linguistically stimulating environment (the extent of the vocabulary used, the variety of language, the ability to use abstract terms). Many Roma families use the Czech Roma ethnolect (the mix of Czech and Roma) which later becomes a handicap in education.

> - Lower support on the side of the family (the child's family attributing low priority to education in their value system, low level of support and help with homework and studying, insufficient motivation to achieve better education and social status, low encouragement for educational aspirations).
> - The absence of positive work and career models (stronger negative influence in the environment with high unemployment rate).
> - Lack of material resources, worse conditions (lack of school supplies, money for transport to school, etc.). (GAC, 2009, p. 8-9)

The above points are closely related to education being seen as low priority. Also, the interiorization of the importance and significance of the value of education in the structure of personality is a part of the cultural capital of an individual, family, society, which is shared and created over generations and it is a part of their lifestyle, career, value system, etc. The importance a person attributes to education influences the conditions in the education process and is reflected in their attitude towards school, their success in it and the intensity and quality of preparation for lessons at home. If this value is not included in the value system of a family that represents a particular culture and the individual does not give it at least some preference, it becomes more difficult to influence them in the social and educational process at school. The absence of or lower priority attributed to this value in a person's value system will be reflected negatively in their education and their career trajectory. The importance and significance of the values with which a child enters the schooling show that the environment from which the pupil comes significantly influences their understanding of the role of education in the society (Sak, 2000; Katrňák, 2003; Staňková, Venterová, 2017).

It is natural that in various cultures the value of education might be perceived differently. It may be given a different importance; it might take a different place in the value system of an individual. That however does not mean that pupils from a different cultural background than that of the Czech majority give no importance to education. It only means that for various reasons, the members of different cultures attribute greater importance to other values, which emphasise other aspects of life, like strong identification with their ethnic group, loyalty to family or the values that promote community-based lifestyle. (Staňková, 2016)

According to Brüggemann (2012, p. 50) marginalization in the education of the Romani people is mostly related to low level of aspiration and to the attitude that higher education is perceived as undesirable by the Roma minority and due to concerns about the loss of certain cultural identity, it must be rejected. In this case, culture is a key factor influencing the low educational aspirations of Roma pupils, especially girls, who prefer traditional Roma values. However, according to the UNDP / World Bank / EC Regional Roma Survey (Brüggemann, 2012, p. 50), the differences have been confirmed, but the experts have not come to the conclusion that the aspiration level is directly related to a specific culture or ethnic origin. Průcha (2004) too, from the viewpoint of intercultural psychology, talks about the differences in pupil's school results, which are determined by their cultural environment and value system, but the Czech school system hardly takes these factors into account. Therefore, if we are dealing with the issue of educational aspirations, the overall motivation of pupils to study and their success or failure at school, it is necessary to consider the factor of the different cultural background.

The results of research that deal with the value of education in this specific group are somewhat ambivalent. On one hand, they say that Roma people do not attribute any value to education, and on the other, they claim that from the axiological point of view, the perception of education by the Roma ethnic group is different than that of the majority society and that the Roma people usually give lower priority to education, but it cannot be claimed that the Roma do not attribute any value to education. Nevertheless, based on our own research in 2017 of the sample group of Roma pupils, we can say that the Romani pupils give education somewhat lower priority in their value system, however, it is not of the lowest priority to them. Regarding the comprehensive comparison of value preferences, it can be said that the value systems of the Roma pupils and the majority pupils are very similar. Roma pupils give preference to values such as health, love, happy family and children. On the contrary, they give less importance to the values such as life in peace, interesting work, God (faith), personal growth, environment and usefulness to others. (Staňková, Venterová, 2017)

Among the current topics we concentrated on in our research were the importance and significance of education for an individual. We started with two hypotheses. The first of them was (as already mentioned) that the significance a person gives to a value determines to great extent their educational process. The second one assumes that the person's environment has a decisive influence on the process of the construction of this value and the understanding of the role of education in the society.

Methods

The main objective of this work was to analyse the importance attributed to education by an individual from a different cultural background - from a Roma family.

Using a questionnaire of our own design, we asked pupils in the second stage of elementary education in the selected locations in the Czech Republic about what importance they give to education, and what the significance of it for their lives is. We compared the resulting data with the answers of pupils from the majority population.

The survey was carried out among the selected groups of young people (pupils from 6th to 9th grade) and was subject to predefined criteria:

A)   The researched sample group of pupils from a different cultural environment:
1.   sample group:
•   declared affiliation to the Roma ethnic group
B)   Comparative sample group of pupils from the majority population:
3.   sample group

Findings

The importance of education to individuals was surveyed using an open question. We asked pupils, if education was an important part of their life and if so, why. The pupil's answers were very diverse: Most often, they mention their chances on the labour market in connection with the importance of education. They state that education plays an important role in finding a well-paid job that they would enjoy. On the other hand, there were numerous responses that linked the importance of education to "being educated, knowing how to do things, communicating, learning important and necessary things in life, gaining experience", etc. Another group of answers emphasised that being educated sets an example to others, makes you achieve "something" in life, etc. The pupil's short description of the importance of education in their lives showed us that these were related to various needs. In line with the theoretical foundation that needs are determinants of values, and that their intersection can be monitored, we connected the responses with the referential needs in Maslow's hierarchy and then record everything in the graph.
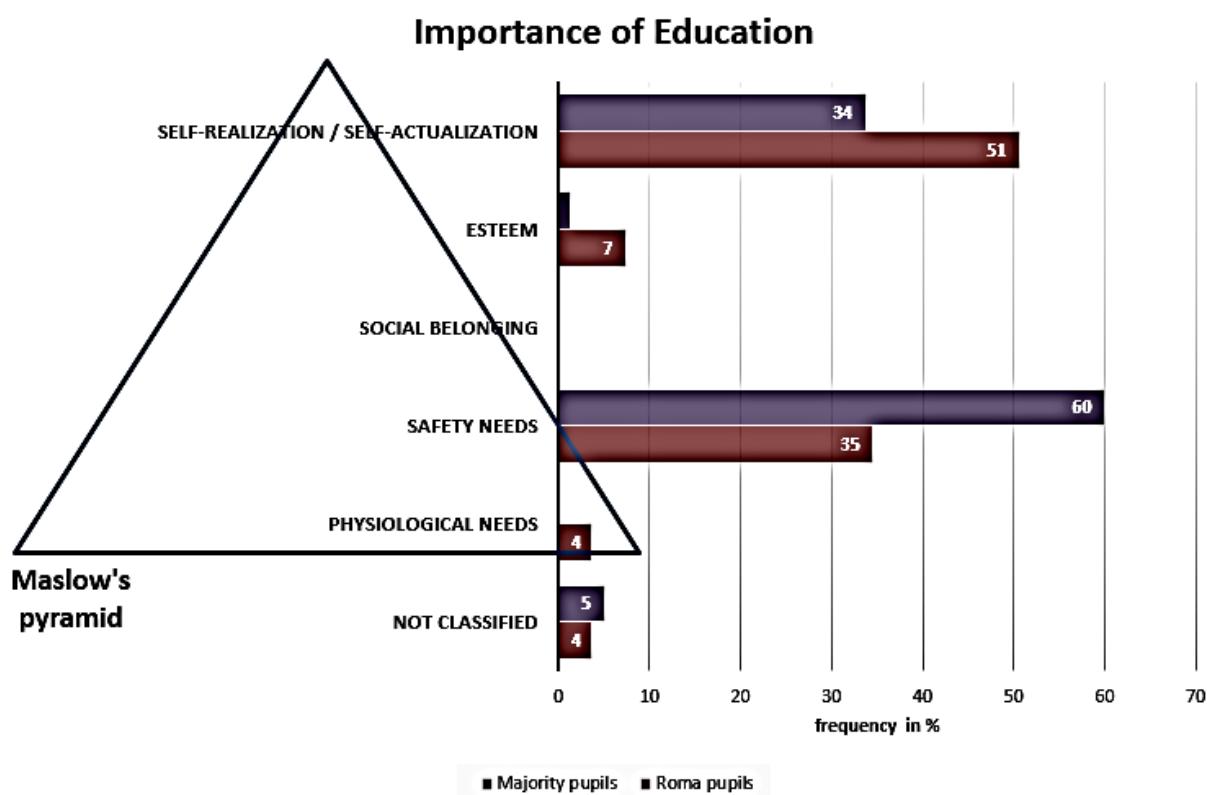
Figure 1: Importance of Education
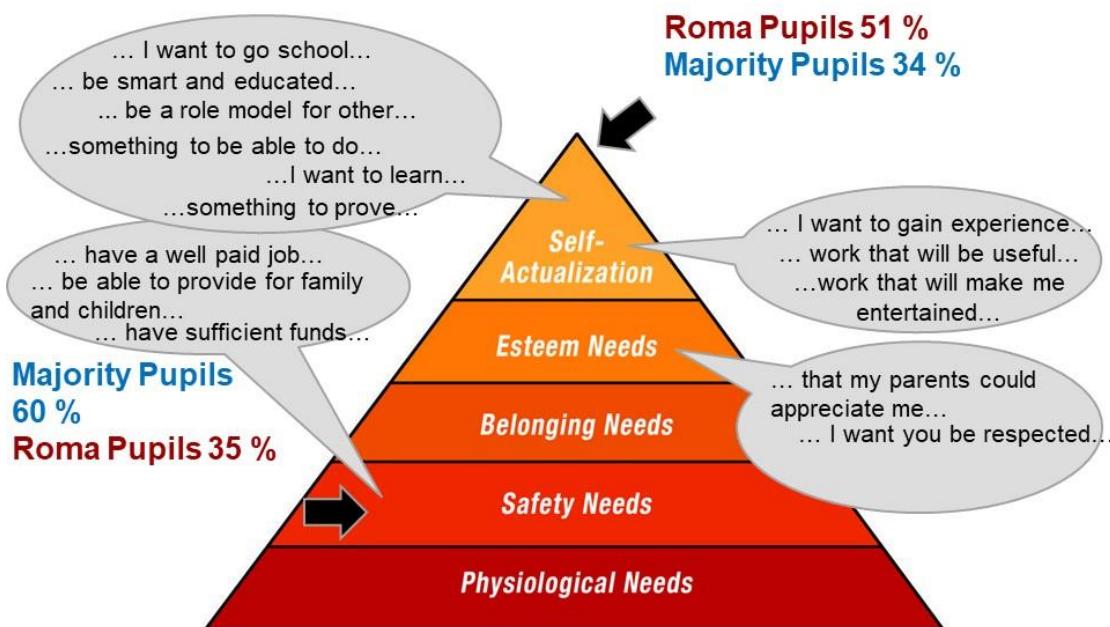
Figure 2: Importance of Education in Maslow's pyramid

We can see that above all, the pupils from the majority population associate the importance of education with the fulfilment of their needs of safety and security, in particular the employment security and security of income and access to resources, and subsequently, they see the importance of education in connection with the need for self-realization, especially with the satisfaction of cognitive needs (knowing something, being educated) and further with the need for self-actualization (being a model for others, achieving something, becoming "someone").

In the Roma sample group, we also find answers related to fulfilment of these two groups of needs, however, in terms of frequency, their answers were more often related to satisfying the need of self-realization, achieving something, becoming "someone", being clever and educated, being an example to others).

These interesting results provide great motivation for us to study and explore in greater depth and detail the importance and significance of the value of education for all the groups of students. Although our research has answered many questions, it has also raised many and opened new areas that we intend to address in the next stages of our research.

In the following stage, we would like to take the qualitative approach and to use primarily the projective research methods, such as the CREDO MEM. The qualitative method CREDO MEM was used and closer specified by Klouzes and Posner (1998). They gave the researched subjects the written task asking: Which values give sense to your everyday life and which of them motivate and lead you in your actions? In this way, they led the questioned people to reflecting upon the priorities that give them direction in their life and that are deeply rooted in them (Kouzes, Poster, 1998 in Křivohlavý, 2006). Further, we would like to use VALUE TEST and in-depth interviews with pupils and their parents. Our target is a deeper insight into the issue of the importance of education to individuals and the position of this value in the complex value system of that person.

Discussion

On the basis of the first partial results of our project which studies the understanding of the value of education in pupils from different cultural environments, we have confirmed our theory about the importance of socio-cultural influences in the process of the construction of a person's value system. And so our effort to deal in detail with these determinant influences is further enhanced. We believe that the data collected will bring findings that will contribute to the mosaic of important aspects that need to be taken into account in the education process concerning pupils from different cultural environment and that will enrich teachers that work with such pupils.

We are already receiving responses from teachers who helped us distribute the questionnaire, saying that our introducing the topic of values to their pupils has been in itself very beneficial, allowing them to open discussion with their pupils on this topic. Such reactions are a reward for our efforts in our projects, and make us even more involved in this issue.

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Towards better E-Administration of Tertiary Institutions for quality Teacher Education

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Abstract

Information and communication technology (ICT) is important in a rapidly changing world in which work and other activities are increasingly transformed by access to varied and developing technology. The study examined towards better E-Administration of tertiary institutions for quality Teacher education. Two research questions and one hypothesis were formulated to guide the study. The 10 college of education in the south-southern zone of Nigeria were used. A total of 240 respondents (academic and non-academic) administrators purposively selected from the 10 tertiary institutions formed the population. An observation checklist for available and functional facilities, structured questionnaire, focus group discussion for 200 level N.C.E i.e. 10 N.C.E 11 students from each institution were used for data collection. The reliability indices for the instruments obtained through cronbach alpha method was 0.93. The data collected were presented using percentages, mean and standard deviations and the null hypothesis tested at 0.05 level of significance using t-test. It was found that only very few ICT facilities such as flash drives, CD-ROMs amongst others are available. The colleges have low rate of utilization of ICT facilities in the administration of various task areas in the institutions.

Key words: *E-Administration, Tertiary Institutions, Quality teacher Education.*

The need for better Electronic administration of tertiary institutions for quality teacher education cannot be over-emphasized because to attain, interpret and implement the policies, procedures and training requirements of the would be teachers to perform their tasks as teachers within and outside the classroom requires the school administrators ability to utilize information and communication technology (ICT) tools to find, explore, analyze, exchange and present information. Administration in the 21st century has moved from the traditional setting of handling issues manually through the movement of files and documents from one office or table to the other to the transmission of information electronically through wire, wireless cables and sound waves. These changes have ushered in a new dimension which necessitates the acquisition of electronic literacy skills for educational managers and administrators. One of the indices for measuring the growth and development of any nation is hinged on her technological skilled labour force. The level of its manpower and technological skill paves way for her creativity, innovation and higher productivity. The activities in school administration encompasses all the efforts and duties of the school administrator to plan & coordinate all the human and material resources within the school for optimal achievement of the pre-determined objectives/goals of the school.

Effective and efficient data communication and networking facilities are vital to any enterprise like the education sector. For our tertiary institutions to meet their objective and compete favourably in this information age, it is expedient that the necessary information and communication technological facilities be made available in forms of modern computer laboratories, internet services and software packages like Microsoft word, Microsoft excel, data base, Microsoft power point, among others, fully installed and properly utilized. The world as a whole and Nigeria in particular is experiencing population explosion with the consequent increment in enrolment figures in our tertiary institutions each year. This increment in enrolment demands the provision of information and communication technology (ICT) facilities for more effective and efficient administration of educational institution. Such areas where the facilities are needed may include e-learning, research, online assignment, e-library, e-administration amongst others.

ICT embraces all the modern electronic techniques of processing, storing, retrieving and circulating information within and outside an organization with speed and with little or no stress. Jim, (2012) refers to ICT as all technologies that provide access to information through tele-communications. Hooker (2009) suggested that ICT can be employed in education systems for three purposes: to widen access to education, to raise its quality and reform it. It is therefore obvious that an administrator's leadership effectiveness and efficiency, management skills and the quality of education service delivery have a direct relationship with the availability and the administrator's ability to utilize the available ICT facilities for the day to day running of the institution. An administrator cannot take any decision without information which is better obtained through ICT.

Based on this premise, it is the thrust of this paper to discuss the theme: Towards better E-administration of tertiary institutions for quality teacher education.

Theoretical Framework:

This study is anchored on the theory of constraints which was propounded by Dr Eliyahu Goldratt in 1984 through his bestselling novel, 'The Goal'. The theory of constraint is a methodology for identifying the most important limiting factor that stands in the way of achieving a goal and then systematically improving that constraint until it is no longer the limiting factor. The theory of constraints takes a scientific approach to improvement.

The theory of constraints provides a powerful set of tools for helping to achieve that goal, including;

❖ The five focusing steps (a methodology for identify and eliminating constraints) i.e. ICT availability and utilization.

❖ The thinking process (tools for analyzing and resolving problems) ie Administrator's thinking process towards achieving quality teacher education through e-administration of tertiary institution.

❖ Throughput accounting (a method for measuring performance and guiding management decision) i.e. quality teacher education
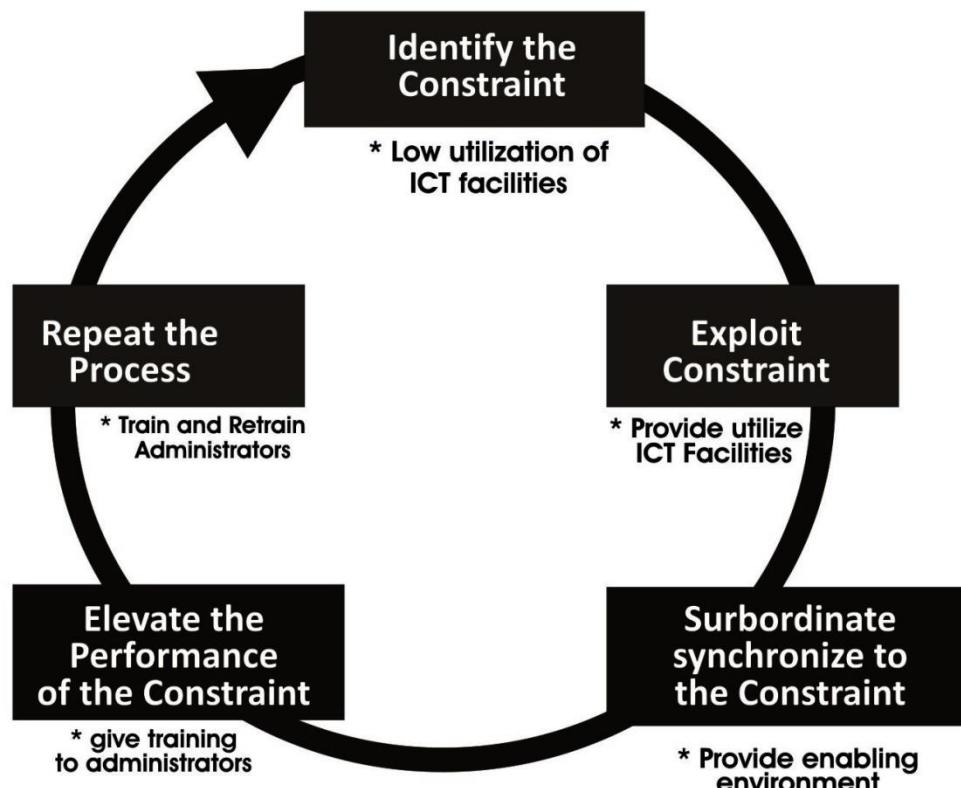
Fig 1: The theory of constraints uses a process known as the Five Focusing steps to identify and eliminate constraints (i.e. Bottlenecks).
Source: adopted from Goldraft. 1984.

This theory prioritizes improvement activities by trying to eliminate the current constraints, such as lack of ICT skills, high cost of setting up ICT infrastructure, unavailability of most ICT facilities is used to improve the constraints until it is completely eradicated. This will then lead to tertiary institutions achievement of effective and efficient management of different task areas such as staff personnel services, student personnel service, instructional service delivery and academic planning of tertiary institutions for quality teacher education.

Research Questions

The following research questions guided the study;

1. What ICT facilities are available for the administration of tertiary institution in south south Nigeria.

2. To what extent are the available ICT facilities adequate for effective administration of tertiary institutions in south south Nigeria.

Hypothesis
The following hypothesis was tested at probability level of 0.05 level of significance.
HO$_1$: there is no significant difference between the mean rating scores of academic and non-academic administrators on the adequacy of ICT facilities in tertiary institutions.

Methodology
The design of the study is descriptive survey research design. The design is also analytic survey because according to Nwankwo (2011), the variables being studied for any sample are compared for the various identified strata or categories of the sample; in this case, Academic and non-academic administrators in both federal and state government owned tertiary institutions through the use of hypothesis.

Area Of The Study
The area of study is the South-south zone of Nigeria. The states in the area include Akwa-Ibom, Bayelsa, Cross Rivers, Delta, Edo and Rivers States. These states are located in the South-Southern part of Nigeria.

Population Of The Study
The population for the study consist of 10 federal and state colleges of education in South South zone of Nigeria. The population of the respondent for this study is 240 academic and non academic administrators which consist of Dean, Heads of department, Coordinators of programmes, registrar, deputy registrars etc.

Instrument For Data Collection
In this study, a structured questionnaire and a check list for available ICT facilities and focus group discussion of selected 200 level students were instrument for data collection.
The questionnaire items were generated based on the research questions to elicit information from academic and non-academic administrators in the colleges of education in South South zone. The questionnaire, has items for answering research question 2 with response options (AV), (NA), (VAQ), (A). (LA) and (VLA) which means Available, Not available, Very adequate, Adequate, Less adequate and Very less adequate. While a checklist of 24 items was used to ascertain if these facilities are available in the colleges of education under survey and whether they are functional. A rater/researcher/research assistant is expected to identify and check those facilities available, the number available and whether they are functional.

Method Of Data Analysis
Research questions one was answered and analyzed using percentages while research questions 2 was answered using mean rating based on real limit of numbers on a four point scale as follows: 0.50 – 1.49 – Very less adequate, 1.50 – 2.49 – Less adequate, 2.50 – 3.49 – Adequate. The focus group was qualitatively analyzed.

t-test was used to test the hypothesis at P$\leq$ .05

Results
Research question one
What are the ICT facilities available for the management of Colleges of Education in South-South Nigeria?
The data for answering the above research question are provided on Table 1 below.

Table 1: Frequency and percentages of ICT facilities available in colleges of Education in South-South, Nigeria (N = 10)

S/N	FACILITIES	ACADEMIC PLANNING UNIT	STAFF PERSONNEL UNIT	STUDENT PERSONNEL UNIT	INSTRUCT, SERVICE DELIVERY

		Freq	%	Freq	%	Freq	%	Freq	%	TOTAL	%
1	Internet-connected laptop	7	70	10	100	8	80	9	90	34	85
2	Internet-connected desktop Computer	10	100	10	100	9	90	8	80	37	93
3	Scanner	7	70	6	60	8	80	9	90	30	75
4	Electronic Library	0	0	0	0	0	0	7	70	7	18
5	Institutional Cybercafe	9	90	5	50	4	40	9	90	27	68
6	Fax (facsimile) machines	2	20	2	20	2	20	3	30	9	23
7	Department / School email address	2	20	5	50	10	100	2	2	21	53
8	CD-ROMs	10	100	10	100	10	100	10	100	40	100
9	Flash drives	10	100	10	100	10	100	10	100	40	100
10	Computer Laborator	0	0	0	0	0	0	4	40	4	10
11	Multimedia Projector	-	0	-	0	1	10	7	70	17	43
12	Interactive Board	1	10	0	0	0	0	6	60	7	18
13	Digital Camera	-	0	-	0	0	0	10	100	10	25
14	Institution Website	8	80	6	60	7	70	7	70	28	70
15	Dept/School Website	-	0	3	30	4	40	4	40	11	28
16	Management/Administrative software packages	1	10	0	0	0	0	1	10	2	5
17	Risograph Machine	1	10	0	0	1	10	1	10	3	8
18	Institutionally-produced educational software	-	0	0	0	1	10	1	10	2	5
19	College e-mail address	8	80	8	80	8	80	10	100	34	85
20	Computer-Networking (Local Area Network)	5	50	5	50	5	50	4	40	19	48
21	Computer -Networking (Wide Area Network)	3	30	3	30	3	30	3	30	12	30
22	Examination scoring machine or OMR reader	-	0	0	0	0	0	0	0	0	0
23	Multimedia classrooms (Audio Visual Centre)	0	0	0	0	0	0	5	50	5	13

Freq = Frequency; % = Percentage. Source: FILED STUDY

Data on Table 1 reveal that items 1,2,3,5,8,9,14,19 and 20 had high frequency and percentage scores for availability of ICT facilities for the management of academic planning task area in colleges of education as follows: 7(70%), 10(100%), 7(70%), 9(90%), 10(100%), 10(100%), 8(80%), 8(80%) and 5(50%) and very low frequencies and percentages for items 4,6,7,10,11,12,13,15,16,17,18,21,22 and 23 as follows: 0(0%), 2(20%), 2(20%), 0(0%). 1(10%). 0(0%), 0(0%). 1(10%). 1(10%). 0(0%), 3(30%). 0(0%), 0(0%) and 0(0%). The summary of the checklist table for academic planning task area show that the internet-connected laptop, internet-connected computers, scanner, institutional cybercafé, CD-ROMS, flash drives, institution website, college e-mail address and computer-networking (Local Area Network) were available ICT facilities for academic planning task area in colleges of education. While Electronic library, fax(facsimile) machines, Department e-mail address, Computer Laboratory, multimedia projector, interactive board, digital camera, dept/school website, management/administrative software packages, Risograph machine, institutionally – produced educational software, computer-Networking (Wide Area Network), Examination scoring machine (OMR), multimedia classrooms(Audio visual centre) were not available ICT facilities for academic planning task area in colleges of education in South-South, Nigeria.

The data in table 1 also reveal that items 1,2,3,5,7,8,9,14,19 and 20 exhibit high frequency and percentages scores of available ICT facilities for management of staff personnel services in Colleges of Education as follows; 10(100%), 10(100%), 6(60%), 5(50%), 5(50%). 10(100%), 10(100%). 6(60%), 8(80%) and 5(50%). There are low frequency and percentage scores for items 4,6,10,11,12,13,15,16,17,18,21,22, and 23 as follows:0(0%), 2(20%). 1(10%), 0(0%). 0(0%). 3(30%). 0(0%), 0(0%) 0(0%). 3(30%). 0(0%), and 0(0%) respectively. The summary for staff personnel

services show that internet-connected laptop, internet-connected desktop computers, scanners institution cybercafé, Department/school email address, CD-ROMS, flash drives, college email address and computer-Networking (LAN) were available ICT facilities, while electronic library, fax (facsimile), machines, computer laboratory, multimedia projector, interactive Board, Digital camera, Dept/School website, management/administrative software, packages Risograph machines , institutionally produced educational software, computer-Networking (Wide Area Network), Examination scoring machine (OMR) and multimedia classrooms (Audio Visual Centre) were not available ICT facilities for management of task area of staff personnel services in Colleges of Education in South South, Nigeria.

The Table also further reveal that items 1,2,3,7,8,9,14,19 and 20 show high frequency and percentage scores of ICT facilities available for management of student personnel services as follows: 8(80%), 9(90%), 8(80%), 10(100%), 10(100%), 10(100%), 7(70%), 8(80%), and 5(50%). There are low frequency and percentages scores for items 4,5,6,10,11,12,13,15,16,17,18,21,22, and 23 as follows: 0(0%), 4(40%), 2(20%), 0(0%), 1(10%), 0(0%), 0(0%), 4(40%), 0(0%), 1(10%), 1(10%), 3(30%), 0(0%), 0(%), and 0(0%) respectively. The summary of the checklist for task area of student personnel services show that internet-connected laptop, internet-connected desktop computer, scanner, Dept/School email address, CD-ROMs, flash drives, institution website, Colleges email address and computer-Networking (WAN were available ICT facilities, while electronic library, institutional cyber café', fax (facsimile) machines, computer laboratory, multimedia projector, interactive Board, digital camera, Dept/School website, management/Administrative software packages, Risograph machines, institutionally – produced educational software, Computer – networking (WAN) Examination scoring machine (OMR) and multimedia classrooms (Audio Visual Centre) were not available ICT facilities for management of task areas of student personnel services in College of Education in South South, Nigeria.

The findings is in line with the results of the focus group discussion for students' in the colleges of education which revealed that internet services are not always available and functional, hence the students' are always left at the mercy of private cybercafe's providers outside the school. In addition, the few available ICT facilities are not accessible to student to the extent that some students have not come near the computers since they were admitted into the college. However, the table finally reveal that items 1,2,3,4,5,8,9,11,12,13,14 and 23 show high frequency and percentage scores respectively of ICT facilities available for instructional services as follows: 10(100%), 8(80%), 9(90%), 7(70%), 9(90%), 10(100%), 10(100%), 7(70%), 6(60%), 10(100%), 7(70%), and 5(50%) and low frequency and percentage scores for items 6,7,10,15,16,17,18,20,21,22 and 23 as follows: 3(30%), 2(20%), 4(40%), 4(40%), 1(10%), 1(10%), 1(10%), 4(40%), 3(30%), 0(0%), and 0(0%) respectively. Therefore, the table shows that internet-connected laptop, internet-connected desktop computers, scanner, electronic library, institution cybercafé, CD-ROMs, flash drives, multimedia projector, interactive Board, Digital Camera, institution website, college email address and multimedia classrooms (Audio Visual Centre) are available ICT facilities for management of different task area in colleges of education. Fax (facsimile) Machines, Department/School email address, computer laboratory, department/ school website, management/administrative software package, risograph machines, institutionally-produced educational software, computer-Networking (LAN) Computer-Networking (WAN) and OMR reader or examination scoring machine (OMR) are not available ICT facilities for management of different task area in colleges of education in South South, Nigeria. The ICT facilities that are available for the management of colleges of education in South South Nigeria are Internet-connected laptop, Internet-connected desktop computer, scanner, institutional cybercafé, departmental/school email address, CD-ROMs, flash drives, institution website, college email address, computer-Networking (Local Area Network).

Research Question Two:
To what extent are the available ICT facilities adequate for effective management of staff personnel services, Students affairs, instructional management and Academic planning of colleges of education?
The data for answering the above research question are provided on Table 2.

Table 2: Mean and standard deviation of adequacy of available ICT facilities in the management of colleges of education. (N = 240)

S/NO	ICT FACILITIES	Mean x	Std. Deviation	Decision	Mean of TASK AREAS			
					Staff.	Student.	Instr.	Acad. P
1	Internet-connected laptop	2.13	1.11	LA	2.29	2.00	2.50	1.33

2	Internet-connected desktop Computer	2.24	1.12	LA	2.13	2.00	2.70	1.67
3	Scanner	2.13	1.01	LA	2.67	1.71	2.23	1.83
4	Electronic Liberary	2.10	0.95	LA	2.33	1.87	2.00	2.16
5	Institutional Cybercafe	2.57	1.07	A	2.77	2.33	2.53	2.57
6	Fax (facsimile) machines	2.00	1.05	LA	2.00	1.75	2.08	2.00
7	CD-ROMs	2.91	1.09	A	3.28	3.25	2.64	2.85
8	Flash drivers	2.80	1.10	A	3.12	2.80	2.63	2.66
9	Dept/School website	2.30	1.02	LA	2.42	2.16	2.46	1.75
10	Computer Laboratory	2.19	0.98	LA	2.22	2.25	2.16	2.16
11	Multimedia Projector	2.30	1.06	LA	2.33	2.00	2.45	2.16
12	Interactive Board	1.92	1.08	LA	2.60	2.00	1.90	1.33
13	Digital Camera	2.20	1.10	LA	2.20	2.00	2.33	2.00
14	Institution website	2.85	0.92	A	3.57	2.40	2.62	2.66
15	Management/ Administrative software packages	2.33	1.11	LA	2.33	2.75	2.09	2.50
16	Rizograph machine (RZ)	2.04	1.07	LA	2.66	1.80	2.00	1.50
17	Institutionally-produced educational software	1.87	0.82	LA	2.00	1.83	1.75	2.00
18	Computer -Networking (Local Area Network)	2.13	0.98	LA	2.00	2.66	2.00	2.00
19	Computer-Networking (Wide Area Network)	2.00	0.92	LA	2.00	2.40	2.00	1.66
20	Examination scoring machines (OMR)	1.52	0.89	LA	1.60	1.50	1.50	1.50
21	Department / School email address	2.14	1.08	LA	1.57	2.66	2.33	2.00
22	College e-mail address	2.86	0.81	A	2.62	2.85	2.85	3.16
23	CD player	2.55	1.06	A	2.83	3.25	2.41	2.14
24	Multimedia classrooms (Audio Visual Centre)	2.03	0.93	LA	2.25	3.00	1.81	1.57
	Cluster mean.	2.33	0.70	LA	2.40	2.30	2.33	2.05

Source: field study

Table 2 showed the mean and standard deviation of adequacy of available ICT facilities in the management of colleges of education in South-South Nigeria. Items 1 to 4 have low scores of 2.13, 2.24, 2.13, and 2.08 with standard deviation of 1.11, 1.12, 1.01 and 0.96 respectively. These indicate that: internet connected laptops,, internet connected desktop computers, scanners and electronic library were less adequate for the management of colleges of education. Item 5 has a mean score of 2.57 and standard deviation of 1.09. This means that institutional cybercafé was adequate for the management of colleges of education. Items 7 and 8 have means scores of 2.91 and 2.80 with standard deviation of 1.09 and 1.10 respectively. These show that CD-ROMs and flash drives were adequately available for the management of colleges of education. Items 9 – 13 have low mean scores ranging from 1.92 to 2.30 with standard deviation ranging from 0.92 – 1.10. these mean that Department/School website (x = 2.30, SD = 1.02), Computer laboratory. (x = 2.19, SD = 0.98), multimedia projector (x = 2.20. SD = 1.06), interactive board (x = 1.92, SD = 1.08), Digital Camera (x = 2.20, SD = 1.10) were less adequate for management of colleges of education. Item 14 have a mean score of 2.85 and Standard Deviation of 0.92. This indicates that institutional website was adequate for the management of colleges of education. Item 15 has a mean score of 2.33 and Standard Deviation of 1.11. This indicates that management/administrative software packages were less adequate for the management of colleges of education. Item 16 have a mean score of 2.04 and Standard Deviation of 1.07. This shows that Risograph machines (RZ) were less adequate for the management of colleges of education; Item 17 has a mean score of 1.87 and standard deviation of 0.82. This means that institutional produced educational software was less adequate for the management of colleges of education. Item 18 have a mean score of 2.13 and standard deviation of 0.98. This means that computer-networking (Local Area Networking) was less adequate for the management of colleges of education. Item 19 have a mean score of 2.00 and standard deviation of 0.92. This means that computer-networking (Wide Area Network) was less adequate for the management of colleges of education. Item 20 and 21 have mean scores of 1.52 and 2.14 with standard deviations of 0.89 and 1.08 respectively. These mean that examination scoring machine (OMR) and Department/School email addresses were less adequate for the management of colleges of education. Items 22 and 23 have high mean scores of 2.86 and 2.55, and standard deviation of 0.81 and 1.06. These indicates that colleges email

address and CD players were adequate for the management of colleges of education. Items 24 have mean scores of 2.03 with standard deviation of 0..93. These indicate that multimedia classroom (Audio Visual Centre) were less adequate for the management of colleges of education. Finally the cluster mean 2.33 and standard deviation of 0.70 indicate that ICT facilities were less adequate for the management of colleges of education in South South, Nigeria. Specifically ICT facilities for staff personnel services with a mean of 2.40, student personnel service 2.30, Instructional service delivery with a mean score of 2.05 and Academic planning with a mean score of 2.05 are less adequate.

Educational Implications

The findings of this have far reaching educational implications for quality teacher education in Nigeria in particular and the global community in general. The results have provided empirical evidence of low state of availability and poor ICT utilization in the administration of colleges of education in South South Nigeria toward E-administration of tertiary institutions for quality teachers education.

The implications of the finding are that the tertiary institutions are not ICT- compliant in the administration of the task areas.

Recommedations

1. The government should equip school ICT laboratories with functioning computers and internet services.
2. The government should institute and enforce ICT literacy and utilization as criteria for promotion of both academic and nom-academic administrators in tertiary institutions.

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Towards Optimization Of Moodle Utilization in An Academic Rehabilitation Program: A Post-Decade Analysis And Framework Development

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Absract

Moodle ™ Learning Management System (LMS) embraces a mission to empower the educators to improve the world we all live in. Several educators from different parts of the world affiliated with different school organizations and running varied academic programs are witness to how technology can enhance the delivery of teaching and learning systems by supplementing the content and instructional strategies to effectively reach-out to highly diversified learners (Granberg,2000; Knezec, 2002; Sidewicz,2016). Utilization of the Moodle LMS as a means to integrate technology in education is apparent given the 94472 currently active sites that have registered from 231 countries using Moodle ™ as of 2018. In the Philippines, there are currently 356 active sites using the LMS and among these De La Salle Health Sciences Institute – College of Rehabilitation Sciences (DLSHSI-CRS) presents a decade long of utilization. Three Academic Rehabilitation Programs under the DLSHSI-CRS particularly Physical Therapy (2008), Occupational Therapy (2011) and Speech-Language Pathology (2014) are actively using the program together with other Colleges in the Institute offering the Doctor of Medicine and Medical Radiation Technology programs. Given the decade-long utilization, the analysis of the status of Moodle ™ utilization is empirical. This study therefore is conducted with the general objective of developing a framework to optimize the use of Moodle ™ LMS in an Academic Rehabilitation Program (ARP) in the context of the DLSHSI-CRS experience. Specifically, the study aims to look into nature and full features of the present Moodle ™ LMS used and its demands specifically in terms of the technical, operational, manpower and financial resources. It also looks into the current human and non-human factors affecting the Moodle ™ LMS utilization of ARP/DLSHSI-CRS given its purpose of utilization (why), content (what), mechanisms of utilization (how) and time of use (when). From the gathered information, the needs are extracted and analyzed based on the human and non-human factors related to the practices, challenges and strengths leading to the development of the framework of reference that can help in optimizing the use of Moodle ™ LMS. The study is mixed quantitative and qualitative research in design, which involve Moodle Administrators, Faculty and Students who uses Moodle ™ LMS in the three ARPs as respondents. It serves as baseline and pioneering research that can be adopted by other academic programs in terms analyzing the needs of their respective Moodle ™ LMS platforms.

Training Pre-Service Teachers To Use Equitable Assessment For All Students

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Introduction

English Language Learners (ELL) are often at a disadvantage when academic achievement is tested with Literacy-Based Performance Assessments (LBPA) and other standardized tests. Such tests neglect the factors of language and culture and result in misinformation about student skills and knowledge. Educators must work toward greater equity for ELLs, through both instruction and assessment, and strive for linguistic and culturally responsive goals in addressing student achievement.

Definition of Equitable Assessment

An assessment that yields equitable information considers individual student variables as well as programmatic variables. (Gottlieb, 2016) These variables include: age, gender, language(s) and culture(s), exposure to academic language, educational experiences, proficiency and literacy in home language as well as English, personality, attitudes, motivation, socioeconomic status, identified learning disabilities (from Gottlieb, 2016)

Methods of Achieving Equitable Assessment

- Begin with training teachers to be mediators "who help students build bridges from the known to the unknown" (Gottlieb, 2016).
- Recognize the importance of culture, language, and multiple perspectives as factors in student learning; have sense of starting point of language proficiency.
- Portfolio Assessment provides individualized informal and formal work over time which assesses student growth, student strengths and weaknesses in the context of multiple perspectives. Portfolio assessments can be done in both L1 (native) and L2 (second) languages, and incorporate scaffolding and feedback, and can be used for both formative and summative purposes. (Brown et al., 2017; Spinelli, 2008; Brown, 2005).

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Understanding What Affects Students With Disabilities Achievement Of Postsecondary Education Goals

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Abstract

Using research and a survey, which was conducted with the Ohio Office for Exceptional Children (OEC) and the Center for Innovation in Transition and Employment (CITE) at Kent State, this study examines why there seems to be a deficit with students, who have disabilities, who plan to attend postsecondary goals, versus those who achieve those goals. Studying the data, it examines what factors create this deficiency, in attaining the goals that were previously set, and then identifying ways to address the issue. It also examines ways to improve these outcomes and increase the rate of student goal attainment for students with disabilities.

Introduction

Being faced with the prospect of postsecondary placement can be frightening for even the most academically prepared individual. However, when working with students with disabilities, the situation becomes even more complicated. They face complex obstacles that their typically developing peers do not have to encounter. In order to help make the transition after high school to adult life smoother, three main factors that have gone into place. According to Andrew V. Beale (2005), the following factors are:

1. The Rehabilitation Act of 1973 and the Disabilities Act of 1990.
2. More emphasis being placed on transition planning for students with learning disabilities.
3. More postsecondary schools are placing emphasis on transition planning for student with disabilities.

Compared to the 1970s, these factors have allowed three times as many students with disabilities to attend post-secondary institutions (Beale, 2005), but the number of students attending are still significantly lower than their typically developing counterparts. So the questions becomes, what is hindering students with disabilities from attending postsecondary institutions?

Milsom and Dietz (2009) conducted college readiness study for students with disabilities, and identified factors that created a successful student. After examining all of the factors, it was determined that the items that most affected a student's success had less to do with academic knowledge and more to do characteristics and motivation. The items that were identified as most beneficial for students included confidence, persistence/perseverance, resilience, self-determination skills, and self-discipline/self-regulation. It was concluded that these students often become most successful because they do not let adversity discourage them from their goals (Milsom & Dietz, 2009). Other researchers have also found a correlation between self-determination and success

A study conducted by Thoma (2013), indicated that some universities also view this connection as a necessity for success. Her research identified a university that viewed self-determination as a prioritized skill that they taught their students. University professionals felt that it was important that students know how to be cognizant and actively participate in their education. They accomplished this goal by running a course that helps to set up weekly goals for the students to create and then evaluate whether or not they achieved them. The results of this indicated that students, who did take the initiative in this class, were able to keep their activities more aligned with their goals. This aligns with the thought that students who have self-determination do succeed better than those who do not have this skill developed. Along with these characteristics, it is important that students also possess a strong sense of self-advocacy. In a postsecondary setting, it is not the school's responsibility to identify potential students with learning disabilities. Students with disabilities need to be taught and made aware that, once they graduate from high school, it becomes their job to advocate for themselves. They need to know that they have to ask for accommodations in the postsecondary setting, and then determine if these accommodations are meeting their needs (Chen, 2016). When a student has developed a proper sense of self-advocacy, they can make sure they are requesting the necessary services to enable them to be successful.

However, while the previous studies noticed a positive impact for students with disabilities to be integrated into postsecondary programs, not all institutions offer this support. According to Gibbons, Cihak, Mynatt, and Wilhoit (2015), many faculty members that were interviewed had varied beliefs on the integration of students with intellectual disabilities. It was found that faculty members were concerned that students with intellectual disabilities would make typically developing students feel uncomfortable. In addition, the majority of faculty members indicated that they slightly agreed that students with intellectual disabilities would disturb the classroom routine, and that these students would take up more of the instructors time (Gibbons et al., 2015). However, despite the faculty's reservation about students with special needs being integrated into the classroom, the average student does not think that it would be a concern. They examined the response of typically developing students, and it indicated that students were statistically found to be more open to having people with disabilities integrated into the classroom. The results indicated that the students disagreed that traditional college students would feel uncomfortable if students with intellectual disabilities were enrolled in regular classes (Gibbons et al., 2015). This suggested that younger people have a more positive view towards people with disabilities.

The attitudes that faculty members have towards students with disabilities could be an additional factor that impacts their success rate. According to Gibbons, Cihak, Mynatt, and Wilhoit (2015), the perception of the students abilities affects their outcomes. As a result, they conclude that it is important that there is an understanding of how faculty members view students with disabilities. Instructors in postsecondary education need to learn how to increase accessibility to the curriculum for student with disabilities. Without the proper accessibility, support and motivation, student may struggle to find the self-determination they need in order to find success.

Despite this information, there still is not a clear path for students with disabilities to navigate in order to reach their postsecondary education goals. Statistically, many students are still not achieving the goals they had set for themselves prior to graduating high school. However, there are some practices that have been shown to have a positive correlation with postsecondary goals achieved by students.

One factor that did determine if students with disabilities attended postsecondary education was if they received their education instruction in the core content area in a general education setting (Joshi & Bouck, 2017). It was determined that when students received their education in the general education setting, there was a higher chance that they would pursue a postsecondary education. These postsecondary educational placements include vocational training, 2-year college programs, and 4-year college programs. It is recommended that transition planning teams should consider and encourage the student to be in a general education setting, if the student plans to attend a postsecondary education (Joshi & Bouck, 2017). However, this correlation was only valid if the student attended the postsecondary school in less than two years after leaving high school. It was discovered that this relationship diminished once the two to four year mark was hit after exiting high school.

To further investigate the factors that affect whether a student with a disability meets their postsecondary education goals, this study analyzed the results of a two- part longitudinal study that was conducted in Ohio, the Ohio Longitudinal Transition Study (OLTS). The purpose of the study is to determine factors that contribute to students achieving their original goals, and connecting those results to understand what makes a student successful with their postsecondary goals. The study was conducted and administered in order to abide by the Individual with Disabilities Education Act (IDEA) of 2004. This survey, which was conducted with the Ohio Office for Exceptional Children (OEC) and the Center for Innovation in Transition and Employment (CITE) at Kent State, collected data to examine three areas that aligned with indicator 14 for Ohio State's Performance Plan. The three areas this survey examined were post-school employment, post-secondary education, and independent living outcomes of students with disabilities.

Study & Method
The data for this study was collected by transition professionals and teachers interviewing students before graduation and then one year later with permission from the participants. The goal of these surveys was to evaluate school services, student satisfaction, and post-school outcomes. The in-school exit survey takes between 15- 30 minutes to conduct when it is a part of the IEP process. This equals approximately 25 hours for every 100 students. Conducting the follow-up survey takes approximately 20 minutes per student.

In order to select students to be surveyed, there was a precise four step process that was followed. The directions for selecting a student, according to the Ohio Longitudinal Transition Study (OLTS) Surveyor Instructions are as follows:
1. Obtain a list of all graduating students with disabilities from your program.
2. Decide the portion of graduating students to be interviewed (e.g., all, 1/2).
3. Randomly select students (if over 30 graduates) to be interviewed from list (e.g., for 1/2 of graduating students, select every 2nd graduating student).
4. Target number of student surveys should be 30 per school.

Of the graduates participating in this sample, 49% were able to be successfully surveyed over the phone, one year after graduating high school. These samples were taken from the graduating classes of 2006-2014.

Participants
The initial sample of students, surveyed at high school exit, was 3,200. These students were all identified as students with special needs, and were broken down into the following categories:

- Autism- 331 students, with 85.5% being male and 14.5% female. Ethnically 6.3% were African American, 85.8% were Caucasian, and 7.9% were other.
- Intellectual disabilities- 1260 students, with 54.2% being male and 45.8% female. Ethnically 27.2% were African American, 68% were Caucasian, and 4.8% were other.
- Emotional disabilities- 402 students, with 70% being male and 30% female. Ethnically 21.7% were African American, 74.2% were Caucasian, and 4.1% were other.
- Hearing impairments- 108 students, with 53.3% being male and 46.7% female. Ethnically 13.1% were African American, 78.5% were Caucasian, and 8.4% were other.
- Multiple disabilities-397 students, with 62.2% being male and 37.5% female. Ethnically 17.6% were African American, 76.7% were Caucasian, and 5.7% were other.
- Orthopedic impairments-72 students, with 56.3% being male and 43.7% female. Ethnically 20.8% were African American, 76.4% were Caucasian, and 2.8% were other.
- Other health impairments- 1073 students, with 66% being male and 34% female. Ethnically 10.4% were African American, 83.2% were Caucasian, and 6.4% were other.
- Specific learning disabilities- 5159 students, with 61.5% being male and 38.5% female. Ethnically 13.7% were African American, 81.3% were Caucasian, and 5% were other.
- Speech and language- 56 students, with 51.8% being male and 48.2% female. Ethnically 16.4% were African American, 78.2% were Caucasian, and 5.4% were other.
- Traumatic brain injury- 68 students, with 63.2% being male and 36.8% female. Ethnically 13.2% were African American, 82.4% were Caucasian, and 4.4% were other.
- Visual impairments-52 students, with 44.2% being male and 155.8% female. Ethnically 11.5% were African American, 78.4% were Caucasian, and 10.1% were other.
  Of the initial 3,200 students surveyed, over 700 followed-up a year after graduation.

Results
Postsecondary Education Outcomes
The survey examined at a variety of areas of student success after graduation. These areas focus on postschool employment and postsecondary education. Based off of the data, these overall post-school outcomes have had some variation over the years. In regards to employment, there was a significant drop in employment in 2009, due to the recession. However, by 2012, employment began to rise again. Also, during the recession, while employment dropped, the number of students attending a two-year college rose slightly; however, the number of students attending a four-year college remained the same. But, one of the biggest discrepancies was with the amount of students wanting to receive a post-secondary education, compared to the amount of students that actually did. Around half of all students who set out to attend a higher level of education, failed to meet their goal. The top three reasons for students' provided for not attending postsecondary education as planned were, changed plans, lack of money, and application process.

Services Received in Postsecondary Education
nother lack of consistency is with accommodations that were received. This discrepancy is with the amount of students that receive accommodations, such as extended time, versus those who registered with disability services. It was interpreted that this failure to register with disability services showed an overall failure of developed self-advocacy and disability awareness training. This lack of self-advocacy was also demonstrated through the minimal number of students that applied for financial aid prior to graduation.

Anticipated Financial Support
According to the data, many of these students had anticipated support financially, but never applied for it while in high school. This has been hypothesized to account for the amount of student that had enrolled in post high school programs versus the amount that actually went. This is because these students had expected student loans and scholarships, but were not able to receive them. Examining the data, it can be seen that over 20% of students had

expected a scholarship before graduation, but only 12% applied before graduation, and less than 5% acquired after them after graduation. This was the same for the acquisition of student loans. Nearly 30% of students expected student loans before graduation, while less than 10% applied for it before graduation, and only a little over 5% acquired it after graduation. This data supports the early theory that many students do not have the proper self-advocacy development.

This trend of not being fully prepared was apparent in the other following categories: applying for Medicaid, family help, disability benefits, food stamps, and rent aid. In all of these areas, there was a disproportionate number of students who expected assistance before graduation and then actually received it after graduation. The primary cause for the discrepancy was that many of the participants did not apply for these services prior to graduation.

Evaluation of School Services

Along with these results, students were also asked to review a variety of transition activities and services. The students were given a four-point scale with 1 being "not helpful at all" and 4 being "very helpful." The scale examined a variety of areas, including activities and services from career technical education to career assessment. Some categories were rated very well. The top categories with a "3" and over included the following: career technical education, work on own, developmental disabilities services, in-school job, vocational rehab, college visits, job shadowing, and supervised work. However, the three lowest rated areas, that students did not feel were as helpful were, help applying for college and services, ACT/SAT prep, and career assessment. According to the data, these three categories seem to be areas students had the most difficulty understanding post-graduation. This seems to indicate that there needs to be more emphasis put on these areas, while the student is in high school, so that they can understand what needs to be accomplished, in order to attend a postsecondary institution. If these areas are concentrated on, it may increase the amount of students who successfully attain their goals, because they will be better informed on what is required for postsecondary success.

Limitations

The OLTS provides insight and clear statistical view into the success of students with disability post-school outcomes. It clearly shows how students are successful and what areas seem to be in need of improvement. While the data is evident and clearly presented, there are limitations to this study. One limitation is that the data is self-reported. With self-reported data, there may be bias in the answers that could lead to incorrect statistics. Another limitation this survey has is that all students with disabilities are not required to report post-school outcomes. This could create an inaccurate picture of students' success rates and achievement of goals, after graduation.

Discussion and Implications for Practice and Research

It can be seen that there is a large discrepancy between students who anticipate attending a postsecondary education institution, in comparison with those that do. It can also be seen that many of these students do not achieve their original plans because they are not properly informed on the requirements needed to be successful post-school. This was displayed by the way many students did not understand that they were required to apply for financial aid before graduating from school. This lack of knowledge sets students up for failure. In order to alleviate this issue, it is imperative that students are given the proper transitional services to ensure success. Students must know what is required to be completed before they leave high school. This is evident in the data that was collected by the OLTS. Many students were not applying for things, such as financial aid, prior to graduation, and lack of money, was an existing reason why students did not attend a postsecondary institution.

Another issue that hindered postsecondary success, for students with disabilities, was the discrepancy between students that reported receiving accommodations in high school versus those who received them in a postsecondary setting. In order to alleviate this issue, students need to be informed that they have the opportunity to receive accommodations and other services in a post-secondary setting. There are a variety of reasons why students chose not to seek accommodations, including not being aware that they are available, to fear of being stigmatized, to not thinking that services are required (Newman, Madaus, Javitz, 2016). However, students need to be aware that accommodations and other services, such as writing centers and tutoring, are available to them (Newman, Madaus, Javitz, 2016). Other studies that have been conducted have discovered similar results. It has been found that not only are students not reporting to postsecondary institutions that they have a disability, but half of student that leave special education, do not even think they have a disability (Getzel, 2014). Looking further, 14% believe they have a disability, but don't report it, leaving only 35% of students reporting a disability Getzel, 2014). While this lack of understanding about services available and disabilities is a problem, when students have the proper knowledge about what is available, during high school, some of these problems can be solved.

Even though the rate for students to disclose their disability with a postsecondary institution is low, when students are given transition orientation during high school, they are more likely to disclose a disability (Newman, Madaus, Javitz, 2016). This leads back to the importance of proper transition services while in high school. Students need to be aware of the accommodation that can be made, the effects that it has on the admittance process, and destigmatizing the process. It is important that students realize that while they are not required to inform a school of a disability, a school cannot deny admission because of a disability, as long as they meet all of the other admittance checkpoints (Transition of Students With Disabilities To Postsecondary Education, 2011). If students understand this, they may be more willing to disclose to the school that they have a disability, and seek proper accommodations to help them succeed.

While students with disabilities need to take on a role of self-advocacy, higher education institutions also need to make sure that they have the necessary programs available for these students when they are requested. Postsecondary schools should insure that they have a mentoring program in place. It has been found that when a peer-to-peer or faculty mentoring program is available for students who are struggling with their school work, they have a higher rate of success and increase their rates of finishing school (Getzel, 2014). Along with mentoring programs, educational coaches have also been used as a successful model to encourage students with disabilities to stay in school. For example, when students have a someone helping them with learning and practicing goal setting, it has been found that it helps them increase their success rate (Getzel, 2014). This is because, once they understood this skill better, they were able to meet the demands of their postsecondary schedules and it allowed them to keep the plans they had made (Getzel, 2014).

Implication for Practice
Based on these findings, the importance of making sure students have the proper information and understand the importance of self-motivation, can be the determining factor to their future success in postsecondary. It is important that students with disabilities, have the proper tools and knowledge at their disposal. They also need to be taught the importance of self-advocacy, and how to properly go about getting what they need in order to be successful. While a lot of the student's success is determined by their own initiative, it is also influenced by those around them giving them and teaching them how to use the tools in order to be successful.

Schools need to make sure that they are teaching students, with disabilities these skills. If students are not taught skills for success, they will be less likely to enroll in college. Schools also need to make sure that students are aware of what is required of them, before they graduate high school. The statistics showed that many students did not seem to understand how to procure things, such as financial aid, in a timely manner, so that they could receive assistance for a post-secondary institution. If students with disabilities are made aware of the important dates, this could increase enrollment in these institutions.

Further Research
After analyzing the responses from the students, it can be determined that this study has a strong foundation in understanding the success of students with disabilities in a post-high school setting. However, further research should be conducted in order to fully grasp what makes a student successful. For example, the transition programs that schools have in place should analyzed, and then the students success rates should be examined, based on the intensity of the program. This would allow for researchers to draw a connection and understand exactly which programs help students. This could then be utilized at different schools, to ensure the best transition programs are in place.

Another area of research that should be further examined is what are students with disabilities, who are already enrolled in a post-secondary setting, doing to ensure success. If this is more clearly understood, transition teams could utilize the information to make sure high school students are gaining an understanding of how to be successful after gradution.

Conclusion
While researchers are on the right track to understanding what student with disabilities need to have in order to be successful, there is still a long way to go. Schools need to have a universal plan set in place, in order to be effective in giving these students what they need to be successful. The data shows that there are still a lot of discrepancies in the special education community and students do not feel like they are being properly informed, and this is unacceptable. Students with disabilities need the same support and encouragement, to attain their goals as their typically developing counterpart. If proper transition programs, that discuss the importance of post-secondary timelines and transition strategies are available to students, then their success rate should increase. Looking back on the information, students felt activities like help applying for benefits and aid, ACT/SAT prep, and career assessment, were not as fully covered as they would have liked. So, if these areas are improved, and coverage is increased, then students are more likely to attain their postsecondary goals.

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Unemployment, Vocational Guidance and Entrepeneurship Education As Correlates Of Graduates' Post-Vocational Training For Self-Reliance In Delta State, Nigeria

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Abstract

Unemployment amongst tertiary education graduates in Nigeria is very high and continues to rise, with more graduates being churned out annually. Alarming statistics are released daily about Nigerian youths dying while crossing the Sahara Desert, drowning in the Mediterranean Sea, being maimed or sold In Libyan slave markets or being forcefully deported in their thousands. Over 75% graduates of tertiary institutions in Nigeria are adjudged unemployable. To stem this social malaise, institutions are using vocational guidance and entrepreneurship education to re-orientate graduates to acquire vocational skills for self-reliance. Presently, graduates are engaging in N-power training programmes, vocational training in technical colleges, YAGEP, STEP and skill acquisition under thriving entrepreneurs. The purpose of this study was to assess the relationship between graduate unemployment vocational guidance and entrepreneurship education, and participation in post-graduation vocational training by graduates in Delta State. This correlational study used a survey design to obtain data from respondents. Three research hypotheses were raised. Study population comprised of unemployed graduates undergoing vocational training. The instrument used was the unemployment, Vocational Guidance and Entrepreneurship Education Assessment Inventory Questionnaire (INGEEAIQ), a unipolar Likert scale with 40 question items. Findings revealed that all three hypotheses were retained, because the three independent variables could not predict the outcome variables (p>0.05). Recommendation was that other factors should be investigated to determine graduates' decision to engage in vocational training for self-reliance.

Keywords: *Unemployment, vocational guidance, entrepreneurship education, post-graduation, vocational training, self-reliance.*

Introduction

Graduates of tertiary institutions in Nigeria are in a class of their own with regards to their inability to secure paid employment, after serving in the National Youth Service Corps (NYSC) scheme. Hopes become dashed and frustration sets in. in recognition of this fact coupled with the generally held view that most graduates are ill-equipped to fit into the workplace, various governments, ministries, department and agencies and organizations established skill building vocational programmes for graduates to participate in, to enable them acquire vocational and entrepreneurial skills, in order for them to become self-employed and become employers of labour. The decision by graduates to participate in these training programmes is not an easy one, for youths who had acquired degrees, higher diplomas and other qualifications in various disciplines and who had their eyes focused on employment into paid jobs that are related to their disciplines. The areas of vocational training included, but are not limited to acquisition of skills in:

- Agriculture/agro-processing/agric business
- Technical/construction/fabrication activities
- Computer operations/ ICT/printing/publishing activities
- Catering/events/hotel management activities
- Textile/fashion/tailoring activities
- Leatherworks/millinery/bags/beading activities
- Cottage manufacturing/processing and
- Hairdressing/make-over/tattooing/barbing activities.

These vocational training schemes are sponsored by the Federal Government of Nigeria, various state governments, including Delta State, governmental organizations like Central Bank of Nigeria (CBN) as well as non-governmental organizations. These vocational training schemes come along with embedded incentives such as loans, starter-packs, installed occupational facilities and resources which are allocated to trained youths to operate; take-off grants after training, or employment after training, such incentives are designed to motivate the graduates to key into the vocational training scheme with the expectation for them to become:

- Self-employed/employers of labour
- Equipped with skills to enable them be employed
- Improve, innovate or expand on existing enterprises or
- Just busy while looking for paid employment related to their discipline
  Megbo and Ahaotu (2015) reported that:

- University graduates are poorly trained and are unproductive on the job;
- Graduate skills have steadily deteriorated over the past decade, and
- Shortcomings are particularly severe in oral and written communication, and in applied technical skills.

Among several factors that may have influenced such graduates to key into the post-graduate vocational training programmes, three (3) of them were selected for investigation as follows: unemployment, vocational guidance and entrepreneurship education. These three factors were deemed critical influencing the decision by graduates to participate in vocational or occupational skills training activities in order to become entrepreneurs, in the absence of paid employment.

International Labour Organisation (ILO) defines unemployment as the proportion of people in the labour force aged fifteen (15) to sixty-four (64) years who are actively looking for work, but were unsuccessful at least twenty (20) hours during the period under reference to the total currently active labour force; while underemployment occurs if a person works less than full-time hours or works full-time but is engaged in an activity that under-utilizes his/her skills, time and educational qualifications (paraphrased by NBS 2016). Unemployment of youths in Nigeria has been on the rise since 2014, from 21.73% up to an all-time high of 33.10% in the third quarter of 2017. Unemployment rate has been defined as the number of unemployed people as a percentage of the labour force, where the latter consists of the unemployed plus those in paid self-employment (OECD Data) If 33.10% of Nigerian youths are unemployed, the pressure that it piles on society can only be imagined. As a way of stemming this tide of unemployment and its consequent repercautions on society, post-graduation vocational training for graduates has been put in place by governments and other organizations especially in Delta State. Examples of such training schemes include:

- SPDC Joint Venture LiveWIRE
- N-Power-agro, N-Power-teaching, N-Power-Catering
- Your-WIN
- Ondo Youth Entrepreneurship Scheme (O-YES)
- Delta-Youth Agricultural Entrepreneurs Programme (YAGEP)
- Skills Training Entrepreneurship Programme (STEP)
- Central Bank of Nigeria (CBN)
- Vocational and Entrepreneurship Centre (CBN-VEDC) etc.

Such programmes have the entrepreneurship training component and there is usually a form of incentive package included to give participants as starter-packs. Tibi (2016) while discussing unemployment and life after graduation, identified the prospects that may guarantee worthwhile future for graduates as follows:

(i)   Engagement in government sponsored youth vocational training progranmmes and start-up packages
(ii)   Collaborative government and non-governmental organisation (NGO) training/empowerment programmes
(iii)   Value re-orientation and entrepreneurship training in all programmes in tertiary institutions and
(iv)   Skill-building activities in institutions while majoring in programme areas i.e. vocational training to be embedded in all disciplines in the institutions.

Tibi (2015) further recommended that education should have vocational outlook such that every level should encompass vocational training in the skills of various occupations.

Vocational guidance is another critical factor that was considered as an influencer of graduates to engage in vocational training. In guidance and counseling, there are three main areas: personal guidance, educational guidance and vocational guidance. While personal guidance concerns personality issues, educational guidance focuses on choices about education by learners at all levels. Vocational guidance is assistance given to a person in the choice of a career or profession or in making decision on training or employment into an occupation. It is offered to people like students in secondary and tertiary institutions on the career paths or professions they wish to pursue, as well as to adults who need special skills to enter some occupations, progress on the existing jobs or following up a pathway to professionalization in a career. Ode (2017) defined vocational guidance as the process of assisting an individual towards making a wise choice of an occupation/career, which will be beneficial to the person and to society. According to Efajemue, (2011), the process involves a continuous and careful assessment of an individual's interest, aptitude and potentials, over periods, using various sources of information from home and schools as a reliable basis for guiding the individual towards a satisfactory occupation. According to Wikipedia, in India, in order to divert educated youth, to channels of gainful employment, vocational guidance and career advising programmes of the Directorate General of Employment and Training have been expanded and streamlined. In Nigeria, and especially in Delta State educational institutions, vocational guidance is presently being offered to students and adults on occupational choices to make.

Entrepreneurship education is another important factor that was considered as contributing to graduates' decision to participate in vocational training for self-reliance.

Entrepreneurship is the process of an individual or group of persons setting up a business or industry in which he/they invest in the future of the enterprise, using the factors of production like land, labour, capital and management, and bearing risks, in an effort to make profit. Entrepreneurship education comprises of educational efforts that are directed at providing learners with appropriate knowledge, attitudes and skills needed for engagement or participation in entrepreneurial success (Tibi, 2012). According to Okojie (2011), the Federal Government of Nigeria in 2002 decided to introduce entrepreneurship into the general studies programme (GSP), with the clear objective of empowering students in tertiary institutions to be able to harness opportunities around them to become self-reliant, and become job creators and not job seekers. The aim of entrepreneurship education as a co-curriculum of tertiary education was therefore to prepare all students to acquire the entrepreneurial attributes that will enable them succeed in life, no matter their programmes of study (Tibi, 2017) Typically, for entrepreneurship education that would convert youths in tertiary institutions into perspective entrepreneurs, there should be adequate exposure of such students to occupational skills as well as business savvy, in order for them to create, innovate and successfully manage enterprises. For this to happen, it requires that the students develop entrepreneurial mindset while undergoing the entrepreneurship education. Kumar and Abirami (2014) described entrepreneurial mindset as an innovative practice of identifying and creating opportunities, and then acting on the opportunities in a productive way.

The challenge that necessitated this study was to assess the extent to which each of these three factors influenced the graduates' decision to take up vocational training, after graduation in order to become gainfully employed and become employers of labour. The purpose of the study therefore was to investigate the relationship between unemployment, vocational guidance and entrepreneurship education and the decision of graduates to engage in vocational training in order to become self-reliant in Delta State of Nigeria.

Research Hypotheses

As a way of establishing a research paradigm for this study, three hypotheses were proposed as follows:

Hypothesis 1: Unemployment, vocational guidance and entrepreneurship education do not significantly predict graduates choice/decision of area of vocational training

Hypothesis 2: Unemployment, vocational guidance and entrepreneurship education do not significantly predict graduates' choice/decision of incentive/sponsorship for vocational training.

Hypothesis 3: Unemployment, vocational guidance and entrepreneurship education do not significantly predict graduates' choice/decision of post-training motivation/expectation of vocational training

Method of Study

This was a correlational study that investigated the degree of relationship between three independent variables – unemployment, vocational guidance and entrepreneurship education – and the dependent variable: graduates decision to undertake vocational training in order to become self-reliant in Delta State. Specifically it investigated how the three independent variables predicted each of the three outcome variables area of vocational training, incentive based sponsorship, and post-training motivation/expectation of the graduate participants. The study employed the survey method to elicit responses from the study subjects. The instrument used was the Unemployment, Vocational Guidance And Entrepreneurship Education Assessment Inventory Questionnaire (UVGEEAIQ). The questionnaire which comprised of forty (40) items was developed by the researchers and validated by vocational teacher educators and professional counselors at College of Education, Agbor and Delta State University, Abraka.

The questionnaire comprised of unipolar agreement scales of strongly agreed (4 points) moderately agreed (3 points), slightly agreed (2 points) and not agreed (1 point). The population of the study subjects consisted of all the graduates that were currently involved in the various post-graduation vocational training in Delta State. The study sample comprised of one hundred and twenty six (126) respondents that successfully filled out and returned their questionnaire copies. Data obtained from their responses were analysed using nominal regression techniques, at the alpha level of significance of 0.05.

Results

Hypothesis 1: Unemployment, vocational guidance and entrepreneurship education do not significantly predict graduates' choice /decision of area of vocational training.

Table 1: Summary of nominal regression of unemployment, vocational guidance, entrepreneurship education and choice of area of training relation

Vocational Area of Training	Unemployment			Vocational guidance			Entrepreneurship		
	B	Wald	p	B	Wald	p	B	Wald	p
Agric/agro-processing/marketing	-2.396	.698	.404	-3.112	1.673	.196	2.561	3.351	.067
Technical/construction	-2.914	1.028	.311	-1.997	.678	.410	2.540	3.291	.070
Computer related/ict/printing/publishing	-2.079	.500	.479	-2.615	1.113	.291	2.149	2.192	.139
Catering/events/hotel management	-1.850	.409	.522	-1.544	.400	.527	2.061	2.089	.148
Textile/fashion/tailoring	-.902	.081	.776	-4.613	2.983	.084	2.615	2.937	.087
Leatherworks/bead making/hats/bags	.535	.022	.881	-3.922	1.809	.179	2.794	3.011	.083
Cottage manufacturing/processing	3.481	.578	.447	-6.566	3.678	.055	1.730	.735	.391
Model Fitting (final)	χ (21) = 23.248; p = .331								
Goodness of fit (Pearson)	χ (581) = 558.285; p = .744								
Pseudo R-square (Nagelkerke)	.199								

Table 1 reveals the nominal logistic regression of unemployment, vocational guidance, and entrepreneurship education predicting graduates' choice and decision in embarking on an area of vocational training. The results of the model fitting reveal that the inclusion of the predictor variables (unemployment, vocational guidance and entrepreneurship education) do not significantly predict the outcome variable - the graduates' decision in undertaking a vocational area of training (agricultural/agro-processing/manufacturing, technical/construction, computer related/ICT/printing/publishing, catering/events/hotel management, textile/fashion/tailoring, leatherworks/bead making/hats/bags, cottage manufacturing/processing, and hairdressing/make-over) /barbing/tattooing. Similarly, the parameter estimates of each predictor variable in relation to each level of the outcome variables were not significant. Thus, the null hypothesis was retained.

Hypothesis 2: Unemployment, vocational guidance and entrepreneurship education do not significantly predict graduates' choice/decision of incentive/sponsorship for vocational training

Table 2: Summary of nominal regression of unemployment, vocational guidance, entrepreneurship education and choice of incentive/sponsorship relation

Incentives/Sponsorship	Unemployment			Vocational guidance			Entrepreneurship		
	B	Wald	p	B	Wald	p	B	Wald	p
State Government	-3.654	2.909	.088	-2.528	1.623	-203	-.274	.121	.728
Central Bank	3.412	1.191	.275	-3.684	3.195	.074	-.201	.059	.807
Non-government Organization	.863	.095	.754	-.587	.049	.826	-2.503	3.250	.071
Model Fitting (final)	χ (9) = 13.562; p = .139								
Goodness of fit (Pearson)	χ (249) = 215.201; p = .938								
Pseudo R-square (Nagelkerke)	.136								

Table 2 reveals the nominal logistic regression of unemployment, vocational guidance, and entrepreneurship education predicting graduates' choice on incentive based sponsorship. The results of the model fitting reveal that the inclusion of the predictor variables (unemployment, vocational guidance and entrepreneurship education) do not significantly predict the outcome variable - the graduates' decision on incentive based sponsorship (government, Central Bank, and Non-government organizations). Correspondingly, the parameter estimates of each level of the outcome variables were not significant. Thus, the null hypothesis was upheld.

Hypothesis 3: Unemployment, vocational guidance and entrepreneurship education do not significantly predict graduates' choice/decision of post-training motivation/expectation of vocational training

Table 3: Summary of nominal regression of unemployment, vocational guidance, entrepreneurship education and choice of post-training motivation/expectation relation

Post-training Motivation/Expectation	Unemployment			Vocational guidance			Entrepreneurship		
	B	Wald	p	B	Wald	p	B	Wald	p
Become self-employed	3.725	3.331	.068	1.418	.687	.407	1.416	1.232	.267
Equip with skills to work for others	5.299	4.949	.026	.910	.159	.690	1.171	.727	.394
Expand on existing enterprise	41.451	.759	2262.945	.184	.003	10.064	4.121	.338	50.223
Travel abroad to fit into foreign work place	200.112	.028	21335.673	2.485	.028	217.592	3.226	.218	47.621
Model Fitting (final)	χ (6) = 11.372; p = .078								
Goodness of fit (Pearson)	χ (166) = 153.065; p = .756								
Pseudo R-square (Nagelkerke)	.136								

Table 3 reveals the nominal logistic regression of unemployment, vocational guidance, and entrepreneurship education predicting graduates' choice on post-training motivation/expectation. The results of the model fitting reveal that the inclusion of the predictor variables (unemployment, vocational guidance and entrepreneurship education) do not significantly predict the outcome variable - the graduates' decision on post-training motivation/expectation (become self-employed/employer of others, equipped with skills to work for others, expand on existing enterprise and get busy while looking for paid employment in one's discipline area). Similarly, the parameter estimates of each level of the outcome variables were not significant. Thus, the null hypothesis was retained.

Discussion

The results of the data analysis showed that the three independent variables could not predict the dependent variable of graduates' choice/decision to undertake vocational training for self-reliance in Delta State. This was clearly evident from the inability of unemployment, vocational guidance and entrepreneurship education to significantly predict each of the three outcome variables i.e. graduates' choice/decision of area of vocational training, (p>0.05); graduates' choice/decision of/on incentive/sponsorship of vocational training (p>0.05) and graduates' choice/decision of/on post-training motivation/expectation (p>0.05), respectively. The implication of above is that unemployment, vocational guidance and entrepreneurship education did not significantly influence graduates' decision to choose any of the areas of vocational training; graduates' decision to choose any of the incentive-based sponsorship of vocational training or graduates' decision to identify with any of the post-training motivations/expectations.

On unemployment, it is possible that respondents perceived vocational training as a means of getting temporarily engaged in an occupation, pending when a job related to their disciplines are received, It is generally believed that educated employees earn higher wages, advance in the job to high levels and have enjoy job stability. Therefore, the fact that educated youths in Nigeria are faced with a bleak future of unemployment, non-self actualization, postponed maturity and despair, does not in any way repudiate the need for them to continue to seek and acquire education for a better future (Tibi 2017). Although vocational guidance was shown not to significantly predict the outcome variables, maybe due to the level of exposure of the respondents to career counseling while in school, Egbokwu (2000) had stated that behaviour is the result of socialization and thus, to effect a change in behaviour, the process of re-learning the social setting required counselling by a professional. Tibi (2015) observed that for graduates who had set their eyes on high-level careers to adjust to low-skill, low-paying jobs, they needed to be counseled by professionals on vocational career choices, in order to make ends meet.

Entrepreneurship education as taught in the general studies programme of tertiary institutions had been criticized because it only emphasizes the acquisition of business competencies, to the detriment of occupational skills, among other issues. Ogah and Emesini (2013) stated that students in general studies programmes could not properly indentify the content of general entrepreneurship curriculum and were not exposed to the practical aspects of the skills, hence the low percentage recorded for those who were ready to practice the skills. On the whole, this study envisaged a situation where these variables would have been relevant in graduates' decision to participate in vocational training for self-reliance.

Conclusion and Recommendation

Graduates' decision to undergo vocational training in order to become self-reliant raised the question of factors that influence this decision, so it became necessary to investigate whether unemployment, vocational guidance and entrepreneurship education could significantly predict graduates' choice/decision of/on vocational training. This study revealed that they did not significantly predict graduates choices/decisions. This is not to say that these three factors did not contribute to the choices/decisions of the graduates in Delta State.

It is therefore recommended that other factors be identified and assessed for their abilities to predict graduates' choice/decision of/on engaging in vocational training. This becomes imperative because investigation has shown that while many graduates enroll in these vocational training schemes, the population easily dwindles as the training progresses. For instance the CBN-VEDC programme at Agbor Technical College which started with seven hundred and sixty-seven graduates in January 2018, has only about three hundred and forty participants presently. There was mass exit when the participants were asked to deposit their highest educational certificates with the Bank as collaterals to enable them access loans and other incentives/packages.

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Use Of Machine Learning To Increase Creativity Of Students

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Abstract

The question of whether machine learning can actually generate creative or original artifacts has been widely debated among artist and computer scientist. While some assert that artificial intelligence and machine learning cannot create original work, dismissing artifacts as mere "technological tricks," others contend that such opinions have not adequately addressed the recent advances in artificial intelligence and machine learning, claiming that machines are on the very cusp of producing creativity. This paper addresses the issue of artificial intelligence with particular attention to machine learning of creativity. Furthermore, by discovering the structure and compatibility of deep learning, this article will focus on the technology's possibilities of increasing creativity among students while they engage in activities that require innovation.

Introduction

Design always was more than just conjuring up images. While its similarity with art, its cousin, must never be overlooked, the field of design still required much more than just an expression of aesthetic values. Only a few decades ago, designing followed the standard, nearly ancient protocol: leaning over the blueprint, measuring, printing, and contemplating for days in the end to establish the final product. With the introduction and the application of Apple's Macintosh at the dusk of the 20th century, the tools of these procedures were revolutionized. However, the arduous nature of the job stayed the same, for a while computers helped make calculations and keeping track of the numbers more accessible, the duty of its users to plan and visualize everything stayed the same. Today, the field of design is on the brink of yet another significant evolution, for the usage of deep learning mechanism are beginning to dramatically change the way practical sketching and modeling is done, while leaving considerably less troublesome labor for human designers.

Deep learning is a "biologically-inspired programming paradigm which enables a computer to learn from observational data" (Nielson, 2017). Its prototype dates back to long before the 21st century, but the most extended version that traffics and accumulates data independently was finalized in the 2010s. The term "biologically inspired" stands out as one of the core traits of a deep learning model, for its structure and function was designed after one of the best learning mechanisms in this planet: the human brain. In fact, the basic building blocks of an artificial neural network, a node, is modeled after an actual human neuron, as visualized in Figure 1 below.

Figure 1.
Retrieved from: https://appliedgo.net/perceptron/
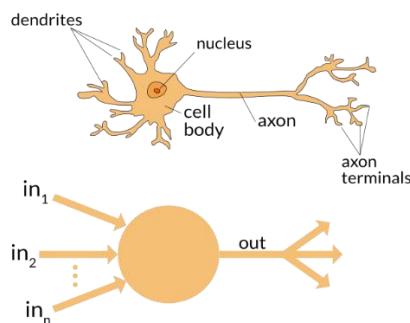
While farther analysis of the deep learning model will be conducted later in the paper, it is crucial for the readers to note that artificial neural networks and thus AI aims to mimic the learning function and productivity of the human brain. This goal separates deep learning from other orthodox methods in computer programming and allows for the contemporary feats and technological collaborations in all fields of human life. In fact, deep learning is noticed as the most prestigious sphere of technology in the 21st century: another technological evolution in the era of data. 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). In his book, deep learning researcher Michael Nielson writes "neural networks and deep learning currently provide the best solutions to many problems in image recognition, speech recognition, and natural language processing" (Nielson, 2017).

In the neighboring fields of visual art and music, resistance toward the usage of deep learning in creating new pieces is relatively high. While the sphere of design also includes an element of visual art, the opposition is much less in content and context. Perhaps the prime reason is this: in art, the arduous process of creating the outcome is all included in and respected as a part of the art itself. However, in design, the groundwork for building the result is considered more as a labor than a sacred process. Some critics argue that deep learning technology will "steal" amateur design jobs and over-simplify design, and in some cases, they have a point. However, it must be noted that the role of deep learning and AI in the field of design is to aid, not to duplicate, human designers.

The possibilities of AI in design range over from designing home pages to creating three-dimension models from scratch. 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, 2017). Similar goals are being achieved by software makers who plan to construct an artificial intelligence that will design tailor-made websites according to the specific wants and needs of its users. One of the most prestigious and most commercially known of such endeavors is Wix, an algorithm-driven website constructor that enables non-professionals to make their websites. With a broad database of high-quality modern sites, Wix aims to break out of one of the most dangerous problems of design: clichés and mediocre results (Vetrov, 2017). Similarly, researchers in deep learning and graphic design are working to discover ways in which artificial intelligence, without human aid, may distinguish different customer needs, use tools, and shades according to different demands, and replicate favorable patterns and logic used in past works of design.

The surge of 3D printing also allowed for the possibility that AI may design and create everyday tools and machines from scratch. In 2016, Joel Lehman, a professor at the IT University of Copenhagen, conducted "process that employs mechanisms that mimic natural evolution, such as selection, reproduction, and mutation" (McDonald, 2016). The process includes a deep neural network figuring out familiar objects among countless images and engineering. Through millions of endeavors and image processing, the neural network could finally succeed in creating a real printed version of a specific object based on its theoretical insight of what it looked like (Augur, 2016). While the technology of AI designing and creating the concrete object from scratch is still in its infancy, this recent breakthrough signifies a future in which AI may perceive, shape, and even enhance the function of specific objects, thus enabling the creation of more convenient and efficient tools and simple machines.

Rob Girling agrees that creativity and social intelligence define design jobs. 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 create 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.

Anticipations of AI programs that can aid designers in mechanical design are also rising, as Vention, a 3D mechanical design company, announced the invention of a deep learning program that allows online machine design with more precision and fewer costs. 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" (Heller, 2017). Vention's custom

software calculates the mechanical durability and functional legitimacy of the customer's design, and even steps in to edit parts that are erroneous or better off fixed.

Girling, the Artefact Group, 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" (Girling, 2017). However, the field of design is an area that yet cannot proceed without the existence of the human touch. The biggest anticipation upon deep learning in design right now is to replace the most troublesome labor for the human designers. With online graphic design tools based on AI and 3D mechanical design rising to the surface, it seems that this revolution of AI algorithms will indeed "save human designers time and make more room in their lives for reflection and creativity" (Tselentis, 2017).

Proposal For Usage

I.   AI in Urban Planning and Architecture.

City construction and architecture is a form of design, with much more to consider than merely aesthetics and convenience. Past limitations have primarily been results of biased or tilted planning that failed to see the requirements of the residence population objectively. Such difficulties may be easily overcome with AI-based programs reinforced by data of past success and information about the specified populations' leading age levels, income, and preferences. The application of deep learning in building and city design will yield outcomes that satisfy the most while discarding unnecessary details.

The Study

The introduction above has summarized the structure of a broad learning mechanism as "an artificial brain." To be more precise, deep learning is a form of data learning that is carried out by a neural network, or a system designed to mimic the function of neurons in the human brain. The highly unusual design of an artificial neural network allows it to process, learn, and consciously utilize data flexibly.
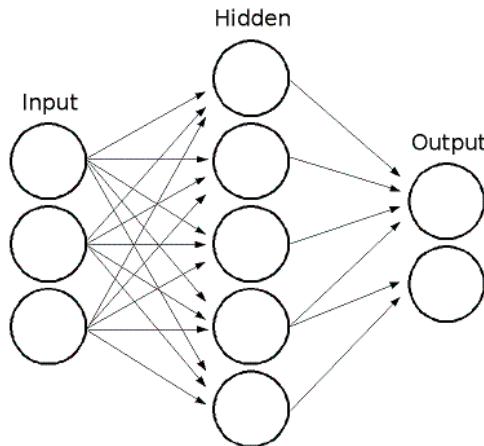
Figure 2.
Retrieved from https://jaygshah22.quora.com/Neural-Networks

A neural network usually consists of multiple layers, or processors that operate in segments (Figure 2). The first layer, or the input layer, acts the perceiver of input data. The following tier, or the hidden layer, serves a more sophisticated function of processing the data and comprehend its value. At the same time, the hidden layer continually creates and edits expected values of the input data, thus correcting its reliability and setting up intellectual abstracts.

Figure 3.
Retrieved from
https://www.reddit.com/r/MachineLearning/comments/49wrt4/adversarial_images_for_deep_learning/

Each processor, or node, consists of independent, abstract knowledge that is either programmed or actively gained on its own. The interconnected nodes allow the neural network to modify itself to the continual training and test data it processes and ultimately learns to establish a specific abstract over processed data. For example, if constant images and such data about a dog's face were inserted into the layers, the neural network would soon establish a data set of recurring characteristics of the furry animal (Figure 3) and finally learn the difference between it and its look-alikes. This trait grants the neural network to define objectives and make determinations, resulting in a powerfully flexible and compatible intelligence that parallels that of a human being.

Implications For Education And Teachers
While applying AI in different fields, especially the field of education, is a complicated process, the fruitful outcomes of doing so must never be overlooked. The significant changes deep learning technology will bring in future classrooms and curriculums must be noted, and thus it is incredibly crucial for researchers and educators to have:

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 use AI data and incorporate them into the curriculum
4. an ability to manage AI resources effectively. (Luckin, R.et.al. 2016)

Conclusions
Although yet minimal, changes are being made in the field of design: changes that, in the next few decades, may change how half the world's objects look. In the same respect, Girling from the Artefact Group asserts that designing AI is "designing the future of humanity. (Girling, 2017). AI in design is now not only about being secretaries, but also independently calculating and planning conventional ways to better human life. What are the obligations for human beings, then? Girling encourages the users of artificial intelligence to "think big" and jump on new opportunities for us and the generations to come.

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Using Technology To Enhance High Leverage Practices
In Special Education

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Abstract
The implementation of technology in the education of students with disabilities is an emerging promising practice. The use of assistive and instructional technologies is identified as a high leverage practice (HLP19) in special education. Within this emerging practice many barriers exist for both students and teachers.

Using the SAM-R and the technological pedagogical content knowledge (T-PACK) models, the authors will identify key factors in the selection of educational technologies, specifically applications, for intervention specialists. These factors will further identify technology based approaches to implement high leverage practices across the curriculum for students with mild to moderate disabilities and students with moderate to intensive educational needs. The use of technology to increase student engagement, collect and manage data, and the provision of explicit and intensive instruction will be presented using the framework of universal design for learning (UDL).

Introduction
In the world of education, technology is an essential aspect of students' learning, but with technology changing so quickly, some educators struggle to effectively utilize it in their classrooms. Overall, educators agree that there is a purpose and value to using technology with their students, but putting the actual technology into practice can be difficult. Educators have differing reasons that keep them from effectively using technology in the classroom.

Barriers to Technology
The most common overall barrier found overall was a lack of training and professional development dedicated to new technologies (Davidson, Richardson, & Jones, 2014; Gilakjani, 2014; Kalonde, 2017;Hechter & Vermette, 2013; Spires, Morris, & Zhang, 2012). Most educators are comfortable using technology , but feel that they need more training and professional development to use it more effectively. Teachers also identified the inability to immediately solve technological problems as a reason for not using new technologies in the classroom (Davidson, Richardson, & Jones, 2014).
In an analysis of computer use in classroom, it was also found that many teachers lack adequate knowledge of computer technologies, therefore they are unable to use it appropriately in their classrooms (Gilakjani, 2014). An investigation of educators from rural schools and their use of technology found that teachers did not receive significant professional development or training on new technologies that could be used in the classroom, and that they relied on their own personal interest and training (Kalonde, 2017).
Another commonly noted barrier was the lack of access to new technologies, often paired with the cost of technologies. In a study based on one school district, researchers analyzed barriers to integrating technology in science classrooms across grade levels. Their survey found that 67% of teachers responded that access to technology was a major issue for them. Teachers elaborated and reported that technology was not always available at reasonable times, there was not enough of the specific technology for each student in the class to use, there were school imposed restrictions on technologies, and that teachers lacked a choice in what technologies to use (Hechter & Vermette, 2013).
According to Coley et al., teachers of agriculture using technology in the classroom, more than half of teachers interviewed did not have access to recent technologies such as Smartboards, iPads, iPods, or response clickers. Teachers in this study also lacked access to various social internet sites, such as social networking sites, social bookmarking sites, and various web tools. Teachers in this study most often noted cost, time, and district-wide

restrictions as the greatest barriers to implementing new technology in their agriculture classrooms. Teachers also noted not having enough of a technology (i.e computer, iPAD) for all students to use and students having a lack of access to technologies at home as barriers (Coley, Warner, Stair, Flowers, & Croom, 2015). Teachers stated that their district did not have enough technology, but also noted that the cost of technologies could be contributing to the lack of access. Overall, it seems that teachers across the board find the most common barriers to implementing education to be lack of training/professional development and lack of access to enough technology for an entire class.

An educators attitude toward technology is another potential barrier. In a Montessori school, the majority of teachers showed positive attitudes towards using technology in the classroom and found value in using technology (Jones, 2017). The most common negative attitude focused on the difficulty for maintaining the right balance of technology and human interaction. Some teachers noted that there was a lack of computers in the school, and it would be difficult to use as it limits how many students can use the technology at the same time (Jones, 2017). Beyond the potential barrier of the balance between technology and human interaction, an educators time for exploration can also be a factor.

Researchers found that teachers indicated that time to learn how to use the technology, time for students to learn how to use the technology, and making sure they had enough time to continue teaching demanding curriculums were all obstacles in effectively integrating technology (Hechter & Vermette, 2013). Finally, as stated in earlier from additional studies, over 50% of respondents in this study indicated that lack of training on new technologies and a lack of resources were major barriers to adequately integrating technology in their classrooms (Hechter & Vermette, 2013).

Utilization of Technology
While teachers may run into various barriers that make it challenging to implement technologies in their classrooms, apps (applications) for iPads and tablets, are still used by many educators. Much research was found on how teachers utilize mathematics apps during math lessons to enhance student learning. Educators also use apps on iPads and tablets to enhance literacy and apps that allow students to collaborate and share materials.

In one survey completed in 2017, classrooms were observed for their use of apps on iPads during the school day. The researchers found that even though there were not quite enough iPads for it to be one device per student in some of the classes, the students in the class were engaged and appeared motivated to complete their assignments. The classes were observed using nine different apps, with the majority of them being used for math problems followed by video creation (Howard & Howard, 2017). The teachers observed in this study reported generally positive experiences with the apps they have used, which include: Khan Academy, Videolicious, Edmodo, Study Mate, Bookabi, Nearpod, Google Good Editor, Smart Response Notebook, and Socrative.

In another study conducted on using iPads as supplements to assist students with disabilities in math, teacher candidates tutored students one-on-one using apps for iPads. Different apps that were used included Division for Kids, iTooch, Y Homework, Splash Math, and Math Animations. The study found that using the iPads was helpful as a guide for students, the apps can be used as assessment tools, and they helped to develop math understanding (Kaur, Koval, & Chaney, 2017). The study also found that students were more engaged and motivated to learn while using the apps (Kaur, Koval, & Chaney, 2017). The study showed that apps are useful for students with learning disabilities in the area of math.

Overall, teachers seem to have a general desire to use technology, but the barriers outlined in this paper are reasons that teachers may not end up using technology effectively. In one study conducted on using personal devices, such as iPads and iPods, in classrooms, the use of devices was well-received in elementary and middle schools, but teachers at the high school level had more difficulty finding educational use for the devices (Chrichton, Pegler, & White, 2012). This study found that one condition of getting teachers to effectively use technology in their classroom was to be sure to treat teachers as learners when introducing new technologies. Teachers will not be able to use technology that is new to them in their classrooms if they are not first taught how to implement these technologies effectively (Chrichton, Pegler, & White, 2012).

In a world in which technology is constantly changing and apps are constantly being added and updated in app "stores", it can be a difficult task to find appropriate and useful apps to use in the classroom setting. Teachers typically already struggle to find enough time in the day to complete all of the tasks and responsibilities they are expected to complete, so finding time to actively search for apps that will be appropriate in their classrooms can be challenging. One study found that apps have more usability and can foster creativity in the classroom if they are "effective, efficient, and satisfying" (Zhang & Liao, 2015). When searching for apps, it can be difficult for teachers to find quality apps, as it is hard to determine their quality based on information provided in the app store (Larkin, 2014).

Classroom Based Technology Selection

The adoption of standards that involve learning 21st century-based technology skills have been on the steady increase in the past fifteen to twenty years. The need for students to be technologically literate is a natural outcome of the ever-growing connected global society. This need, in turn, means that teachers also need to become technologically literate to keep up with the ever-changing global society. The adoption of the Technological Pedagogical Content Knowledge (TPACK) theoretical model (Davis, Bagozzi, & Warshaw, 1989; Mishra & Koehler, 2006) provides a framework for teachers to follow when understanding the knowledge needed to use technology effectively in the classroom.

According to research conducted by Courduff, Szapkiw and Wendt (2016) the current research on special education teachers use of technology is focused primarily on teachers' perceptions of technology that has been adopted by school systems or larger initiatives. A theory of best practices is needed to inform selection and implementation of technology in the special education classroom at the individual student level. The results were then used to develop a model that explains how the teachers used the study came to understand and effectively implement technology in their classrooms.

Courduff et al. (2016) noted that a pattern of slow and consistent implementation of technology was the most effective way to achieve successful technology integration. They identified several teacher dispositions and pedagogical beliefs that led to successful technology integration in the classroom. These dispositions included teachers having an open-minded curiosity and being a pursuer of knowledge. The pedagogical beliefs that were identified included the following; optimal learning is active, and student centered, technology is a tool that transforms learning, technology increases efficiency and is convenient. The most import guideline that was identified in both selection and implementation was evaluation. Most teachers identified a method of systematic evaluation and that these evaluations appear to be objective and related to learning objectives or academic goals.

Teacher Driven Technology Selection

Based on the findings from previous research, the authors created an approach for pre-service and practicing intervention specialist to assist them in choosing appropriate applications for their students. This approach combines the implementation of high leverage practices in special education (HLP, 2017), the understanding of the SAM-R model of technology assessment, and the T-PACK model (see Figure 1). This approach moves from a district-wide selection of technology to an individual choice by the classroom teacher. This choice is based on student needs and effective pedagogical approaches.

Figure 1: Technological Pedagogical Content Knowledge Model
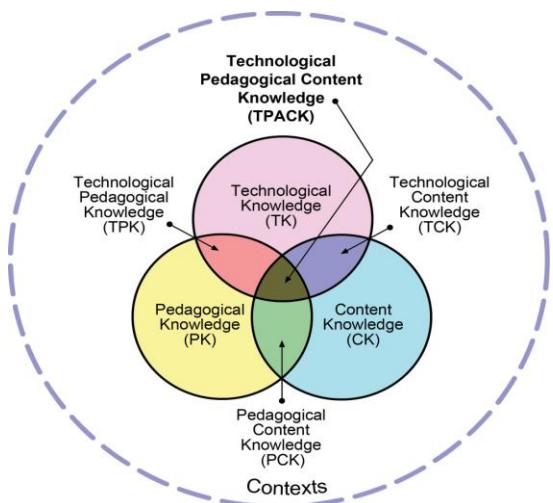
The T-PACK model was developed by Mishra and Kohler (2006), was created around the notion that content and pedagogy should be the foundation for any technology that educators plan to use in the classroom to improve student learning. When applying this model to special education, the content knowledge an intervention specialist must consider is two-fold. This includes the individualized educational program (IEP) for the student

with learning needs and knowledge of the students individual learning style. Student IEP goals are to be based on the their needs, strengths, preferences and interests identified through multiple and varied assessments. Once the content knowledge is selected for the individual student, pedagogical knowledge becomes the focus. The degree to which special education teachers are expected to gather assessment information and develop a learner profile is different from general education approaches . Intervention specialists are expected to collect detailed information about students, develop procedures for tracking student progress, ensure that IEP stakeholders views are incorporated in designing instruction, and be comprehensive in the use of assessment data to design and evaluate instruction based on individual student needs (McLeskey et. al., 2017).

Pedagogical knowledge is how instruction will be provided to the student. This includes lesson planning and methods of delivery. Intervention specialists should be skilled in the delivery of high leverage practices (HLP's) in special education. There are twenty-two HLP's that address practices that all intervention specialists should attain. They are organized into four components that include collaboration, assessment, social/emotional/behavioral practices, and instruction (McLeskey et. al., 2017).

Figure 2: SAM-R Model for Technology Assessment
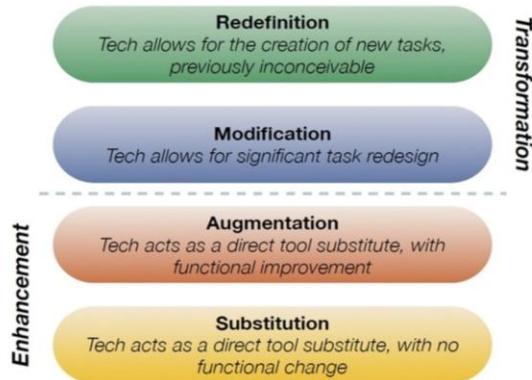
Image the creation of Dr. Ruben Puentedura, Ph.D. http://www.hippasus.com/rrpweblog/

Technological knowledge is the understanding of information technology and the ability to apply it in order to improve student learning. Intervention specialists should be able to identify tools and electronic resources to assist students with learning problems. In this case, the authors focused on applications for hand-held devices like iPads and tablets (apps). Instruction in the SAM-R model for technology assessment (See Figure Two) is an ideal approach. This model quickly introduces educators to the four levels of functionality of technology and provides a basic definition for each level.

Figure 3: Adapted TPACK Model for the Selection Applications in Special Education
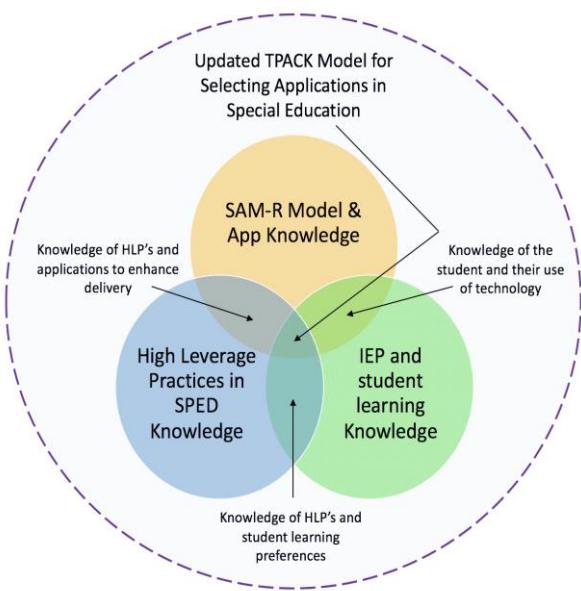
Using the T-PACK model framework, the authors have adapted the model to meet the needs of intervention specialists selecting applications for their students (Mishra & Kohler, 2006). This approach addresses the findings of Courduff, Szapkiw and Wendt (2016) to centralize the selection process to the individual classroom and student (See Figure 3). The content knowledge need by the intervention specialist is centered around the individual student and their educational needs. The pedagogical knowledge in this model is focused on the HLP's identified by the Council for Exceptional Children (McLeskey et. al., 2017). Finally, the technology knowledge needed by intervention specialists is focused specifically on the evaluation of applications using the SAM-R model.

Conclusion

When teachers had more professional development on emerging technologies, they could better implement and integrate them into their classrooms. Teachers felt restricted by standardized testing and pacing guides and that they did not have time to teach students 21st century technology skills (Spires, Morris, & Zhang, 2012). This approach takes minimal time to introduce and provides intervention specialists with the needed information to make an informed choice.

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Vocational School Students' Beliefs about Mathematics

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Abstract

Math is extremely interlaced with science disciplines, which it has many applications. There is a continuing argue who would teach math and when math science would be taught. The information added in math lecture is used in another lecture. Beliefs which students have about math expressively inspirited on the learning (Matic, l., j., 2014). We investigated gender differences of beliefs about math coming from vocational school in accounting and task program. Participants were 92 students from accounting and task department of Niğde social science vocational school in Niğde Ömer Halisdemir University and 80 students from accounting and task department of social science vocational school in Gümüşhane university and so, totally 172 students. All of whom completed the belief scale. The results displayed positive beliefs about math in the school program but weren't convinced that this information would be applied next periods. However, they don't agree with the discernment of math getting to stimulate Scientific area (Matic, l., j., 2014).

Keywords: beliefs, information, math, vocational school

Introduction

Math does not operate to mathematicians as a basis of math theory and a problem-solving instrument. That is strongly interlaced with academic science, that it has many applicable areas (Matic, L., J., 2014; Furinghetti and Pehkonen, 2002). These authors pointed out which mathematicians, the teachers of math, would be conscious for importance of math in science disciplines, social and economics department curricula to able to re-organise the education of math to students. Similarly, they added which we would be aware of students' habits and beliefs with math and we would have an intuition into the information (Matic, L., J., 2014). We need use two words which beliefs and attitudes, at the time relating someone's views and choices built on his/her explanations and practices. We note a critical approach which respect an insolence as a group of beliefs while other students organize a belief that a factor of students' views at the school (Matic, L., J., 2014).

According to Poland Karsenty (2003), beliefs are extremely individual, and these transfers depending to another person's thinking. He stayed which there are many educational studies which students' beliefs for math and math learning had a generally collectivized in last years. Ernes (2003) defined beliefs as that "individual's personal information and provided classification on the view of math as a mixture of information, beliefs, conceptions, attitudes, and feelings" (Ernes, 2003). He stayed which this definition has different mechanisms as stayed below (Matic, L., J., 2014):

- *Belief about math teaching,*
- *Belief about math,*
- *Belief about math students.*
- *Belief about math learning,*

Method

The participants were 92 students from accounting and task department of Niğde social science vocational school in Niğde Ömer Halisdemir University and 80 students from accounting and task department of social science vocational school in Gümüşhane university and so, totally 172 students. The students are charted using forms which are directed beforehand the math subjects in the basic math lecture. The questionnaires were not decelerated before, so applicants were the students that emanated to the workout teachings (Matic, L., J., 2014). The basic mathematic lecture contains elementary subjects as which numbers, operations, equation, functions with special functions, basic geometry by little emphasize the theoretical aspect and much concentration to algorithm and algebraic operations.

The students in the vocational school were requested to answer to some belief's requests, specified on a 4-point likert-type scale, extending from 1 = strongly disagree, 2 = disagree, 3 = agree to 4 = strongly agree (table 1). The requests intended at revealing the beliefs about math and the application studies of math in the of the studying lecture program. The impartial selection was misplaced because of we required the student to take a position (Matic, L., J., 2014).

Findings

The speeches from the question papers and the outcomes of the students' answers are offered in table 1. A greater amount of the female students approved with the speeches 1, 2 and 3 than the number of male students, excepting for the speech 6, that this amount was the similar. That incomes which important part of students from the genders measured which math was "important" in social program, with 90% of female students and 72% of male students who approved with the declaration. Also, above 89% of students from the genders observed which "information" in basic math areas was needed for students in the programs. "understanding" math behindhand problem was significant for 88% of female students and 76% of male students. Even though the two genders of students had highly identical answers to speeches 1, 2 and 3, a important difference was registered between the female and male at the level of 0.05 (p = 0.02, p = 0.01 and p = 0.01 respectively). This data designates which the female students have extra confident beliefs about the effect of math in the lecture curriculum (Matic, L., J., 2014). In the speeches 4, 5, and 7, the two genders of students diverged- more than female students settled whereas more than half of male students not agree (and strongly disagreed) with the speeches. 51% of female student measured math as "exciting", while 67% of male students not agree with them. Moreover, it gets to basic math lectures engaged, 59% of female students measured which basic math lectures were "interesting", by 62% of male students not agreed with this speech. 53% of female students requested which they had been showed the subject of "function" in the school curriculum, related to 52% of male students that not agreed with this idea. At the level of 0.05, a important variance was registered between the female and female students in speech 4 (p < 0.02) and speech 5 (p = 0.02), what established which there are important difference between the two genders of vocational school students (Matic, L., J., 2014).

Table 1. Responses to the belief's speeches: percentages, mean, standard deviation

Speeches:	Gender	Stdis. %	Dis %	Agr. %	Stagr. %	Mn	Sd

		stdis	dis	agr	stagr	mn	sd
1. Everyone who studies social and economic program ought to Have information of basic math disciplines.	F	2	6	80	84	3.41	0.77
	M	2	10	92	68	3.24	0.58
2. Math is a necessary part of social and economic program.	F	4	8	100	60	3.16	0.58
	M	10	28	96	38	2.77	0.75
3. It is important to me not just to be able to solve a problem, But also, to understand the math behind it.	F	2	20	98	52	3.23	0.84
	M	6	34	82	50	2.99	0.89
4. Math is an exciting subject in general.	F	23	58	76	15	2.51	0.65
	M	39	70	57	6	2.11	0.93
5. Basic math lectures were interesting to me beyond the fact which i had them as a part of my study program.	F	12	56	82	22	2.65	0.84
	M	32	73	63	6	2.28	0.84
6. I think equations have applications in the rest of my study program.	F	42	24	44	58	2.67	1.23
	M	41	26	60	45	2.60	1.36
7. I think functions have applications in the rest of my study program.	F	36	47	50	39	2.57	1.41
	M	51	52	34	35	2.45	1.37

F= female, male, mn = mean, sd = standard deviation, stdis= strongly disagree, dis=disagree, agr=agree, stagr = strongly agree

Results

The outcomes coming from the earlier unit displayed which the female students agree math as an "important" portion of the school mathematics curriculum and measured which each student that works in female lecture program would keep basic math information. These group extremely "appreciated" an understanding of math notions, as an act of process, moreover that wasn't totally reinforced with findings in the math test items. Students accepted math lectures "interesting", but these students were separated into the idea that basic math concepts would be applied or not applied in the school curriculum, that designates which the connection between math and female wasn't observable to this group at the end of the first semester of vocational school program (Matic, L., J., 2014).

The male students stated the identical beliefs with the female students for math, basic math "information" in the school curriculum and the "learning" of math in exercises and, with less level opinion. Moreover, much more than half detained an interesting belief which basic math in usually engaged weren't "interesting" different from much of female students (Matic, L., J., 2014). And finally, correspondingly, like the female participants, the male participants weren't certain when basic math notions would have usable in the main part of the school curriculum.

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Vocational School Students' Beliefs On Accounting And Mathematics:
Business Department Sample[*]

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Abstract

Accounting with math is exceedingly interleaved with scientific area, that has plentiful presentations to many areas. There is a current argue who must school math and when that math must be qualified the data increased in math way is worn in another course. Beliefs that participants have in relation to math drastically sway on the erudition (Matic at all., 2014). We investigated gender differences of beliefs about math coming from vocational school in business curricula. The results presented positive beliefs about math in the lecture curricula but were not positive at the time that data will be worn later. However, they don't agree with the acuity of math as being stirring discipline.

In this lecture, it is examined gender differences in accounting and math belief among university participants. Participants were 82 participants from Business Department Of Kocaeli Vocational School in Kocaeli University, all of whom completed measures of belief questionnaire.

Keywords: accounting, beliefs, knowledge, math, vocational school

Introduction

Difficulties of announcement stuck between specialized accounting, math and participants that lecture in non-math cram curricula time and again represents a barrier in comprehending the focus material (Aroson, R 2001; Matic At All., 2014; Maull& Berry, 2000). Accounting and math do not work only for accountant and math lecturers as a power of mathematics theory and a problem-solving material. It is forcefully interwoven with skill, where it has plentiful studies (Ernes, 2003). These authors pointed out that we, as the lecturers of math, must be awake of the consequence of math in science, social and economics department curricula to be able to re-organize the instruction of math to participants. Also, they added that we should be aware of the student approaches and beliefs about math and we must get an impending into the data. We need use two words that beliefs and approaches, when relating someone's belief and decisions based on his observations and experiences (Wehlage, G.G & Rutter, R.A., Smith, G.A., Lesko, H., & Fernandez, R.R. 1989; Matic At All., 2014). We note a critical approach that a few observe an approach of gathering of beliefs while others organize a belief as one module of manner.

In the others (out of math) lecture curricula like business curricula, there is a continuing discussion who must school accounts or math to other branches teachers and how way that math must be qualified (Matic At All., 2014; Flegg At Al., 2012). A few academics projected that the training of math be obliged to be in the help of expert mathematics teachers, while the others fight that the business departments must integrate math into the business and accounting developments; beliefs are extremely particular, and these move allowing to somebody's approaches (Matic At All., 2014; Poland Karsenty, 2003). He stayed that there are many educational studies that student beliefs about math and math erudition have been a frequently public in preceding periods. Furinghetti and Pehkonen (2002) defined beliefs as "person's prejudiced data and presents to categorization on the outlook of math with the blend of data, beliefs, formations, approaches, and emotional statements". He stayed that this definition has different components as stayed below:

- *Belief about math teaching,*
- *Belief about math,*
- *Belief about math learner.*
- *Belief about math learning,*

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Methodology

We have examined students' beliefs in relation to accounting and math in wide-ranging and to basic math courses full. Our key objective was to see if there are family between these beliefs and the genders (Matic At All., 2014).

Participants: the participants in this cram were 82business participants (55 female and 27 male) in Kocaeli Vocational School Form Kocaeli University. The participants were plotted with forms that were directed sooner than the keep fit instruction in the basic math progression. The forms were presented to the students before, so contributors were whom students that came to the application programs (Matic At All., 2014). The basic mathematic course contains elementary subjects as that numbers, operations, equation, functions with special functions, basic geometry by little emphasize the theoretical aspect and much concentration to algorithm and algebraic operations.

Questionnaire: the participants were asked also to take action to a few belief's questions, specified on a 4-point likert-type scale, extending from 1 = strongly disagree, 2 = disagree, 3 = agree to 4 = strongly agree (table 1). The questions targeted at divulging the beliefs for math and the submission of math in the have the other part of the lecturing curricula. The nonaligned selection was not there since we sought after the participant to receive a position (Matic At All., 2014).

Findings

The questions aimed at divulging student' beliefs about bookkeeping, math and the submission of accounting and math in the have a stand of the lecturing curricula. The nonaligned selection was not there when we sought after the lecturer to get a way. The declarations from the forms and the outcome of the student answers are on hand in table 1. A bigger percentage of the female participants arranged with the reports 1, 2, 3 and 6 than the part of male participants (Matic At All., 2014). This resources that noteworthy part of participants from both genders considered that math was "important" in social curricula, with 91% of female participants and 74% of male participants that think with the declaration. Moreover, above 89% of participants from both genders observed that "knowledge" in basic mathematics departments was compulsory for participants in these curricula. "understanding" math behindhand difficult was significant for 88% of female participants and 76% of male participants. In addition, 70% of participants from the both genders stayed that mathematics "equations" were desired in all my university life. When the two genders of participants had very comparable answers to reports 1, 2 and 3, a important modification was established between the female and male by the point of 0.05 (p = 0.01, p = 0.03, p = 0.21and p = 0.03 respectively). That designates which the female participants have more confident beliefs for the effect of math in the lecture curricula.

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[*]A brief version of this article presented at ITEC 2018

Table 1. Responses to the belief's statements: percentages, mean, standard deviation

Statements: (Matic At All., 2014).	Gender	Stdis. %	Dis %	Agr. %	Stagr. %	Mn	Sd
1. Everyone who studies social and economic curricula ought to Have knowledge of basic mathematics disciplines.	F	3	4	37	38	3.38	0.70
	M	5	7	39	31	3.01	0.60
2. Math is a necessary part of social and economic curricula.	F	6	8	42	26	3.02	0.65
	M	9	18	41	14	2.78	0.84
3. It is important to me not just to be able to solve a problem, But also, to understand the math behind it.	F	5	13	43	21	3.04	0.76
	M	7	23	32	16	2.79	0.79
4. Math is an exciting subject in general.	F	11	29	37	5	2.53	0.94
	M	19	36	26	1	2.09	0.72
5. Basic math courses were interesting to me beyond the fact that I had them as a part of my lecture curricula.	F	7	29	35	11	2.65	0.75
	M	17	33	27	3	2.23	0.85
6. I think equations have studies in the rest of my lecture curricula.	F	6	15	38	21	3.02	1.33
	M	10	12	35	25	2.86	1.54
7. I think functions have studies in the rest of my lecture curricula.	F	15	23	26	18	2.52	1.98
	M	18	29	20	16	2.41	1.77

F= female, male, mn = mean, sd = standard deviation, stdis= strongly disagree, dis=disagree, agr=agree, stagr = strongly agree

Results

The findings presented that the female participants saw math as an "important" element of the cram list and well thought-out which all students who studies in female cram list must hold elementary mathematics data. They exceedingly "appreciated" a thoughtful of mathematics notions, not just an act of practice, but this was not completely sustained with outcomes in the math demands. Researcher registered that math courses "interesting", and they think that basic math concepts will be worn in the "rest" of the cram curricula, what shows that the affiliation between math and female was observable to researcher at the second year of the curricula.

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Yetişkinler İçin Kolaylaştırılmış Okuma Yazma Eğitimi ya ya Işık Projesi (Light House Project) Üzerine

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Okuma ve yazma, hayatın erken yıllarında kazanılan en temel iki beceridir. Okuma ve yazma sadece bir beceri değil; aynı zamanda insanların eğitim süreçlerinde sosyal çevreleriyle buluştukları aşamaların da ilkidir. Birleşmiş Milletler Eğitim, Bilim ve Kültür Örgütü (UNESCO) İstatistik Enstitüsü verilerine göre, küresel çapta yedi yüz elli sekiz milyon yetişkin okuma yazma bilmemektedir. CIA (American Central İntelligence Agency) 'ya göre ise bu oran yedi milyar olan dünya nüfusunun yüzde on sekizidir ki; bu da, bir milyar okumaz -yazmaz nüfus anlamına gelmektedir. Her iki sayının da üçte ikisini kadınlar oluşturmaktadır.

UNESCO'nun bölgesel okur yazarlık atlasına bakıldığında, Türkiye'de yedi milyonu aşkın kişinin okuma yazama bilmediği görülmektedir. TUİK (Türkiye İstatistik Kurumu) raporlarına göre Türkiye'de de okumaz yazmaz nüfusun yüzde seksen ikisini kadınlar oluşturmaktadır. Yetişkinlere yönelik okuma yazma eğitimlerinin kadınları hedeflenmesi okumaz yazmaz kadın nüfusunun başı çekmesindendir.

Çalışmamızın konusu olan Kolaylaştırılmış Okuma Yazma Eğitimi- Işık Projesi, dünyada okuma yazma bilmeyenlerin sayısını en aza indirgeme hedefiyle Uluslararası Rotary Kulüpleri'nin desteği ile başlatılmıştır. Temelleri Avustralya yerlileri Aborjinler üzerinde 1976 yılında yapılan bir çalışma ile atılmış olan KOYE, toplamda doksan saatlik, etkinlik temelli, dil eğitimine dayalı, yetişkinlere, Türkiye'de özellikle kadınlara, yönelik bir programdır. Günümüzde pek çok değişiklik gösteren yetişkin eğitimi (=andragoji) gelişmesini tamamlayamamış toplumlarında en yaygın olarak okuma yazma ile başlatılmaktadır ki, Uluslararası Rotary Kulübü'nün dil öğretimine yönelik ışık projesi, dünyadaki okuma yazma oranını en az seviyeye indirmeyi; "okumaz yazamaz" ları kültürlü bir okur/yazar yapmayı; okur/yazar yaparak da insanların yoksulluğunu önlemeyi amaçlamaktadır.

Bu çalışmada, Uluslararası Rotary Kulübü'nün öncülük ettiği "Kolaylaştırılmış Okuma Yazma Eğitimi-Işık Projesi" ele alınmış; okuma/ yazma ve yabancı dil öğretiminde sistemleştirilmiş bu eğitimin Türkiye'deki uygulanma süreci ve sonuçları nitel - nicel araştırmalardan yola çıkarak değerlendirilmiştir..

Of Simplified Reading and Writing Training For Adults Or Light House Project

Reading and writing are the two main skills acquired in the early years of life. Reading and writing is not just a skill, it is also the first of the stages in which people meet with their social enviroment during the educational process. According to the United Nations Educational, Scientific and Cultural Organisation (UNESCO) Statistical Instutie data seven hundred and fifty eight million adults globally are illiterate. According to the American Central Intelligence Agency (CIA) , this corresponds eigthteen percent of world population, which is seven billion, and it means one billion illiterate people exist arond the world, appoximately.   Based on both data, two out of three both numbers are women.

According to UNESCO reigonal literacy atlas, more than seven million people in Turkey are illiterate. Turkish Statistical Instute (TUIK) reports state that eighty two percent of illiterate people are women. The main reason of literacy training to be aimed at women is that women are significant majority of illiterate population.

The Koye-Isık Project, which is the subject of our study started with the support of the Internationaly Rottary Clubs in order to reduce the number illiterate people in the world to a minimum. KOYE which is based upon a study conducted to Aborjinies, Australlian inhabitants, in 1976 is tottally a ninety-hour programme based on events and languange training, targeting adults, especially women in Turkey. The first step of adult training (andragoji) with its various ways in developing soicaties is to get illiterate poeple to gain literacy and the main purposes of the project are to reduce illiteracy rate to a minimum around the world, to help illiterate poeple to become intillectual literates and to prevent them from poverty.

This study deals with "Simplyfied Literacy Education" led by the international Rotary Club and examines the implementation process and results of this education which has been systematised for literacy foreign language training based on qualitative and quantitative researches.

An Evaluation of the Burnout Level of Middle School Teachers (Teachers of the Central Middle School of Tunceli)

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Abstract
Maslach examines various aspects of occupational burnout and states that burnout occurs in employees as emotional exhaustion, depersonalization and low sense of personal accomplishment. In other words, occupational burnout is a psychological syndrome consisting of three phases: emotional exhaustion, depersonalization and decline in personal accomplishment. Another concept, job satisfaction, explains the pleasure and happiness that one receives from the work and the work-related factors. It is an affective aspect with internal and external co-occurring behavior patterns. Individual who cannot achieve economic and psychological satisfaction in his profession is unable to concentrate on his job. In this study, the relation between burnout levels and job satisfaction of secondary school teachers who serve as providers of an intermediary education between primary and high schools are evaluated. The case analyzed here consists of secondary school teachers working in the province of Tunceli.

The research focuses on whether there is a significant relationship between the teachers 'occupational burnout and job satisfaction levels according to certain variables, whether there is a meaningful relationship between the burnout subscales and whether there is a significant relationship between the teachers' job burnout scale scores and job satisfaction scale scores. The universe of the study was composed of 183 teachers who were working in the secondary schools in central Tunceli and surroundin districts which are part of the Tunceli Provincial Directorate of National Education in the 2017-2018 academic year. The sample consisted of 52 teachers determined by random selection. In the research, statistical techniques such as basic descriptive statistics (frequency, mean, standard deviation, significance level, etc.), reliability analysis, variance analysis, correlated and unrelated t-test analysis and correlation analysis were used.Minnesota Job Satisfaction Scale and Maslach Burnout Inventory were used as data collection tools. And it is concluded in the research that secondary school teachers experience a high level of occupational burnout but notjob satisfaction.

Also, no significant relationship was found between the subscales of the Maslach Burnout Inventory and the socio-demographic variables (p <.05). No significant relationship was found between the professional satisfaction scale scores and the demographic characteristics of the teachers either. However, when the relationships between the subscales of the Maslach Burnout Inventory were analyzed, a significant relationship was found (p <.01). A negative correlation was also found between job satisfaction subscales and occupational burnout subscales.

As a result of the study, it has been concluded that managers should take the necessary measures to tackle with the reasons of the occupational burnout problem which includes most of the teachers. In addition, the need to increase the level of professional satisfaction of teachers should not be ignored.
Keywords: Teacher,Occupational Burnout, Job Satisfaction, Education, Management.

1.Introduction

There is always an invisible emotional bond between the job and the employee. People are social beings who have the right to enjoy their employments. The desire of the individual to do his job lovingly or willingly also brings energy to the workplace. Otherwise, it can cause burnout for the employees. For this reason, the concept of 'job satisfaction' which defines the degree of satisfaction of individuals' values and expectations related to the job and focuses on the harmony of these values and expectations with the needs of the individuals, is often mentioned and investigated together with the concept of occupational burnout (Otacıoğlu, 2008). An individual who cannot reach economic and psychological satisfaction in his employment cannot concentrate on his job. Accordingly, when the motivation of employees increases, job satisfaction also increases and burnout levels decrease along with it (Sat, 2011). Occupational burnout, which is seen as an important problem in various sectors, is also a problemin education and a problem for teachers. When we look at the situation in our country, when economic conditions, leisure activities and working conditions are taken into consideration, teachers can be expected to show a high level of burnout (Cemaloğlu and Şahin, 2007: 468). Despite the large number of variables affecting occupational burnout, this study aimed to draw attention to the relationship between occupational burnout and job satisfaction.

2.Burnout And Job Satistaction
2.1. Burnout
One of the biggest dangers for both private and public organizations is the risk of employees to feel themselves in a dead end or as exhausted. Thispsychological condition of burnout and its accompanying behaviors may put the organization's objectives at risk. As a concept, burnout was first introduced in 1974 by Freudenberger. In his article, Freudenberger (1974) referred to this concept as an occupational risk, and definedit as "loss of power and energy due to failure, wear and overburden or exhaustion of internal sources of the individual as a result of unmet needs". For Pines and Aronson (1988), burnout is a state of exhaustion, loss of energy, idealism, perspective and purpose, and a state of physical, emotional and mental exhaustion leading to constant stress, hopelessness, helplessness, and feeling of being trapped. Maslach (1978) considers the same concept as having three components: emotional exhaustion, desensitization and decreased sense of accomplishment manifested by changes in attitudes and behaviors. Maslach evaluates feelings of physical exhaustion, chronic fatigue, helplessness and hopelessness as a physical, emotional and mental exhaustion syndrome which is characterized by the development of a negative conception of the self and negative attitudes towards work, life and other people. According to the researches, many individual or organizational reasons can lead to burnout. These include;

➢ Emotional and sexual mobbing in the workplace, , (Torun, 1997; Maslach& Leiter, 1997),
➢ Lack of job security (Torun, 1997; Maslach&Leiter, 1997),
➢ Low degree of organizational communication (Miller, et. al., 1990; Um & Harrison, 1998),
➢ Being sidelined from decision making processes (Eisenstat&Felner, 1984; Jackson, Turner & Brief, 1987; Izgar, 2001: 16),
➢ Adverse conditions in the workplace (Nagy & Davis, 1985).

Maslach and Jackson (1986), in their study that evaluates burnout in various aspects, examines the phenomena in three categories: emotional exhaustion, depersonalization and the feelings of a lack of personal success.

Emotional exhaustion refers to an individual's feelings of exhaustion through excessive long-term interaction with others, while desensitization represents the interpersonal dimension of burnout and characterizes negative, rigid attitudes and unresponsiveness to clients. The lack of personal success refers to the negative aspect of the individual's perception of personal success while working with other people.

2.3. Job Satisfaction
Job satisfaction is about the pleasure and happiness that one receives from the work and work related factors. In other words, it is the sum of a person's emotional reactions toward her employment (Eğinli, Ayşe temel, 2009: 36).

The job satisfaction, which is seen as the situation of the individual in the workplace and the emotional satisfaction created by the values she attributes to the job (Oshagbemi, 2003: 1210), also includes positive attitudes of the employees towards the work-related conditions,a condition of satisfaction with the work (Eğinli, 2009: 37). Vroom (1964), on the other hand, sees job satisfaction as the degree to which the expectations and needs of the individual are met, and to be in harmony with her needs. Job satisfaction reflects a person's positive or negativeemotions arising from her job or work experience (Sempane, Rieger and Roodt, 2002). Numerous researches shows that the due to job dissatisfaction, employees are more prone to absenteeism and perform weakly. Therefore, it is clear that an employee's satisfaction with her work positively affects the workplace, and her dissatisfaction may have negative effects on the workplace.

The problems present in almost every profession in Turkey have adverse impacts on job satisfaction and burnout rates of employees. Teaching should also be analyzed in this context and the job satisfaction and burnout rates of the teachers should be researched. Teachers are among the most crucial parts of the social system of education. And if teachers want to remain a member of this profession and system, they need to act in accordance with the value system of their profession (Bursalıoğlu, 1994: 34).

Teaching as a profession requires a variety of specialties to be brought together successfully in the teacher. General culture, field knowledge and professional formation are among the basic skills for teachers. As the level of professional competence increases, the quality of the behaviors of the individuals educated by these teachers also increase. For this reason, it is important for the teachers to feel job security, to not be under constant stress, to have a high degree of morale and motivation, to participate in decision-making processes of the institutions they work in and enjoy high working conditions and living standards. Some of the undesirable conditions that teachers face when performing their professions, on the other hand, can negatively affect their morale, which may lead to low levels of professional satisfaction and a tendency for burnout in their work life. In this sense, it is necessary to investigate the reasons of the teachers' job satisfaction problems and possible burnout in correlative sense and this requires a scientific study.

In this study, the relationship between the burnout levels and job satisfaction of secondary school teachers, who acted as an intermediary between primary education and high school education, were focused instead of teachers

of all levels, due to the economic and time constraints of the researcher. As the research universe, middle school teachers working in the province of Tunceli were selected.Below are the research questions of this study:

1. What are the levels of job satisfaction and occupational burnout of the teachers?
2. Are there any significant correlation between occupational burnout and satisfaction scales and certain variables?
3. Are there any significant correlation among burnout subscales?
4. Are there any significant correlation between teachers' occupational burnout scores and job satisfaction scores?

4.Methodology

This research, which aims to find out the relationship between teachers' burnout levels and job satisfaction levels with various variables, is designed as relational screening model. The relational screening model is a research model that aims to determine the presence or degree of change among the two and more relational variables (Büyüköztürk et al., 2009; Balcı, 2009; Karasar, 1995). In the research, statistical techniques such as basic descriptive statistics (frequency, mean, standard deviation, min.-max. Values, significance level, etc.), reliability analyzes, variance analyzes, correlated and unrelated t-test analysis correlation analysis were used.

4.1. Research Universe And Sampling

The universe of the research consists of 183 teachers working in the central and district secondary schools affiliated to Tunceli Provincial Directorate of National Education in the 2017-2018 academic year (Tunceli Provincial National Education Statistics, https // Tunceli.meb.gov.tr, access date: 27.10.2018). The sample was composed of 52 teachers randomly selected. The results of the demographic characteristics of the sampled teachers are given in the table.

Table 1: Demographic Variables of the Sampled Teachers

Variables		N	%
Gender	Woman	23	44,2
	Man	29	55,8
	Total	52	100,0
Years of service in the profession	1-3	4	7,7
	4-7	13	25,0
	8-11	17	32,7
	12-15	5	9,6
	16 and over	13	25,0
	Total	52	100,0
Statute in the workplace	Head of the school	3	5,8
	Deputy Head of the school	1	1,9
	Teacher	48	92,3
	Total	52	100,0
Age	23-27	4	7,7
	28-32	10	19,2
	33-37	22	42,3
	38-42	8	15,4
	43-47	3	5,8
	48-52	5	9,6
	Total	52	100,0
Level of Education	Associate Degree	1	1,9
	Bachelor's Degree	50	96,2
	Master's Degree	1	1,9
	Total	52	100,0
Field of teaching	Literature	3	5,8
	Social sciences	6	11,5
	Natural sciences	3	5,8
	Mathematics	11	21,2
	Foreign Languages	3	5,8
	Other	1	1,9
	Total	52	100.0

According to the table, 23% of teachers are female and 29% are male. In terms of service times in the profession, 7.7% of the teachers have served 1-3 years, 25% served 4-7 years, 32.7% served 8-11 years, 9.6% served 12-15

years and 25.0% served for 16 years and above. When the distribution of the teachers according to their status is examined, 5.8% of them are heads of schools, 1% of them are deputy heads and 92.3% of them have no other administrational positions. When we look at the distribution by age variable, it is seen that 7.7% of the teachers included in the study were between 23-27 years of age. 19.2% are among the 28-32 age group, 42.3% are 33-37 age group, 15.4% are 38-42 age group, 5.8% are 43-47 age group and 9.6% are 48-52 age group. In terms of education, it is observed that most of the teachers have Bachelor's Degree (96.2%). The ratio of teachers with associate and postgraduate education is 1.9%. According to the fields of teaching, 5.8% of teachers work in Literature, 11.5% in social sciences, 5.8% in natural sciences, 11% in mathematics, 5.8% in foreign languages and 1.9% in other fields.

4.2. Data Collection Tools

In this study, "Minnesota Job Satisfaction Scale and Maslach Burnout Inventory" which was used by Maslach and Jackson in their studies titled as "The Effect of the Job Satisfaction Levels of Secondary School Teachers on Their Job Burnout Levels" is used. In other words, Maslach Burnout Inventory developed by Maslach and Jackson (1981) is used to evaluate burnout of teachers. And to determine the level of job satisfaction, Minnesota Job Satisfaction Scale developed by Weiss, Dawis, England and Lofquist (1967) is used.

The burnout scale developed by Maslach and Jackson evaluates the burnout in three subscales: (1) "emotional exhaustion", (2) "depersonalization", and (3) "reduction in personal accomplishment" (Maslach and Jackson, 1981). Adaptation of the scale to Turkish was done by Ergin (1992) and reliability values ofthe scale were found, in their Cronbach Alpha coefficient, to be between .65 and .83 in three sub-dimensions. As a result of the reliability study conducted by Kıral and Diri (2016), Cronbach Alpha coefficients of the subscales were found between .73 and .85. For this study, Cronbach's alpha coefficient was calculated as .95 for the emotional exhaustion subscale, .89 for the depersonalization subscale, .75 for the reduction in personal accomplishment and 86 for the scale as a whole.

The range coefficients for the four ranges (5-1 = 4) on a five-point scale (4/5) are 0,80. "Never" is within the range of 1-1,79; "Several Times a Year" is between 1,80- 2,59; "Several Times a Month" is between 2,60-3,39; "Several Times a Week" is between 3,40-4,19 range and "Everyday" is between 4,20-5,00.

The Minnesota Job Satisfaction Scale was developed by Weiss, Dawis, England and Lofquist (1967) to determine the levels of job satisfaction of teachers. The scale is arranged in 5-point Likert type. The range coefficients for the four ranges (5-1 = 4) on a five-point scale (4/5) are 0,80. "I am not satisfied" is between 1-1,79 range, "I am not satisfied" is between 1.80- 2.59 range, "uncertain" is between 2.60-3.39 range, "I am satisfied" is between 3.40-4.19 range and "I am very satisfied" is between 4.20-5 range. The scale consists of 20 points in total. Baycan (1985) adapted the scale to Turkish and conducted its validity and reliability studies. The Cronbach's Alpha value for the overall scale was found to be .77. In the study of Kiral and Diri, Cronbach Alpha coefficients for general, internal and external satisfaction were found to change from .79 to .87. The Cronbach Alpha coefficient for the whole scale is also studied in this study and is found as .93.

5. Findings

5.1. Descriptive Statistics of the Participants in Accordance to the Subscales of "Maslach Burnout Scale"

According to the data obtained from the research, both the results of the teachers' occupational burnout levels and the level of job satisfaction and the findings about the relationship between these two are given in the following tables.

5.1.1. Findings on the Occupational Burnout Scale and its Subscales and on the Job Satisfaction Scale of the Teachers

Findings on the occupational burnout level subscales and on the burnout levels in general, of the teachers are presented in Table 2 below.

Table 2. Secondary School Teachers' Professional Burnout and Job Satisfaction Levels (N=52)

	Mean	StandardDeviation	N
Emotional Exhaustion	2,8693	1,11304	51
Desensitization	1,4846	,74449	52
Decreased sense of accomplishment	3,8297	,55799	52
Burnout	2,8599	,55102	51
Job Satisfaction	3,3500	,72152	52

As can be seen from Table 2, the mean score of the subscale of the decrease of the sense of accomplishment among the secondary school teachers is highest with an M = 3.83 and SD = .56. The mean score of Emotional exhaustion subscale was M = 2.87, SD = 1.11 and the mean of the depersonalization subscale was M = 1.48, S = .74. According to this, teachers experience emotional exhaustion every day with an average of M = 3.83, and experience a feeling of lack of personal success and desensitization several times a week with an M = 2.86 and

M = 2.86. For the whole scale, the mean score is M = 3.35 and the level of standard deviation is SD = .72. This shows that teachers experience burnout related experiences on a daily basis. In the study of Kıral and Diri, it was observed that teachers experiences burnout more with within the order of, first emotional exhaustion, then personal success and lastly the desensitization. In or findings, while emotional exhaustion dimension is on medium side of the scale, the levels of desensitization and personal success stayed in low.

The mean score of job satisfaction was found to be M = 3.35. According to this, teachers have "satisfied" level on the job satisfaction scale (i.e. between 3.40-4.19). This result is also in parallel with the works of Diri and Kıral (2016). In other words in our study, just like in the study of Diri and Kıral, the internal, external and general job satisfaction levels of the teachers are found to be at the level of "satisfied".

5.1.2. The Analysis of the Relation between Maslach Burnout Scale and its Subscales and Socio-Demographic Variables

Descriptive statistical methods were used to analyze burnout and job satisfaction levels of the teachers. In accordance to this, there is no significant relation between the age variable and teachers' burnout levels, emotional exhaustion, decreased sense of personal accomplishment, desensitization or occupational satisfaction scale scores. In other words, teachers' levels of occupational burnout, emotional exhaustion, desensitization, decrease in personal accomplishment and professional satisfaction did not change significantly in terms of age (p <.05). Likewise, descriptive statistical analysis were conducted on the levels of burnout and professional satisfaction of teachers and their burnout levels according to their service life. There is no significant difference between emotional exhaustion, decrease in personal accomplishment, desensitization and job satisfaction of the teachers in accordance to their years in the profession (p <.05). Teachers' levels of occupational burnout, emotional exhaustion, desensitization, decreased sense of personal accomplishment and occupational satisfaction levels do not change significantly in correlation withtheir status, education level or their field of teaching as well.

5.1.3. The Relation Between Job Satisfaction and Burnout, and its Subscales of Emotional Exhaustion, Desensitization and a Decreased Sense of Accomplishment

One of the main research problems of the study is on the relationship between occupational burnout levels and job satisfaction levels of the teachers. Pearson's Moments Multiplication Correlation Coefficient is calculated in order to examine whether there is a relationship between job satisfaction with its subscales and Occupational Burnout Inventory subscales. The results are given in Table 3.

Table3. The Relation between Job Satisfaction and Burnout, and its Subscales of Emotional Exhaustion, Desensitization and a Decreased Sense of Accomplishment

Variable	Burnout	Job Satisfaction	Desensitization	Emotional Exhaustion	Decreased Sense of Personal Accomplishment
Burnout	1	-,464**	,703**	,915**	-,057
Job Satisfaction	-,464**	1	-,452**	-,455**	,229
Desensitization	,703**	-,452**	1	,536**	-,255
Emotional Exhaustion	,915**	-,455**	,536**	1	-,366**
Decreased Sense of Personal Accomplishment	-,057	,229	-,255	-,366**	1

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

As is depicted in Table 3, there is a significant correlation between "job satisfaction" scale points and the points of "burnout" scale and its subscales of "desensitization", "emotional exhaustion" and "decreased sense of personal accomplishment" at the level of 0.01. According to these findings, there is a negative relationship between the burnout scale scores and the job satisfaction scale scores, and that relationship is statistically significant in the level of p.001 -464. There is a positive correlation between burnout scale scores and desensitization scale scores that is statistically significant at the level of p. 0.00 703, in favor of burnout scale scores. When we look at the relationship between burnout scale scores and emotional exhaustion scale scores, it is seen that there is a positive relationship and it is statistically significant at the level of p.00 915, in favor of emotional burnout scale scores.

No correlation is founded between the relationship between burnout scale scores and decreased sense of personal accomplishment scores (p. 696 -057).

When the relationship between the job satisfaction scale scores and the desensitization scale scores was examined, it was observed that there was a negative relationship (p.001 -452), and this relationship was found to be statistically significant in favor of the job satisfaction scale scores. When the relationship between the jobsatisfaction scale score and the emotional exhaustion scale score is examined, it is seen that there is a negative relationship (p.001-455), and this relationship which is in favor of the job satisfaction score is statistically significant. When the relationship between job satisfaction score and decreased sense of personal accomplishment score was examined, it was seen that there was no relationship (p.103 229).

When the relationship between desensitization score and emotional exhaustion score is examined, it is seen that there is a positive relationship (p.001 536) and this relationship is statistically significant in favor of emotional burnout score.

When the relationship between desensitization scale score and personal accomplishment scale score is examined, it is seen that there is no relationship between the scale (p.069 255).

When the relationship between emotional burnout scale score and decreased sense of personal accomplishment scale score is examined, it is seen that there is a negative relationship between them (p.008 -366) and this relationship is statistically significant in favor of personal achievement score. While making these evaluations, the correlation was defined as high level relationshipif the value of the correlation coefficient is between 0.70-1.00,as medium if the value is between 0.70-0.30 and as low if it is between 0.30-0.00 (Büyüköztürk, 2002: 31-32).

6.Discussion, Conclusion And Suggestions
6.1.Discussion
Burnout and professional satisfaction are variables that affect each other and have a negative cause-effect relationship between them. Emotional exhaustion, desensitization and decrease in perceived personal success are mentioned as sub-dimensions of burnout in academic researches on the topic. As in all occupational groups, both the occupational burnout and professional satisfaction or dissatisfaction can be seen among the teachers. The teacher, while carrying out educational tasks, should have positive relations with the school managers, colleagues, students, parents, school staff and the social environment in general. The teacher, who should form such multidimensional relations in business life, has to constantly work with people face to face (Cemaloğlu and Şahin, 2007: 467). Although the reasons for each the professions may vary, the following are usually the reasons for occupational burnout(see, "Tükenmişlik Sendromunun Nedenleri!",http://www.aktuelpsikoloji.com/tukenmislik-sendromunun-nedenleri-10826h.htm, accessed: 27.10.2018):

- Excessive workload
- Difficulty in time management
- Unplanned and unscheduled operating conditions
- Excessive work without clear targets
- Trying to solve problems without sufficient resources(will to realize the impossible)
- Conflict between personal values and the values of the institution and self-compromising
- The invisible ceiling–unable to promote no matter how hard the indvidual works.

Job satisfaction is likewise related to positive work and living conditions. It may cause burnout and may also be affected by burnout. In the study, besides the burnout sub-dimensions, the job satisfaction levelsof secondary school teachers is also analyzed. According to the findings, the level of occupational burnout in teachers is quite high (X = 3.55) whilethe mean score of job satisfaction is found to be X = 3.35. This finding shows that the job satisfaction of the teachers is at the level of "satisfied"(between 3.40-4.19). This finding is in harmony with the findings of Diri and Kıral (2016). The fact that there is no correlation between gender and job satisfaction is also in parallel with other studies such as Kırılmaz, Çelen and Sarp, (2003); Dolunay, (2002); and Çokluk (1999) who did not find any statistically significant effect of the gender variable on the burnout levels. Similar results were found related to job satisfaction as well.

6.2.Conclusion And Suggestions
According to the research findings, secondary school teachers do not have a serious problem in terms of professional satisfaction, although they experience occupational burnout. As a result of the analysis of the relationship between the subscales of the Maslach Burnout Inventory and socio-demographic variables, no significant relationship was found. Similarly, there was no significant relationship between teachers' professional satisfaction scale scores and the demographic characteristics of teachers (p <.05).

As a result of the analysis of the relationships between the subscales of the Maslach Burnout Inventory, a significant relationship was found between them. On the other hand, a negative correlation was found between job satisfaction and occupational burnout subscales.

Accordingly, it is necessary to take measures aimed at eliminating the causes of burnout among teachers. The measures to be taken should include a wide range fromthe ministerial level to the lowest class-level and should even include the institutions and organizations in the vicinity of the school. Therefore, a comprehensive outlook is necessary to resolve the problem of burnout among teachers. On the other hand, despite all the negative conditions, teachers still have relatively high level of job satisfaction. This psychological resistance and self-sacrifice of teachers should also be appreciated and supported.

7.References

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A Research on Identfying Organizational CultureOrientations of Vocational High Schools

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Abstract

Organizational culture is the determinant of the working environment, based on a set of value sand beliefst hatareheld together ands hared by everyone, which holds the organization together and complements the organization for a particular purpose. it is every thing he learn sduring a time period.The organization sare similar and have different cultures. In the literature, school culture is simply the combination of ideals, values, assumptions, beliefsand at titudes that bring to gether the school community. Inthisstudy, school culture was evaluated according to the classification of task, support, bureaucratic and success culture.The population of the study, which was designed in the screening model, consisted of 136 staff working at the Vocational High Schools of Munzur University in the 2017-2018 academic year and 79 staffed by randommethod In the aniline of the data collected by using the school culture scale, the percentage, frequency, arithmetic average, independent t-Test and ANOVA and pearson moment correlation coefficient were used. As a result of the analysis, them osteffective organizational culture task culture $(X = 4.00)$ according to the perception of personnel in Vocational Schools and the low es torganizational culture has a support culture. $(X = 3.08)$, According to this, the staff of the Vocational High Schools of the University of Munzur attac him portance to the task of staff. On the other hand, the self-contro an dindividualac countability of the personnel is weak.

Key Vords: Education, culture, organizational culture, school organization culture, Vocational School.

Introduction

Organizations arise in a specific culture environment and as they affect the culture in which they were arisen, they are also affected by that culture. Therefore, saving for not being independent from internal and external environment, during their activities they are happened to have the need to use material and nonmaterial, tangible or intangible tools. Culture is created as a sum of the organization including its employees together with all internal and external factors affecting it, all its behavioral patterns including management and organizational form, and at the same time a set of values that is meant organization's identity. Perception of what kind of culture is owned will have an effect on work and business lives of organization employees and so this also will affect the creation of attitude and behaviors which might be created towards the organization. While positive perception of the culture and type that the organization has makes a positive effect to job satisfaction and organizational loyalty of the employees, otherwise it may cause problems. This situation may be extended from a problem that is limited to the organization itself to all environment that it serves with a negative effect and it may even damage it.

As each type of organization has, school has its own unique culture as a strategic sub-organization of education organization. However, as this culture may differ from school to school, what kind of organizational culture it has in administrative terms may be perceived differently by different zones. It was aimed in this work that what kind of organizational culture the school has was to be determined in accordance with employees' perception in the direction of Vocational Schools of Higher Education.

Organizational culture is the one keeping the organization together and integrating (Çavuş and Gürdoğan, 2008: 32), based on a set of values and believes that exist between individuals who come together for a specific purpose and are shared by everyone (Dinçer, 1996: 208; Yağmurlu, 1997: 724), determinant of working environment (İra and Şahin, 2011: 5),everything that this group has been learning for a period of time while solving vital problems within an external environment and integration problems inside (Schein,1990).

While the management is the whole of organizational activities towards common purposes, organizational culture is values and norms system created under these activities. Peterson and Deal (2002),state that school culture contains deep values, believes patterns and traditions formed with school's historical flow; but Heckman (1993) says that school's culture smack of believes that students, teachers and administrators commonly have (Terzi,2005).

Culture is various attitude, behavior and believes being shared, developed and passed from generation to generation by people who live together, determining people's points of view (Kongar, 1989). School culture is the

combination of ideals, values, assumptions, believes and attitudes that gather school community together (Taymaz, 2000).

In literature, school culture, in the basic terms, is the combination of ideals, values, assumptions, believes and attitudes that gather school community together. These norms form experiences of the people in school in a strong way and in the leadership of an effective school manager it becomes a common vision. School managers may obtain a culture forming a model via effective leadership and values and believes that are important for education. School managers form the culture by the time, after thinking of existing traditions, purposes, ceremonies carefully, work together with personnel and students who provide success of the school to create a common and cooperative vision (Çelikten, 2003; Arslan and Others, 2005: 450).In the broadest term, school culture is a whole of material and non-materials elements that affect all individuals' behavior and actions at school and create school identity (Gümüşeli, 2006: 14).

In accordance with works made on basis of field regarding organization cultures, they are classified in various ways. While Ouchi, (1981) ; Peters and Waterman, (1982) classify organization cultures as powerful and weak organization culture; Herrison (1983)has classified them as power culture, duty culture, role culture and individual culture. Pheysey's (1998) culture classification is in the form of role, success, power and support cultures.

In school culture inventory¨ developed by Gruenert and Valentine (1998), school culture was evaluated in six dimensions as leadership based on cooperation, teacher cooperation, vocational development, common goals, occupation support, common learning. Sönmez (2006), in ¨Organization Culture at Vocational High Schools¨ named work, has classified organizational culture in forms of power, role, success and support culture.
Terzi's classification (2005) is four-dimensional;
(1) Support culture,
(2) Bureaucratic culture,
(3) Success culture,
(4) Duty culture.

In this research, organizational culture dimensions were evaluated according to the classification of Terzi.

Support Culture: This kind of culture, which is defined by Kilian (1999) as support culture, by Pheysey (1993) and by Saphier & King (1985) as collegial, is based on human relations and trust. There is a mutual relationship and commitment between the members of the organization. It is also essential to develop trust and confidence among the members of the organization, actual support, high expectations for success, honest and open communication, problem-solving information networks, and protection of what is important. In support culture, importance is given to participation in mutual relations, interaction, informal relations, cooperation, trust and decision making (Şişman, 2002). The tendency to avoid ideas is rather poor (Measurement, 1996). Trust in human relationships is important and people tend to do their best. Informal structure becomes more important than formal structure (İpek, 1999).

Success Culture: This kind of culture, which is defined by Kilian (1999) as support culture, by Pheysey (1993) and by Saphier & King (1985) as collegial, is based on human relations and trust.
Given the increasing likelihood of similarities in management models in business and public administration, the success culture characteristic for enterprises can be valid in public organizations.
In the culture of success, beyond the bureaucratic structure, flexible structuring, flexible bureaucracy, matrix organization is essential. Attention is given to specialization and individual responsibility (Şişman, 2002).

Bureaucratic culture: There are rational and legal structures in organizations with such cultures, as described by Vries and Miller (1996), Kilian (1999) and Kono (1992). Such cultures, which are free from personal relationships, spread through the sdesires of managers to control the practices in organization. Detailed prescriptions are used to control the management. Rules and standards are common. On the other hand; bureaucratic cultures are organized in order to organize permanent official functions, linked to rules in organizations: the written rules govern the actions of officials at all levels of the organization.

Task Culture: The most important point in the task culture described by Harrison (1972) and Handy (1981) is organizational goals. Organizations with this kind of culture are described as work-oriented organizations. In organizing, almost everything is aimed and very organizational goals are forewarned from individual goals.
With this model, managers should convince subordinates to manage them. For this reason, instead of obedience, the concept of agreement or reconciliation is prevalent in this model.

1.Purpose
The main purpose of the research is to determine the cultural structure of the Vocational Schools according to their views. For this purpose, answers to the following questions were sought. For this purpose, the answers to the following questions are sought:
2.1. Personnel perceptions of the organizational culture types existing in MYOs;
  2.1.1. Gender,
  2.1.2. To the Vocational Schools they serve,
  2.1.3. Marital status,
  2.1.4. Their titles and
  2.1.5. Do the service times differ significantly according to the variables?
2.2. Is there a significant relationship between the types of organizational culture that exist in vocational high schools?

2.Literature Review
School culture has been regarded by many researchers as an interesting subject, and many researches on school culture have been made. Şişman (1994) has made in one of the studies in this direction in Turkey. This study, entitled as "Organizational Culture (A Research in the Primary Schools of Eskişehir City Center)", revealed the basic qualities of the teachers and administrators in the primary school about the people and the environment in which they live and what they are and what kind of organizational culture they are in this school aimed at putting.

Another study has been conducted by İpek (1999) with the title "Relationship between Official High School and Organizational Culture and Teacher-Student in Special High Schools". In this research, the researcher tried to determine the organizational culture and the teacher-student relationship in public and private high schools.
It was aimed to determine the cultural perceptions of the faculty students read in an academic organization in the research titled "Perceptions of University Students towards Faculty Culture" that Terzi (2007) conducted. Another research that Oguz and Yilmaz (2006) have done is to determine the perceptions of primary school teachers about the school culture in elementary schools in the research titled "Perceptions of Elementary School Teachers about School Culture" (Yozgat Province Case).

Sonmez (2006) 's research is called "Organization Culture in Vocational High Schools". The aim of the research is to investigate whether there is any difference regarding the organizational culture dimension in the vocational high schools which are affiliated to different general directorates in the central organization of the Ministry of National Education.

Erdem and Özen-İşbaşı (2001) conducted a research entitled "Organizational Culture and Student Under Culture Perceptions in Educational Institutions". The aim of this research is to emphasize the importance of organizational culture composed of assumptions, beliefs, values, norms, symbols and practices in educational organizations and to determine students' perceptions of organizational life as a subculture group in an academic organization.

In the research carried out by Celep (2002) and named as "Learning Culture in Primary Education Schools", an attempt was made to identify teacher views on the learning culture in primary education schools. Özkan (2007) aimed to determine the participation levels of teachers in elementary and secondary schools in organizational culture and its sub-dimensions in the research titled "Perceptions of Organizational Culture of Teachers and Administrators Who Work in Primary and Secondary Schools".

There are many researches made on school culture. One of is the work called ¨Organization Culture (A Research at Primary Schools at Eskişehir City Center)¨ by Şişman (1994). In this work, it has been desired to determine perceptions on what the personnel who work at these primary schools share with people and the environment that these people live in, what are their main premises and at what level and what kind of organization culture they have created at this school's stage. On the work called ¨Organizational Culture and Teacher-Student Relationship at Public High Schools and Private High Schools¨ by İpek (1999), organizational culture and teacher-student relationship at public high schools and private high schools were tried to be examined. Terzi's work bears the name ¨University Students' Perceptions Towards Faculty Culture¨. In this research, it has been desired to determine cultural perceptions of the students who study at an academic organization regarding the faculty they study at. The work that Oğuz and Yılmaz (2006) had done bears the name ¨Perceptions of Primary School Teachers Regarding School Culture (Yozgat Province Sample)¨. In this research, it has been aimed to determine primary school teachers' perceptions regarding school culture at primary schools.

Sönmez's (2006) work bears the name ¨Organization Culture at Vocational High Schools¨. It has been aimed to determine dominant organizational culture at vocational high schools and whether there is a difference regarding

organization culture dimension or not at vocational high schools that are affiliated to different general directorates located at Ministry of National Education's central organization. Erdem and Özen-İşbaşı (2001) had dwelt on the importance of organizational culture that is consisting of assumptions, believes, values, norms, symbols and applications on the basis of various values at educational organizations. The work that was made by Celep (2002) and named as ¨Learning Culture at Primary Schools¨ has tried to determine teacher perception on the matter of learning culture at primary schools. Özkan (2007), in his research named ¨Organization Culture Perceptions of Teacher and Administrators Who Work at Primary and Secondary Schools¨, aimed to determine organization culture and level of participation at applications made at its sub-dimensions for teachers at primary and secondary schools.

One of researches made in foreign countries, by Myers (2009), bears the name ¨Effects of Teachers' Perceptions Regarding School Culture to Student Success¨. In this work; it was reached the end that one of most important variables affecting student success is teachers' perceptions regarding school culture (Myers, 2009). Mac Millan's (1996) research is for determination of effect of working conditions at schools, teachers' feeling themselves competence, management's control and school's culture to teachers' job satisfaction. Research findings resulted that in teacher's satisfaction great effects were listed accordingly; firstly, the management's control, secondly teacher competence and thirdly school culture.

3. Method
3.1. Research Model
This research, which aims to determine the views of staff towards school cultures, describes the current situation. Investigations targeting the representation of the existing situation are known as general screening models (Karasar, 1995). For this reason, the model of the research is the "relational screening model" which is one of the quantitative research designs.

3.2. Universe and Sampling
The universe of the research consists of 29 administrative staff and 107 academic staff working in 3 Higher Schools affiliated to Munzur University in 2018. Of these, 15 administrative and 70 academic in 14 departments, totally 85 in Tunceli Vocational High School; Pertek Sakine Young Vocational High School has 34 staff including 8 administrative and 26 academic in 9 departments; A total of 18 personnel, 7 of which are administrative and 11 of which are academic, work in Çemişgezek Vocational School (Table ..). The sample consists of 79 personnel, of which 40 are determined randomly from Tunceli Vocational School, 14 from Çemişgezek Vocational School and 25 from Pertek Sakine Young Vocational School. The demographic data of this sample are given in table.

Table 1: Staff numbers working in munzur uni. vocational high schools (2018)

Voc. Highschools	Administrative Staff	Academic Staff	Total	Sampling	Return Rate (%)
Tunceli Vocational Highschool	15	70	85	40	58
Çemişgezek Vocational Highschool	6	11	17	14	
Pertek Sakine Genç Vocational Highschool	8	26	34	25	
Total	29	107	136	79	

Table 2: Personal data of the sample (N=79)

Sıra No	Variable		N	%
1	Gender	Male	51	64,6
		Female	28	35,4
2	Marital Status	Married	51	64,6
		Non-married	28	35,4

3	Age	25-29	3	3,8
		30-34	32	40,5
		35-39	29	36,7
		40-44	8	10,1
		45-49	5	6,3
		50+	2	2,5
4	Total Years in the Profession	1-3	6	7,6
		4-6	28	35,4
		7-9	20	25,3
		10+	25	31,6
5	Title	Official	18	22,8
		Assistant	1	1,3
		Junior Lecturer	45	57,0
		Assoc. Lecturer	14	17,7
		Professor	1	1,3
6	Employed Vocational Highschool	Merkez MYO	40	50,6
		Pertek MYO	25	31,6
		Çemişgezek MYO	14	17,7

The sample is 28% female and 51% male. 64.6% of them are married and 35.4% are single. When we look at the age of the personnel, it is seen that 3.8% is in the age range 25-29, 40.5% is in the age range of 30-34, 36.7% is in the age of 35-39, 10.1% is in the age of 40-44, 6.3% 2.5 are over 50 years old. When these findings are taken into consideration that Munzur University was founded in 2008, similarly, the personnel working at vocational colleges show that their university is new with their new age.

When looking at the distribution of their seniority, it is seen that the vast majority of the staff have a seniority of 4-6 years. 31.6% have a seniority of 10 years, 25.3% have a seniority of 7-9 years, and 7.6% have a seniority of 1-3 years respectively. The ratio of employees in this institution is 7.6% for 5 years, 6.3% for employees for 8 years, 5.1% for 4-7 years, 3.8% for 10 years, while the ratio of employees in higher education is 10.1% , The rate of employees in 1-3 years is 2.5% and the rate of employees in 2-11-12 years is 1.3%.

There are no professors and professors with the title of professor in the Vocational Schools of Munzur University. By contrast, lecturer % 17.7, lecturer 57.0%, research assistant 1.3% and 22.8% of employees working as civil servants. According to their distribution according to their vocational high schools 50.6% of these personnel at the Central Vocational School, % 31.6'sı Pertek Sakine Genç and 17.7% of them work in Çemişgezek Vocational School.

4. Data Collection Too

The data collection tool is 'School Culture Scale' developed by Terzi (2004) and developed for the purpose of determining cultural dimensions in primary schools. The scale consists of two parts. The first section is composed of seven sub-scales (1) in Supportive Culture subscale, 7 (2) Success Culture subscale, 7 (3) Bureaucratic Culture subscale, 5 and (4) Task Culture subscale consisting of a total of 29 items. The questionnaire consists of 36 items.

The internal consistency coefficient was used for the reliability of the scale for the four subscales. Cronbach Alpha = 762 for the "support" subculture scale, Cronbach Alpha = 762 for the "success" subculture scale, 767 and Cronbach Alpha = 767 for the "Bureaucratic" subculture scale and 782 . Cronbach Alpha = .871 was calculated as the whole of the scale. For the validity of the scale, the expert opinion is sufficient.

5. Data Analyzis

The data were obtained from the questionnaires administered by the staff at the head of the school at the time of departure, taking the necessary permission from the university administration. Thus, data were analyzed based on the data obtained from 79 personnel. The turnover rate of the questionnaires is 58%. SPSS 20.0 (Statistical Package for The Social Sciences) package program was used for the statistical analysis of the obtained data. The level of significance was assessed as 0.05. The scale used in the research has a rating system of five-point Likert type which is scaled in 1-2-3-4-5 format. In the analysis of the data, frequency, percentage and arithmetic mean values were tabulated, t-test and one way analysis of variance (ANOVA) were applied to the analyzes. In the case of the F test being significant, multiple comparison tests were performed to determine which groups differed.

In addition, the Pearson Moments Correlation Coefficient has been tested to determine the level of relationship between the four subscales included in the questionnaire. In interpreting the calculated arithmetic averages, the

following   interval   coefficient   is   used:
1)1.00-1.79:"Never",
2) 1.80-2.59: "Rarely",
3)2.60-3.39:"Sometimes",
4)3.40-4.19:"Mostly"
5) 4.20-5.00: "Always"

6.Findings

Findings about the personal characteristics of the personnel who are consulted and whether the difference between their views on organizational culture of the institution they work in and the opinions of the personnel on the aspect of school culture types are significant according to some variables are found in the following slides.

6.1. Personnel opinion on types of organizational culture existing in high schools
The arithmetic mean and standard deviations of the answers given to the items in each of the school culture subscale types are given in the table.

Table 3: Responses of staff to the ıtems in each of the culture sub-scale types standard deviations with arithmetic averages (N = 79)

	Item No	Survey Items	X	SS	Order No
Support Culture		People are valued	3,5443	1,09542	**2**
	2	People love each other.	3,4177	,99496	4
	3	People respect eachothers' opinions.	3,2911	1,06400	6
	4	Every opportunity is provided for professional development.	3,1899	1,01370	7
	5	Personal feelings and ideas are shared.	2,9494	,90439	9
	6	Employees share their joy and sorrow.	2,9241	1,09512	10
	7	The results are discussed, not who made the mistake.	2,8101	1,07508	11
	8	The feeling of one of us, all of us is prevalent in all of us.	2,5190	1,16422	**12**
	9	Biggest prize is getting a job done.	4,0759	1,00985	**1**
	10	Working for professional purposes is an appreciated conduct.	3,5190	1,13070	**3**
	11	Personal knowledge and skills are respected.	3,4051	1,06842	5
		Total	3,0807	,73789	4
Success Culture	12	Everyone can express their views on the applications cleary	3,3671	1,02753	4
	13	Everyone gets the job done.	2,9747	1,18727	6
	14	Successful teaching staff / employees and students are rewarded.	2,1519	,97519	**7**
	15	No one wants to contradict with the administration..	4,1646	,82323	**1**
	16	Hierarchy is important	3,6203	1,01658	2
	17	Managers often remind them to follow rules.	3,5190	1,10779	3
	18	Relations among individuals are formal.	3,2152	,87223	5
		Total	3,2489	,72642	2
Bureaucratic culture	19	**Being senior is meant to be privileged.**	3,1772	1,31811	**1**
	20	There is strict control over the prevention of irregularities.	3,0253	,93335	2
	21	There is an authoritarian understanding of administration.	2,9114	1,11159	3
	22	Rigorous measures are taken against violation of the rule.	2,8354	1,03069	4
	23	There are many meetings about the business.	2,7342	,85798	**5**
		Total	3,2447	,54094	3
Task Culture	24	**the first priority is to carry out the tasks specified in the program**	4,3797	,75624	**1**
	25	It is aimed to do right in the first try.	4,2405	,71996	2
	26	Enough effort is made to achieve the goals of the school.	4,2405	,80408	3

	27	It is essential to work to be 'better' than other Vocational Schools.	3,9241	1,08335	4
	28	Technological developments are followed.	3,6962	1,13628	5
	29	Everyone works for the academic success of their students.	3,5696	1,02136	**6**
		Total	4,008	,64709	**1**

Score of answers given to Support Culture items of school culture subscales was X = 3,0807, score of responses to success culture subscale items was X = 3,3671, score of responses to bureaucratic culture items was X = 3,2447 and Task culture subscale score was X = 4,0084. According to this, the kind of school culture which is predominant according to the average of school culture scale scores at Munzur University affiliated high schools is "task culture". Second culture of school culture is X = 3,2489 average achievement culture, X = 3,2447 is bureaucratic culture in the third place in average and X = 3,0807 is support culture in the fourth and last place in school culture type (Table: 4).

Tablo 4: Cultural Structure in vocational schools according to staff opinions

	School Culture Type	X	s	Order No
1	Duty Culture	**4,0084**	**,64709**	1
2	Success Culture	3,2489	,72642	2
3	Bureaucratic Culture	3,2447	,54094	3
4	Support Culture	3,0807	,73789	4

6.2. Do the views of staff regarding the types of organizational culture that exist in the MYO's vary according to their gender and the vocational colleges they work for?

As a result of the analysis made, the organizational culture perception existing at Vocational Higher Schools was tested by independent t-test whether there was a meaningful difference according to sex, and the results of the findings obtained are given in Table: 11.

Tablo 5: Results of t-test for difference of school culture type scale points by sex (t-test results without relation to sex)

	School Culture Type	Gender	N	X	s	sd	t	p	Difference
1	Support	Male	51	3,0980	,74006	55,311	,280	,781	None
		Female	28	3,0491	,74640				
2	Success	Male	51	3,2614	,74852	59,188	,209	,835	None
		Female	28	3,0491	,74640				
3	Bureaucratic	Male	51	3,2723	,59517	59,188	,669	,0779	None
		Female	28	3,1944	,43046				
4	Duty	Male	51	3,9706	,64524	71,115	,610	,489	None
		Female	28	4,0774	,65653				

P<.05

When Table 5 is examined, there is no significant difference between school culture subscale scores and p <.05 according to the gender of the staff.
It was expressed in the form of One-factor ANOVA results were given for related samples to test this sub-problem.

Table 6: ANOVA Results according to school vocational school scale scores

	Varyansın kaynağı	Kareler toplamı	sd	Karemler ortalaması	F	P	Anlamlı Fark
Destek Kültürü	Gruplar arası	2,328	2	1,164			Yok
	Gruplar içi	40,141	76	,528	2,204	,117	
	Toplam	2,328	2				
Başarı Kültürü	Gruplar arası	,413	2	,207			Yok
	Gruplar içi	40,746	76	,536	,385	,681	
	Toplam	41,160	78				

Bürokratik Kültür	Gruplar arası	2,488	2	1,244			Yok
	Gruplar içi	20,337	76	,268	4,648	,012	
	Toplam	22,824	78				
Görev Kültürü	Gruplar arası	,959	2	,480			Yok
	Gruplar içi	31,702	76	,417	1,150	,322	
	Toplam	32,661	78				

When the table was examined, no significant difference was found between school culture subscale scores at p <.05 level according to the gender of the staff. Again, in Table 5, it was seen that there was no meaningful relation between perceptions of teachers' sub-dimensions of school culture and seniority, education status and marital status (p <.05).

7.3. Is there a significant relationship between the organizational sub-scales of the third sub-problem of the study?

Accordingly, the relationship between school organizational culture subscales is calculated by Pearson Correlation Coefficient calculation.

Table 7: Correlation between school organizational culture sub-scales

		Destek Kültürü	Başarı Kültürü	Bürokratik Kültür	Görev Kültürü
Destek Kültürü	PearsonCorrelation	1	,758**	,041	,407**
	Sig. (2-tailed)		,000	,718	,000
	N	79	79	79	79
Başarı Kültürü	PearsonCorrelation	,758**	1	,190	,499**
	Sig. (2-tailed)	,000		,093	,000
	N	79	79	79	79
Bürokratik Kültür	PearsonCorrelation	,041	,190	1	,334**
	Sig. (2-tailed)	,718	,093		,003
	N	79	79	79	79
Görev Kültürü	PearsonCorrelation	,407**	,499**	,334**	1
	Sig. (2-tailed)	,000	,000	,003	
	N	79	79	79	79
**. Correlation is significant at the 0.01 level (2-tailed).					

From the examination of Table 7 among culture subscales; high level of success culture and support culture, positive and significant relationship, r = 0.758, p <.001. Accordingly, it can be said that the culture of duty increases as the support culture increases. On the other hand, there is a low significant correlation between bureaucratic culture and task culture, r = 0.334, p <003. Support with task culture in the same way r = 0.407, success r = 0.499 and bureaucratic culture r = 0.334 between the low level of a significant relationship is seen. Accordingly, it can be said that there is a significant relationship between school organizational culture subscale types but this relationship level is not at the same level among all sub-organizational culture types.

Conclusion And Recommendations
Result
The way to create an effective school is to build a strong school culture. Research in the literature has shown that effective schools also have a strong school culture (Gaziel, 1997; Şişman, 2002). Each school culture is different from that of other schools. The underlying cause is that the elements that make it, especially the employees, differ from one another in various ways. Administrative behaviors, teacher attitudes, political, social and economic environment of school. it differs from one school to another. For this reason, besides those who make school cultures strong and weak in classifications, role culture, success culture, power culture and support culture (Terzi, 2005). In this study, the school culture in the MYOs was evaluated according to the opinions given by the employees. According to this;

1.The most effective of organization culture existing at vocational schools of higher education is ¨duty¨ oriented organization culture (X=4). Second ranking effective school culture type is success (X=3.6), third ranking effective school culture type is bureaucratic culture (X=3.24) and least ranking effective school culture type is support culture (X=3.08). This finding, besides Terzi (2005: 433-434)'s similar work findings, bears a similarity with Balcı

(1998) and Özcan (1996)'s similar research findings towards schools. In other words, it is stated that it means to interpreted to the meaning that schools having mainly duty-oriented organization culture, at the same time administrators have power tendency, power is used in management.

According to these findings, personnel at Vocational Schools of Higher Education affiliated to Munzur University care about organization purposes and highlight organization expectations instead of individual expectation. In this culture, the important thing is the job being done. As main point of attention is organizational purposes, organizations in which this culture is dominant are characterized as work or duty-centered organizations (Paylı, 2017:26).

On Esinbay (2008)'s work, according to administrator opinions, dominant cultural dimension at primary schools is duty culture. According to administrator opinions; after duty culture respectively, these ones follow success culture, support culture and bureaucratic culture. According to teacher opinions; after duty culture respectively, these ones follow support culture, success culture and bureaucratic culture.

On Terzi's (2005) work, the most dominant cultural dimension at primary schools is duty culture. Duty culture is followed respectively as success, bureaucratic culture and support culture.

In ¨Perceptions of Primary School Teachers Regarding School Culture (Yozgat Province Sample)¨ named research made by Oğuz and Yılmaz (2006), ¨support culture¨ dimension comes to the forefront.
2. There was no meaningful difference in result of analysis made regarding whether personnel view differs based on gender or not regarding existing organization culture types at vocational schools of higher education ($p < .05$). Likewise no meaningful difference in perception was found in personnel views based on vocational schools of higher education they work at, age and service duration and titles regarding existing organization culture types at vocational schools of higher education ($p < .005$).

3. Research findings show a positive and meaningful relation at a high level between support culture and success culture, $r = 0.758$, $p < .001$. Accordingly, it can be said that as much as support culture increases, duty culture also increases. It was shown that there is a positive and meaningful relation at high level between success organization sub-culture and support organization sub-culture $r = 0.76$, $p < .001$. It has been determined that there is a positive and meaningful relation at medium level between duty organization sub-culture and support organization sub-culture $r = 0.41$, $p < .001$; there is a positive and meaningful relation at medium level between duty culture and success organization sub-culture $r = 0.50$ and there is a positive and meaningful relation at medium level as $r = 0.41$ between duty organization sub-culture and support organization sub-culture, $p < .001$. Accordingly, it reached to a fruition that there is a meaningful relation between school culture sub-scale types however this relation level is not at the same level between all sub-organization culture types.

Suggestions
Cultures arisen in organizations, if it is assumed that they have arisen during whole activities towards actualization of organization purposes, as this culture may carry this organization too far, it may make no headway or may downgrade. Therefore, a strong organization culture, in the final analysis, as it is kept in the relationship of employees with organization, personnel to interiorize organization's purposes and them being loyal to their organizations with inherent feelings shall always be paid attention. When looked, even though findings at Vocational Schools of Higher Education affiliated to Munzur University show that power culture and bureaucratic organization culture related to that is at a level that makes feel itself as an organization culture; perceptions of academic and administrative personnel, particularly their institution's main organization culture is duty culture, it is a matter of existing an organizational culture shift to respectively success, bureaucratic and support cultures. In this case, it is surmised that Vocational Schools of Higher Education personnel is loyal to their organization, having common work understanding with a family environment feeling and having no serious event and incident that might be interpreted as problem by their superiors, and the most important one is that it is surmised it is needed to maintain continuation of arisen cooperation culture. Again, with research it is surmised that there is a strong organization culture at Vocational Schools of Higher Education of Munzur University.

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The Relationship Between Irrational Beliefs And Locus of Control of The University Students (Sample of Kyrgyzstan)

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Abstract
The purpose of this study was to investigate the relationship locus of control and irrational beliefs. The population of the research consisted from 179 students studying in Kyrgyzstan-Turkey Manas University. In this study, relational scanning model was used. Rotter Internal-External Locus of Control Scale and Irrational Beliefs Scale was used in this research. In the analysis of the data, descriptive analyses (percent, frequency analysis) and correlation and regression analyzes were used. According to the results of analyses students hate to fail in most cases. Most of them believed that there is no perfect solution in real life. They tried to consult someone who is more experienced about a particular subject when they make an important decision.
Key Words: *Non-Rational Beliefs, Control Locus, , Rational Beliefs, Audit Office,*

1.   Introduction

People strive to achieve certain goals such as to survive, to be happy throughout their lives. It depends on the structures of thought that people can not realize their goals, that is, their rational and unreasonable beliefs. While rational beliefs help people to realize these basic goals, non-rational beliefs prevent people from achieving these basic goals and sabotage them. Whether that people can not realize their goals depends on the structures of thought, that is, their rational and irrational beliefs. According to Sampson et al. (1998), irrational beliefs affect students' perceptions about themselves and their future career; the negative feelings of making a professional decision are moving; obstruct their actions for their professional purposes (Roll and Arthur, 2002).

The distinction between rational and irrational beliefs can be classified as Table 1 below:

Table 1. Comparison between rational and irrational beliefs (Dryden ve Mytton, 1999, s. 103).

Rational Beliefs	Irrational Beliefs
Self-contained and logical	Logically inconsistent.
Can be verified experimentally.	It is inconsistent with experimental facts.
They are not solid, they can change in according to situations, they are contextual.	Solid and dogmatic.
They are pragmatic. They help people to fulfill their goals.	They are not pragmatic. They interfere with people's realization of their goals.

Ellis and Dryden (1997) defined irrational beliefs as feelings including necessity and willingness, causing that an individual causes harm to himself / herself and his / her environment, as well as inappropriate feelings in an individual, and prevents an individual from achieving life goals. Some common characteristics of irrational beliefs are; demanding, over-generalizing, self-rating, worsening of the situation and loading mistakes (Nelson, 1982). The irrational beliefs expressed by Ellis (1995) are:

1. The person must be approved and loved by everyone who is important in society.
2. The person needs to be thorough, competent and successful in order to see himself as a worthy person.
3. Some people are evil, sinful, so they must be blamed and punished.
4. It will be a terrible catastrophe when there is nothing that the person wants.
5. Unhappiness is caused by environmental conditions and the person can not control them.
6. Danger and fearful things cause great anxiety, and their possibilities must be constantly emphasized.
7. Avoiding certain difficulties and responsibilities is much easier than facing them.
8. The person must be dependent on others and always have a friend who is stronger than him to trust.
9. Past experiences and events are the determinants of immediate behavior; the influence of the past can not be dismantled.
10. The person should be sad about the problems and troubles of others.
11. Every problem has a perfect solution or a line and it must be found.

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Rotter (1966) has proven that the concept of locus of control described in Social Learning Theory can be measured and evaluated as a personality dimension as a result of many researches, and as a result of these studies, control focus has become one of the fundamental variables of personality research. Individuals are inclined to one of two general trends about the source of positive or negative events they encounter. The expectation that individuals who perceive positively negative events as a result of their individual behavior are internally supervised and that the events are led by forces outside the individual and that personal efforts are not so effective in avoiding punishment and reaching the rewards Is called "external supervision". In this case, the externally supervised individuals become individuals whose events are predominantly anticipated to be controlled by chance, fate, luck, or stronger, independent of their own behavior (Dibekoğlu,2006). According to the literature; internally and externally supervised individuals differ from each other in terms of their personal characteristics. For example, internally supervised individuals spend more time thinking about themselves, are not satisfied with the information they have, and are more interested in cognitive activities than they desire to reach more information in curiosity. On the other hand, externally supervised individuals are more likely to face difficulties in dealing with life events, act in the direction of public expectation, become more inclined to comply with social pressure and prefer to live under an authority (Keleş, 2000, 18). ☐ They attribute the consequences of their behavior to them.

- Their, self-perceptions are positive.
- They are entrepreneurial individuals.
- They act according to themselves when making a decision.
- They are positive, sincere and coherent towards the external environment.
- They are organized and planned.
- They areopen minded individuals who can take risks.
- They are confident regarding their decision makings.
- They are persistent and resistant.
- They can easily defend their views against the possible pressure.
- They try to correct bad situations.
- They react against the limitation of their freedom.
- They make long-term plans.
- They seek out the causes of failure in individual errors.
- They do not worry about problems and seek solutions.
- They are more resistant to negativity.
- They have a high level of self - respect.
- They are emotionally balanced.
- They can look at the events more objectively. (Yesilyaprak, 2006; Altınkurt, 2012).

When the locus of control and irrational beliefs are taken into account, it is thought that they at least conceptually are related in theoratical sense. Hence, in this study, it is aimed to investigate the relationship locus of control and irrational beliefs.

2.   Model

In this study, relational scanning model was used. Correlational (Relational) Research tries to determine the degree of relationship between two or more variables using statistical data. In this design, the relationship between a number of phenomena is investigated and interpreted. This type of research takes into account data trends and patterns, but does not go into deep analysis to prove the causes of observed patterns. There is no cause or effect on the basis of such observational studies. Only data, relations and distributions of variables are studied. Variables are not manipulated; they are only identified and examined as they grow in a natural environment.

3.   Data Collection

The data includes 45 items on the personal information form prepared by the researcher, including the faculty, class, gender, level of family income, parental education level, parental livelihood status, number of siblings and place of residence . The data were gathered with the 'Irrational Beliefs Scale' and 'Rotter's Internal-External Audit Locus' scales and obtained by performing correlation, regression, percentages and frequencies in the SPSS 16 program. Test-retest reliability coefficient of the scale was found to be r = .83, reliability coefficient calculated by KR-20 technique was. 68, Cronbach alpha as the internal consistency coefficient was found to be. 71 respectively. The construct validity of the audit scale was examined by factor analysis. The load values of the items in the measurement result as the result of the analysis. It varies from 33 to .61. Rotter (1966) stated that internal compliance calculations ranged from .69 to .73. It was reported that The item-total score correlations of the scale varied between .11 and .48, the two-half test reliability coefficient was reported to be between .65 and .79 in various samples. (Savaşır Ve Sahin, 1997, 94-95).

4.   Population

The population of the research consisted from 175 students studying in Kyrgyzstan-Turkey Manas University.

Table 2. The Distributions of Students in terms of Faculty and Departments

Departments	Numbers
Literature	59
Communication	27
Science	13
Engineering	16
Fine Arts	22
Veterinary Science	6
Agriculture	8
Economics	16
Physical Training And Sports	4
Theology	4

5. Findings

In the analysis of the data, descriptive analyses (percent, frequency analysis) and correlation and regression analyzes were used (Table 3). According to the results of analyses (percent, frequency analysis), students hate to fail in most cases. Most of them believed that there is no perfect solution in real life. They tried to consult someone who is more experienced about a particular subject when they make an important decision. They believed that it is not possible to erase the effects of the past, they believe that people need a support apart from themselves. They liked to achieve things and be successful but they don't feel obliged to do thi. They thought that people value too much of the effects of the past. They believed that a person can not stay angry and sad for a long time unless he wants to. They stated that they are seldom worried about the future. They believed that the more problems one has, the less happy. They also believed that the perfect solution rarely exists. They didn't care the death or the nuclear war. They also believe that the search for a practical solution was better than seeking perfect one. The fear of punishment wouldn't help people to be good. They said that there is no reason to stay very sad, a person would create his own hell himself. They believed that it was very important for them to be successful in everything they do.

Table 3. Distributions of the views of the students for each item.

		Never Agree	Not Agree	Undecided	Agree	Absolutely Agree
1	It is important to me to be approved by others.	17	48	43	54	17
		9,5	26,8	24,0	30,2	9,5
2	I hate to fail on any subject.	6	24	51	79	19
		3,4	13,4	28,5	44,1	10,6
3	The people who make mistakes are the rightful people.	11	28	57	59	24
		6,1	15,6	31,8	33,0	13,4
4	If people want, they can be happy in almost every situation.	3	24	36	86	30
		1,7	13,4	20,1	48,0	16,8
5	Everyone needs someone who can get help and advice.	4	16	32	101	26
		2,2	8,9	17,9	56,4	14,5
6	Stay away from things I can not do well.	13	40	49	63	14
		7,3	22,3	27.4	35,2	7,8

7	People are disturbed by the image they give to them, not from events.	5	35	39	77	22
		2,8	19,6	21,8	43,0	12,3
8	I am a little worried about unexpected hazards or future events.	6	30	41	84	18
		3,4	16,8	22,9	46,9	10,1
9	When I make an important decision, I try to consult someone who knows.	5	15	36	93	30
		2,8	8,4	20,1	52,0	16,8
10	It is almost impossible to delete the effects of the past.	2	28	47	80	22
		1,1	15,6	26,7	44,7	12,3
11	There is no perfect solution to anything.	14	25	45	71	23
		7,8	14,0	25,1	39,7	12,8
12	I want everyone to love me.	5	44	44	64	22
		2,8	24,6	24,6	35,8	12,3
13	I'm not bothered to race in jobs that are better than others.	6	33	45	78	17
		3,4	18,4	25,1	43,6	9,5
14	Those who make mistakes deserve blame.	15	39	45	56	24
		8,4	21,8	25,1	31,3	13,4
15	I am the cause of my spiritual condition.	17	26	46	70	20
		9,5	14,5	25,7	39,1	11,2
16	I usually do not throw some things in my head.	4	25	49	85	16
		2,2	14,0	27,4	47,5	8,9
17	People need a support other than themselves.	3	19	36	106	15
		1,7	10,6	20,1	59,2	8,4
18	I like to do some things, but I do not feel obliged to be successful.	8	24	54	75	18
		4,5	13,4	30,2	41,9	10,1
19	Immorality must be punished.	7	30	51	66	25
		3,9	16,8	28,5	36,9	14,0
20	Miserable people usually come to that situation themselves.	14	17	69	67	12
		7,8	9,5	38,5	37,4	6,7
21	People value the effects of the past.	5	25	46	80	23
		2,8	14,0	25,7	44,7	12,8
22	To be successful in everything I do is very important to me.	5	24	36	93	21
		2,8	13,4	20,1	52,0	11,7
23	I commit crimes against people for their wrongdoings.	14	36	48	58	23
		7,8	20,1	26,8	32,4	12,8
24	The person can not stay angry and sad for a long time unless he asks for it himself.	6	28	38	88	19
		3,4	15,6	21,2	49,2	10,6
25	If I had experienced different experiences, I was more like what I wanted to be.	8	30	52	75	14
		4,5	16,8	29,1	41,9	7,8
26	I do it because the activities are activity, it does not matter how well I make them.	12	42	59	57	9
		6,7	23,5	33,0	31,8	5,0
27	Fear of punishment helps people to be good.	10	38	37	74	20
		5,6	21,2	20,7	41,3	11,2

28	The more trouble a person has, the less he will be happy.	7	21	43	86	22
		3,9	11,7	24,0	48,0	12,3
29	I rarely worry about the future.	9	38	42	67	23
		5,0	21,2	23,3	37,4	12,8
30	I do not think of the silk that past experiences have affected me now.	9	38	42	67	23
		5,0	21,2	23,5	37,4	12,8
31	Although I do not like being approved, it is not an important need for me.	10	28	62	63	16
		5,6	15,6	34,6	35,2	8,9
32	Nothing is sad in itself, only your interpretation makes it sad.	11	24	39	84	21
		6,1	13,4	21,8	46,9	11,7
33	I'm very worried about some things in the future.	9	29	54	70	17
		5,0	16,2	30,2	39,1	9,5
34	We're all a bunch of our past.	12	37	51	61	18
		6,7	20,7	28,5	34	10,1
35	There is rarely a perfect solution of something.	5	39	49	70	
		2,8	21,8	27,4	39,1	
36	I worry about how much people approve and accept me.	11	39	49	65	15
		6,1	21,8	27,4	36,3	8,4
37	Many people should bravely accept the bad aspects of life.	8	23	53	77	18
		4,5	12,8	29,6	43,0	10,1
38	Seeking a practical solution is better than perfection.	6	30	52	65	26
		3,4	16,8	29,1	36,3	14,5
39	I care very much what people think about me.	8	43	38	73	16
		4,5	24,0	21,2	40,8	8,9
40	There is no reason to stay very sad for a long time.	15	28	41	71	24
		8,4	15,6	22,9	39,7	13,4
41	I hardly think of things like death or nuclear war.	16	27	45	67	24
		8,9	15,1	25,1	37,4	13,4
42	I'm not afraid of doing things I can not do well.	8	26	40	80	24
		4,5	14,5	22,3	44,7	13,4
43	Man creates his own hell himself.	11	19	38	80	31
		6,1	10,6	21,2	44,7	17,3
44	I find myself often planning what to do in various dangerous situations.	7	31	51	76	14
		3,9	17,3	28,5	42,5	7,8
45	It is unthinkable that conditions are ideally combined.	9	31	54	62	23
		5,0	17,3	30,2	34,6	12,8

In the analysis of the correlation between locus of control and irrational beliefs, P value was found to be ,029 and the correlation was found to be -163. It seems that there is a low level inverse relationship between locus of control and irrational beliefs.

Table 4. Correlation Analysis Between Non-Rational Beliefs and Locus Of Control

|		Irrational beliefs	Locus Of Control
Irrational beliefs	Pearson Correlation	1	-,163[*]
	P	.	,029
	N	179	179

The Durbin-Watson (D-W) test was used to determine if there was autocorrelation in the model. The D-W value was found to be 1,872 and this value is close to 2, so it can be said that there is no autocorrelation. For the the multicollinearity problem, the tolerance values were investigated and all tolerance values (1 - R2) were found to be large. The analysis was continued after the autocorrelation and the multicollinearity problem were not found. According to results, irrational beliefs have a low level of significant relationship with locus of control (R = .154, R2 = .024, p <0.05). Their irrational beliefs account for 5% of the total variance of locus of control. According to the standardized regression coefficient (β), non-rational beliefs are influential on locus of control. When the results of the t test on the significance of the regression coefficients are examined, it appears that irrational beliefs are a significant predictor of locus of control at low level.

Table 5. Results of Simple Linear Regression Analysis on the Prediction of the Total Points of the Control (Control) Locus with Non-Rational Beliefs

Locus Of Control	,965	,467	,154	2,069	,040
R=,,154ª		R²=,024			
F$_{(1, 321)}$=16,449	p=,000				

6. Results and Discussion

It was found in this research that, students irrational beliefs were diverse. Secondly, there is is a low level inverse relationship between locus of control and irrational beliefs, and it means that their irrational beliefs are independent of their locus of control to some extend. This is also supported by the regression analysis as well.
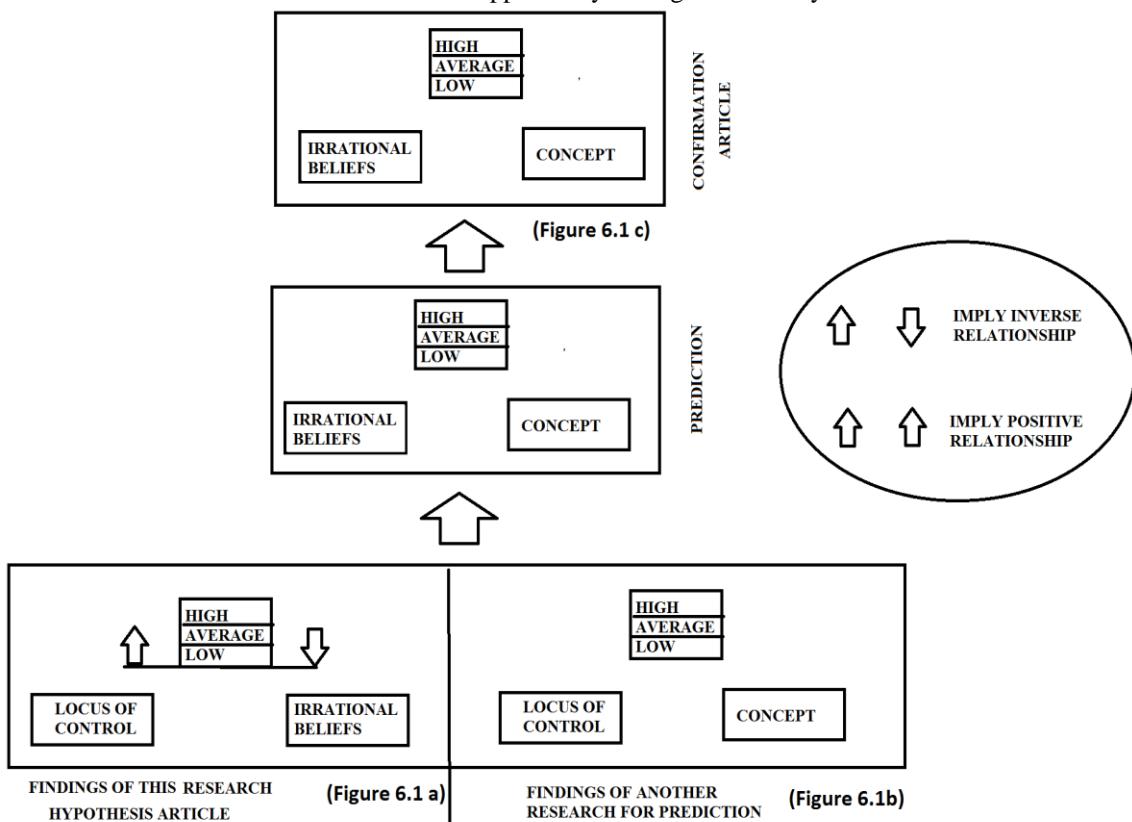

Figure 6.1 The procedure of the discussion of the results (Modified from Figure 12 in (Duran, 2014)).
The procedure will be created based on the model Figure 6.1. In order to investigate our model is compatible with the literature, it will be investigated the findings of the research based on the literature. In order for this, the following procedure will be used;
a- The result of the study is used as a hypothesis for the literature view (Figure 6.1 a).

b- The results of research investigating locus of control and another concept rather than irrational beliefs is used for prediction of the correlation between irrational beliefs and the concept in the prediction article (Figure 6.1 b)

c- The results of research investigating he correlation between irrational beliefs and the concept in the prediction article is used for confirmation of the results of this article hypothesis (Figure 6.1 c)

d- The articles for comparisons were chosen based on the criteria that they should be conducted to the similar populations in terms of demographic characters.
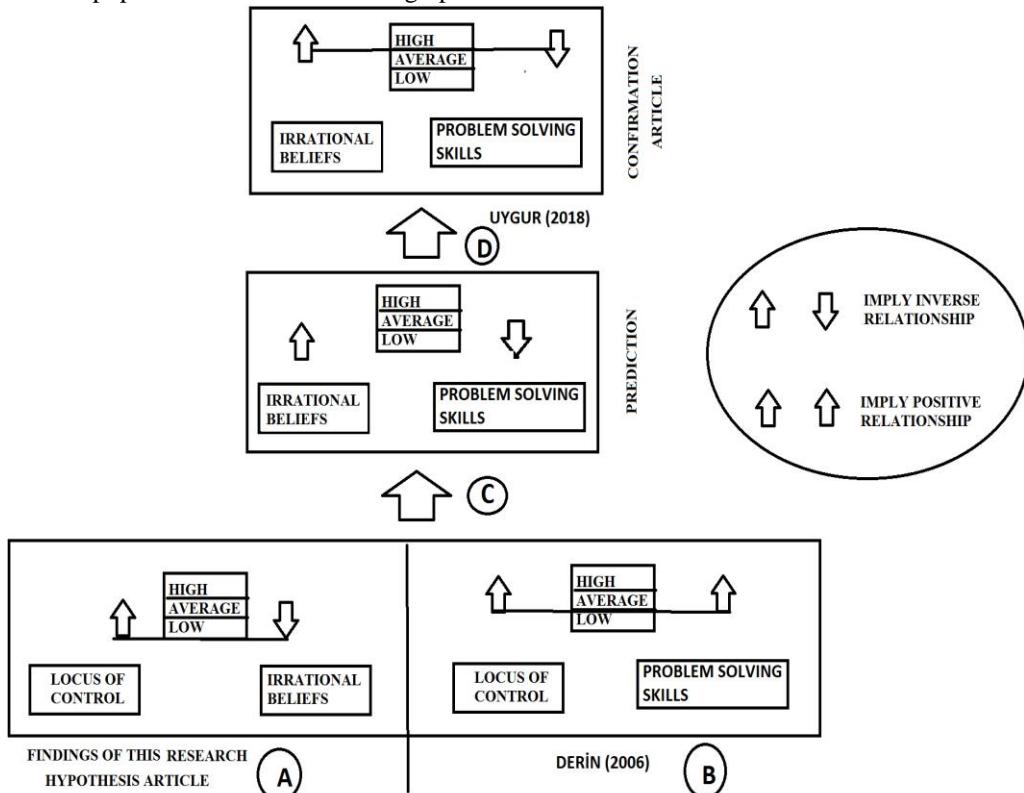

Figure 6.2 The results of our study is compatible with the results of Derin (2006) and Uygur (2018).

The results of this research implies that there is a low level inverse relationship between locus of control and irrational beliefs (Figure 6.2 a). When the literature is examined regarding the relationship between locus of control and problem solving skills. Derin (2006) found a positive relationship between problem solving ability and locus of control of high school students (r = 0.38 p <0.01) (Figure 6.2 b). Accordingly, as internal control increased, the perception of problem solving skills increased positively. Our research in this respect implies that irrational thoughts prevents individuals to make a reasonable decisions, to determine the problems correctly and to think systematically. When viewed from this perspective; there should be a negative correlation between irrational belief level and problem solving skills. Hence, it is predicted that there should be is a low level inverse relationship between irrational beliefs and problem solving skills (Figure 6.2 c). This prediction is verified by the study of Uygur (2018) in which it was found a significant, negative high correlation between problem solving skills and irrational beliefs of high school students (r = -. 88, p <.05) (Figure 6.2 d).
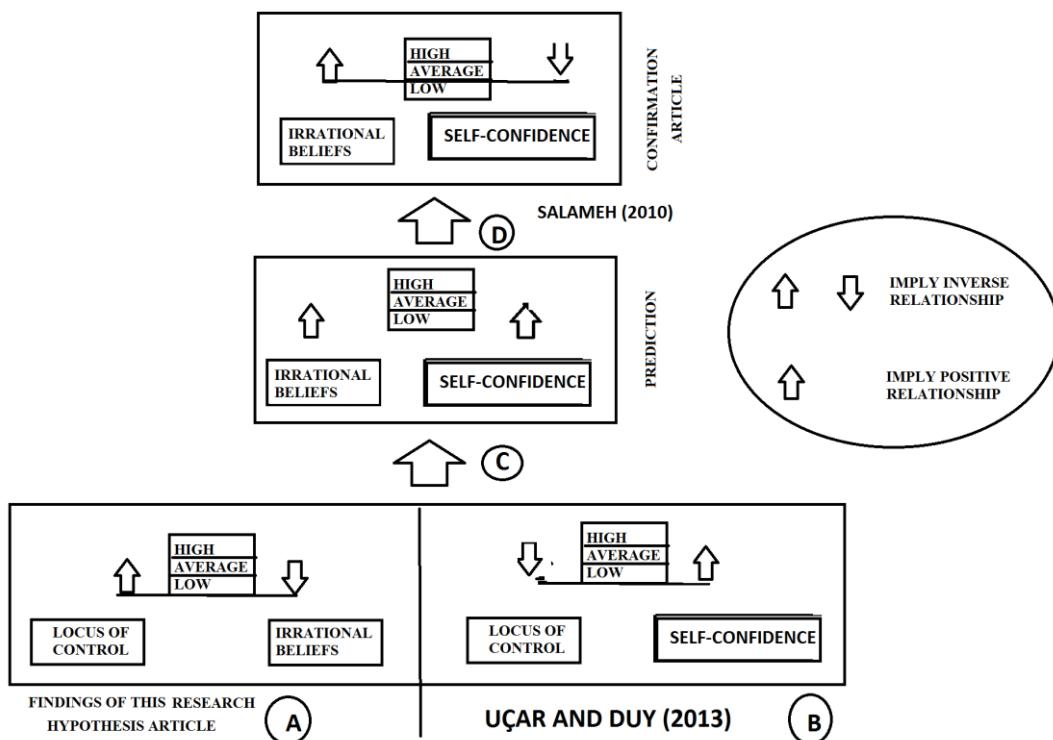
Figure 6.3. The results of our study is not compatible with the results of Uçar and Duy (2013) Salameh (2010). The results of this research implies that there is a low level inverse relationship between locus of control and irrational beliefs (Figure 6.3 a). When the literature is examined regarding the relationship between locus of control and self-confidence levels of college students, Uçar and Duy (2013) found a negative relationship between self-confidence and locus of control of high school students (r = 0.38 p <0.01) (Figure 6.2 b). Hence, it is predicted that there should be a low level positive relationship between irrational beliefs and self-confidence levels of college students (Figure 6.2 c). This prediction is not verified by the study of Salameh (2010) in which it was found a significant, negative average correlation between problem solving skills and irrational beliefs of high school students (r = -. 88, p <.05) (Figure 6.2 d). As a result of this research, it was determined that irrational beliefs have a detrimental effect on self-confidence. In other words, individuals with high self-confidence have less of irrational beliefs.

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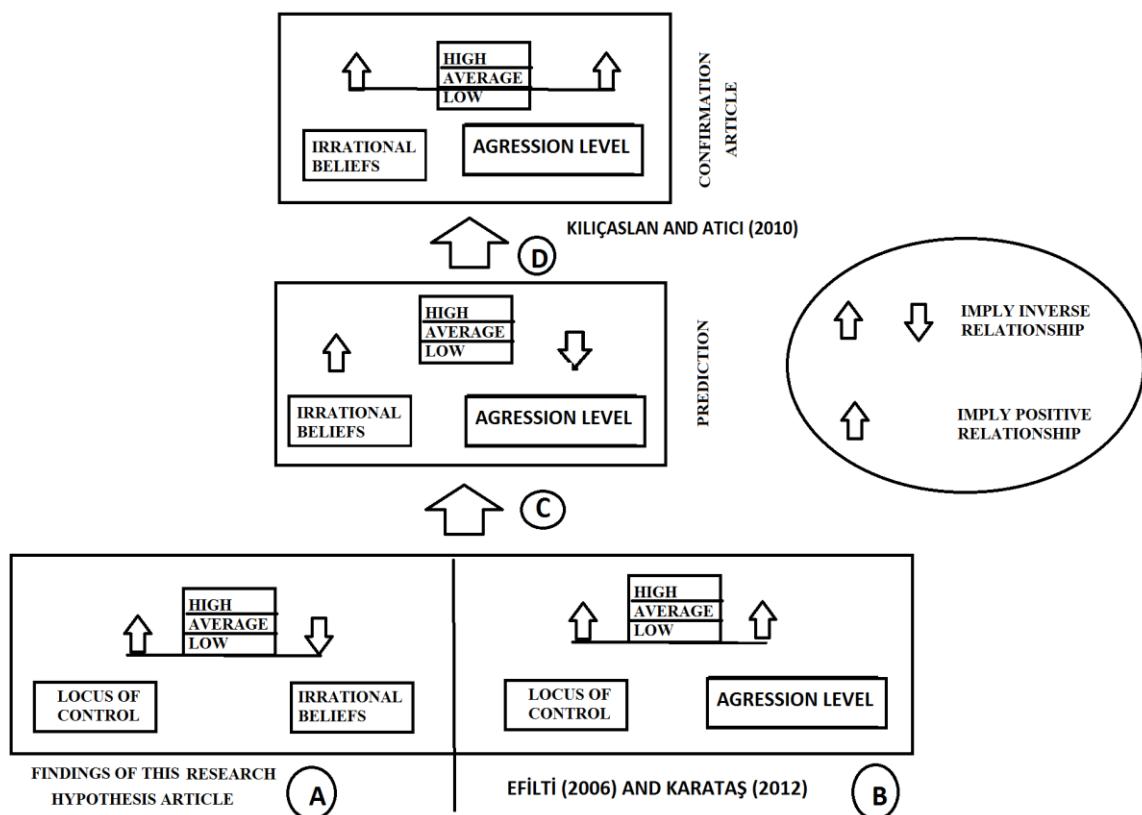
Figure 6.4. The results of our study is not compatible with the results of Efilti (2006), Karataş (2012) , Kılıçaslan and Atıcı (2010).

The results of this research implies that there is a low level inverse relationship between locus of control and irrational beliefs (Figure 6.4 a). When the literature is examined regarding the relationship between high school students' aggression level and locus of control. Efilti (2006) and Karataş (2012) found a significant and low positive relationship at 0.05 level between locus of control and high school students' aggression level (r=0.164)) (Figure 6.4 b). Hence, it is predicted that there should be a low level negative relationship between irrational beliefs and high school students' aggression levels (Figure 6.4 c).). This prediction is not verified by the study of Kılıçaslan and Atıcı (2010) in which it was found a significant, positive average correlation between aggression levels and irrational beliefs of high school students (Figure 6.4 d).
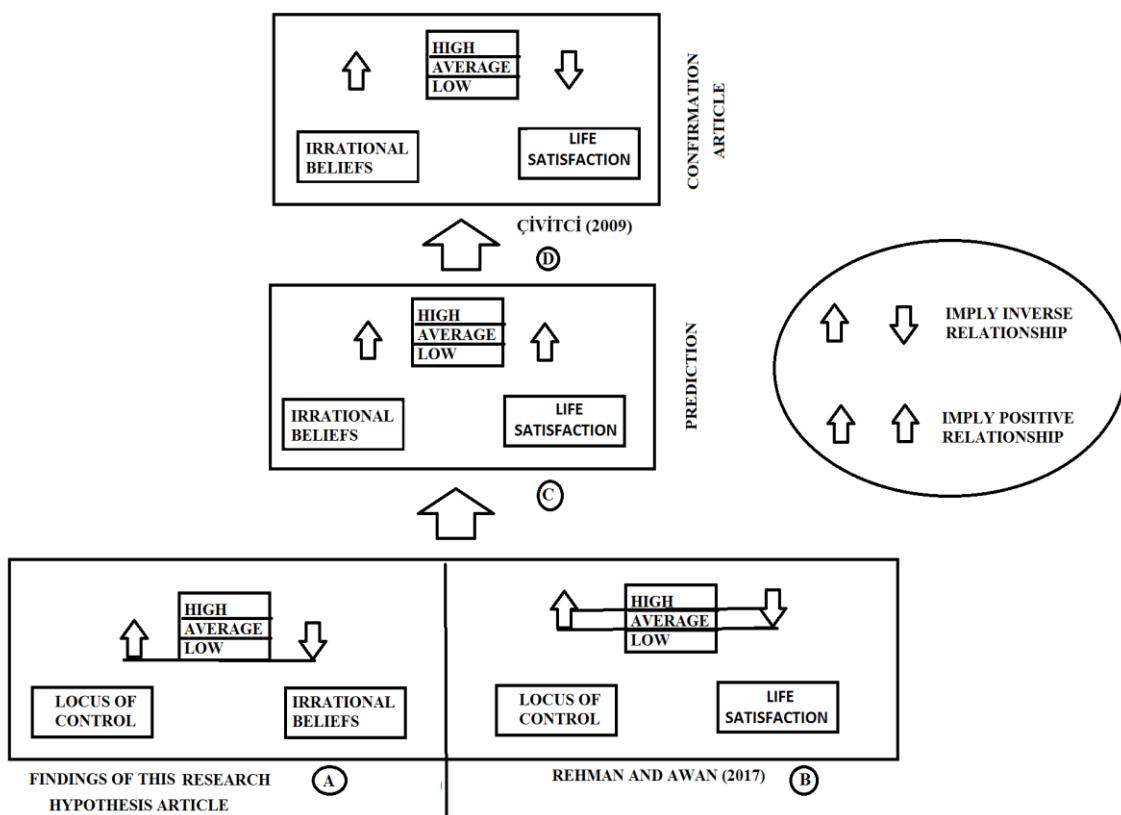
Figure 6.5. The results of our study is not compatible with the results of Rehman and Awan (2017) and Çivitci (2009).

The results of this research implies that there is a low level inverse relationship between locus of control and irrational beliefs (Figure 6.5 a). When the literature is examined regarding the relationship between high school students' life satisfaction and locus of control. Rehman and Awan (2017) found a significant, negative, high and moderate relationship among internal locus of control, external locus of control and university students' life satisfaction level (Figure 6.5 b). Hence, it is predicted that there should be either moderate or high level positive relationship between irrational beliefs and university students' life satisfaction (Figure 6.5 c). This prediction is not verified by the study of Çivtci (2009) in which it was found generally negative relationship between life satisfaction domains and total irrational beliefs (Figure 6.5 d).
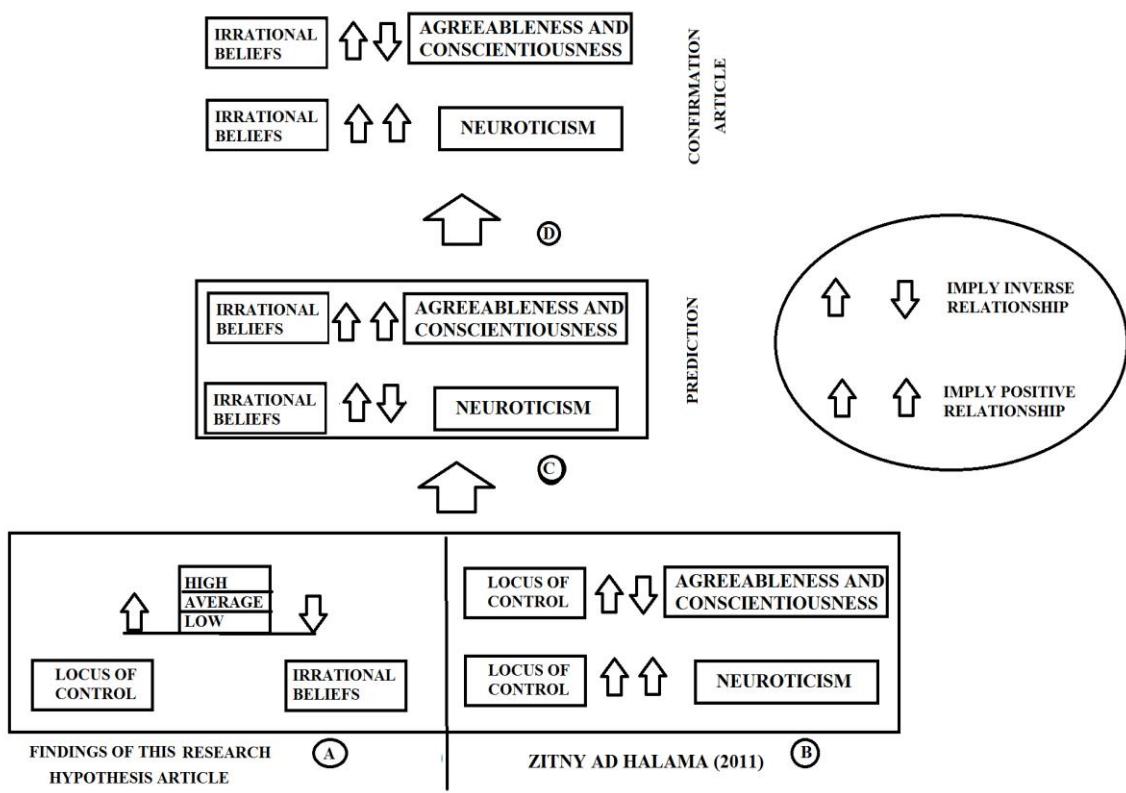
Figure 6.6. The results of our study is not compatible with the results of Zitny ad Halama (2011) and Ghumman and Shoaib (2013).

The results of this research implies that there is a low level inverse relationship between locus of control and irrational beliefs (Figure 6.6 a). When the literature is examined regarding the relationship between high school students' personality traits and locus of control. Zitny ad Halama (2011) found a significant and negative relationship among locus of control and high school students' level of Openness, Conscientiousness, Extraversion, Agreeableness and positive correlation with their level of Neuroticism (Figure 6.6 b). Hence, it is predicted that there should be a positive relationship between irrational beliefs and high school students' level of Openness, Conscientiousness, Extraversion, Agreeableness and negative correlation with their level of Neuroticism (Figure 6.6 c). This prediction is not verified by the study of Ghumman and Shoaib (2013) in which it was found that Agreeableness and Conscientiousness showed a significant negative relationship while Neuroticism showed a significant positive relationship with irrational beliefs (Figure 6.6 d).
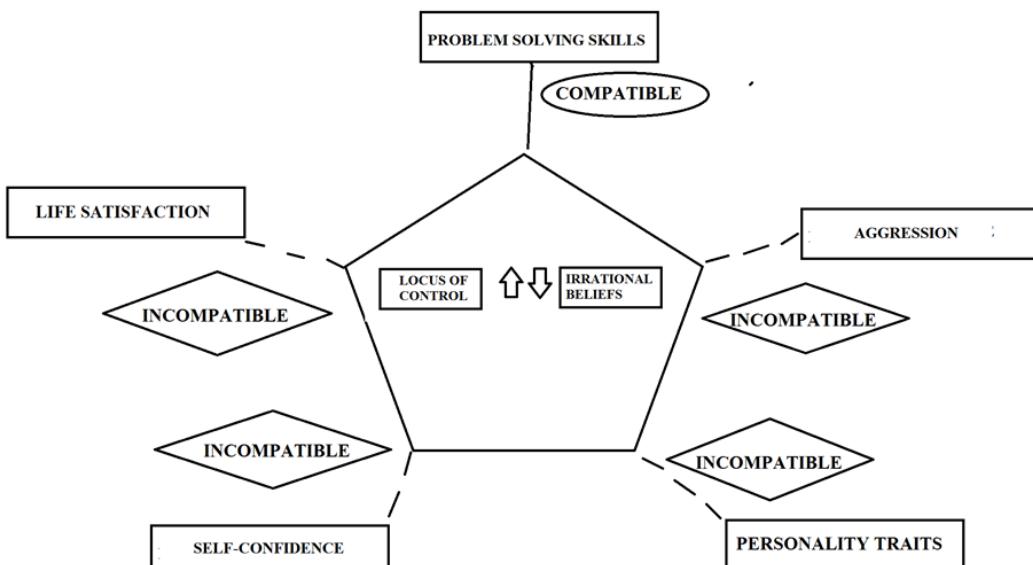
Figure 6.7. The results and prediction of our study is not compatible with the results of most of the results
Although there are many researches regarding locus of control and irrational beliefs, it is very difficult to find researches investigation the relationship between locus of control or irrational beliefs conducted to the similar

populations. The reason of the incompatible results of might be that they were used in a different time samples with different student population in the similar educational level. The other reason might be fact that there are other hidden variables to make choices even though they are contrary in terms of theoratical sense. For this reason it is important to investigate those subjects in qualitative designs and collect data by mixed research models. However, the important implication of these results regarding incompatiblity is that that the locus of control and irrational beliefs could be domain specificc attitudes implying that one might have many independent, specialized attitudes, rather than one cohesive structure.

As for the other recommendations for the subsequent researches,

- Locus of control of high school students can be investigated by different samples and via different measurement tools.
- Irrational beliefs can be investiagted with demographic variables such as gender, ages etc.
- The relationship between irrational beliefs and locus of control for adolescents and adults can be investigated.
- The relationship between irrational beliefs and locus of control for children exposed to violence can be investigated.

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Kuran-ı Kerim Işığında Çocukların Ahlak Eğitiminde Dikkat Edilmesi Gereken Hususlar*

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Özet

İnsan, Kuran-ı Kerim ışığında almış olduğu ahlak eğitimiyle iyi bir kimse olmakta ve bu suretle de gerçek mutluluğu yakalamaktadır. Almış olduğu bu eğitimin kalıcı olması için, çocuk yaşta bu eğitime başlanmalı ve bu eğitim de Kuran-ı Kerim önderliğinde olmalıdır. Onun önderliğinde verilen eğitim neticesinde insan, gerçek mutluluğu yakalayacak ve parçası olduğu toplumu ideal bir topluma çevirebilecektir.

Anahtar Kavramlar: Ahlak, Eğitim, Çocuk, Kuran, Mutluluk

Abstract

Man becomes a good person with the moral education he received in the light of the Holy Quran and thus he realizes the true happiness. For this education to be permanent, this education should be started at the age of child and this education should be led by the Holy Quran. As a result of the training given under it's leadership, man will capture true happiness and turn the society of which he is a part of it into an ideal society.

Keywords: Moral, Education, Child, Quran, Happiness

Giriş

Toplumun devamlılığını sağlamak ve nesiller boyu süren bir yapı oluşturmanın ilk koşulu pek tabii olarak çocuklardır. Onlar olmadan neslin devam etmesi mümkün değildir. İnsanoğlunun devamı için bir zaruret olan çocukların doğması ise tek başına yeterli olmamakta bilakis onların eğitimi de büyük önem arz etmektedir. Zira herhangi bir eğitimden geçmemiş sadece nefes alan, yiyen ve içen bir canlıdan farkı olmayan bireyin hayvanlardan bir farkı olmayacak ve akıl sahibi olması ve yaratılmışların en üstünü olma özelliği kendisinde ortaya çıkmayacaktır.

Bu yüzdendir ki çocukların eğitimi toplumun devamı için hayati öneme sahiptir. Fakat bu eğitimin niteliği de en az verilecek eğitim kadar önem arz etmektedir. Zira ifsat olmuş bir eğitim tarzının yetişmesi beklenen çocukları oldukları halden daha iyi bir hale çevirmeyeceği pekala ortadadır.

Çocukların eğitimi salt matematik, coğrafya, dil vs. gibi ilimlerle sınırlı tutulmamalı onların benliklerine ve karakterlerine hitap eden bir eğitim göz ardı edilmemelidir. Çocukların benliklerine ve karakterlerine hitap eden bu eğitim tarzını ahlak eğitimi olarak değerlendirmemizde bir sakınca görmemekteyiz. Ahlak eğitimini almış ve diğer pozitif bilimlere dair olan eğitim sürecinin yanında bunu da eklemiş olan birey, çocukluğundan itibaren hem kendisine hem de içinde bulunduğu topluma karşı sorumluluklarını yerine getirme noktasında bir zayıflık göstermeyecek ve tabiri caizse topluma faydalı bir birey haline gelecektir. O halde en az pozitif ilimler kadar ahlakın da eğitiminin üzerine düşülmeli ve yine en az diğer ilimlere verilen önem kadar ahlak eğitimine de önem gösterilmelidir. Zira medeniyet bazında ileri gitmenin şartlarından biri de ideal bir toplum inşa etmektir ki kendi bünyesinde en basit tabiriyle iyi insanların hakim olmadığı bir toplum, bilimde ve fende ne kadar ileri giderse gitsin ahlaksız bir toplum olduğu için ne kendisine ne de çevresine fayda sağlamamakta aksine temasta bulunduğu her şeye zarar verip yok etmektedir.

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Bu noktada da karşımıza ahlaklı bireyler yetiştirmenin önemi ortaya çıkmakta ve bunun görüldüğü üzere hayati bir önem arz ettiği gerçeği apaçık ortadadır. Nitekim hem bu dünya hem de ahiret hayatında gerçek mutluluğu elde etmek suretiyle kurtulanlardan olmak en nihayetinde ahlaklı bireyler olmaktan geçmektedir.

Ahlak eğitiminin verilecek olduğu çocukların bu eğitiminde ise en uygun kılavuz olarak önümüze vahyi yani Kuran-ı Kerimi koyabiliriz. Zira müslüman ve ideal bir toplum inşa edilmek isteniyorsa Kuran-ı Kerim'den daha güzel bir örnek bulmak mümkün değildir.

1. Ahlaklı Bireyler Yetiştirmede Vahyin Önemi

Eğitim ve öğretim sürecini Kuran-ı Kerim merkezli olarak ele almadığımızda nihai hedefin ahlaklı bireyler yetiştirmek olduğu apaçık ortadadır. Öyle ki bu ahlaki erdemlerin hakim olduğu toplumlar inşa etmek bütün eğitim sistemlerinde kendine yer bulmaktadır. Nitekim Kuran-ı Kerim önderliğinde icra edilen bir eğitim ve öğretim sürecinden elde edilmek istenen sonucun da farklı olması beklenemez. Zira Kuran-ı Kerim, Allah'ın insanları en güzel şekilde yarattığını söylemekte ve onların bu yaratılış üzere kalmalarını istemektedir. Bu yaratılış üzere kalmak da pek tabii olarak ahlaki erdemlere ve değerlere sahip birey olmakla mümkün olmaktadır.

Hz. Muhammed'in (sav) yüce bir ahlak üzere gönderilmiş olduğunun ifade edilmesi,[1] bireylerden ahlak sahibi kimseler olmasının istendiğini apaçık ortaya koymaktadır. Zira Allah'a kul olarak yaşamanın, O'nu bilmenin ve O'na ve emrettiklerine iman etmenin doğuracak olduğu sonuç budur. Ahlak sahibi olan bireyin ise yukarıda da bahsettiğimiz gibi Allah'ın nimetlerine karşı bilinçli ve kendinden başka diğer insanlara ve yaratılmışlara karşı iyi ve güzel davranışlarda bulunan kimse olması söz konusu olmaktadır.

Kuran-ı Kerim insanoğluna, Hz. Muhammed (sav) vasıtasıyla indirilmiş son kitap olması sebebiyle ilk olarak bu hayatı ilgilendiren bir kitaptır. Çünkü bu kitap devam eden bir zaman içinde inmiş ve insanlara Allah'ın emir ve yasaklarını bildirme görevini ifa etmiştir ki bu görev dünya durdukça devam edecektir. Bu sebepledir ki Kuran-ı Kerim insanın hayata dair yaşantısına da karışmış ve onun daimi surette iyilik üzere olup iyilikte bulunmasını tavsiye etmiştir.[2] olmasını istemiştir. İnsan iyiliği kendisine karşı yapabilmekle birlikte iyilik yapmanın karşılıklı olan bir iş olduğunu göz önüne aldığımız zaman bunun diğer insanlara ve daha genelde de tüm yaratılmışlara karşı olması gerekliliği ortaya çıkmaktadır. Nitekim insan, Allah'ı bilmek, O'na kul olmak ve Kuran-ı Kerim'in tavsiye ettiği ve evrensellik ifade eden ahlaki değerlere sahip olmakla iyi bir birey olabilmekte ve hem kendine hem de yaşadığı topluma yararlı bir birey olma imkanını kendinde bulabilmektedir. Eğitim öğretim sürecinde Kuran-ı Kerim'in evrensellik ifade eden kıstaslarına göre yönlendirilen ve buna paralel bir kişilik kazanan birey yukarıda bahsettiğimiz özellikleri kendinde bulabilecektir. Sonuç olarak insan, cinsinden ayrı inzivaya çekilmiş bir vaziyette tek başına yaşayamamasından dolayı bu ahlaki değerlere sahip olmak zorundadır. Zira diğer insanlarla bir arada uyum içinde yaşayabilmenin yegane şartı herkesin sınırlarını bilmesi haksızlık yapmaması ve hem Allah'a hem de diğer yaratılmışlara karşı isyan noktasında bulunmamasıyla mümkündür.

Allah'ı bilmek ve O'na hakkıyla kul olmak suretiyle insan gerçek mutluluğa ve bununla beraber mutlak iyiliğe ulaşma imkanını elde edecek ve bunun sonucu olarak da kıyamet günü hesap görüldükten sonra cennete girme konusunda herhangi bir sıkıntı yaşamayacaktır.[3] Bu mutlak iyiliğe ulaşmış kimsenin de cennete girmek için yapması gereken de iman ettikten sonra salih ameller işlemesidir ki ahlaki erdemlere sahip bir insandan beklenen de budur.[4]

Ahlakın, bireyin kendisinde yer etmesi ise onun hem Allah'a iman edip kul olması hem de bunu aklen bilmesi ve farkında olmasıyla mümkün gözükmektedir. Zira akıl ve vahiyle hareket ettiği ölçüde kişinin davranışları ahlaki değerlerle uyumlu olacaktır. Bu noktada ise hayat boyu devam eden eğitim ve

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[1] el-Kalem 68/4
[2] el-Bakara 2/112, el-Kasas 28/54
[3] en-Nisa 4/13
[4] el-Bakara 2/82

öğretimin başarısı için akıl ve vahiy uyumunun zorunluluğu ortaya çıkmaktadır. Burada kasıt vahyin akla uydurulması değil bilakis aklın vahiy merkezli bir eğitimle kendini ilahi emir ve yasaklar çerçevesinde bir hayata adapte etmesidir. Böylelikle kişinin ahlaklı bir birey olması yolunda karşımıza iki unsur çıkmaktadır ki bunlardan ilki vahiy ikincisi ise kendini bu vahiyle şekillendirmiş akıldır.[5]

Kişinin hareketlerini maddi anlamda şekillendiren her ne kadar bedeni olsa da bedene yapması gerekeni söyleyip onun hareketlerini yönlendiren akıldır. Bu noktada vahiy bilgisiyle yoğrulmuş bir eğitim ve öğretim sürecinden geçmiş insan tercihte bulunacak ve vahye uygun karar verdiği ölçüde ahlaklı bir birey olmayı başaracaktır. Bu noktada onun davranışlarının ahlaki nitelik kazanması vahiy ve akla uygun karar vermesiyle doğru orantılı olacaktır.[6]

En nihayetinde ahlakın gayesi ise kişiyi doğruya sevk etme ve kötü olandan ise uzak tutmaktır.[7] Bunu başardığı ölçüde insan Allah'ın emir ve yasaklarına uygun bir hayat sürme imkanı bulabilmektedir. Bu da kişinin eğitim ve öğretim hayatının aklın da etkin bir şekilde var olduğu vahiy merkezli bir süreç olmasıyla mümkün gözükmektedir.

Kişinin hayatına ahlaki değerleri tatbik etmesi ve buna paralel bir yaşam sürmesi en nihayetinde onun bu vasıflarla ve yaşam tarzıyla beraber yaratılmışların en şereflisi olmasına yardımcı olmaktadır. Böylelikle insan kendisi gibi hiçbir akıl ve idrak özelliği olmayan diğer canlılardan ayrılır.

Tüm bunlardan hareketle çocukların da ahlaki erdemler üzerine eğitim görmeleri ve bu erdemlerin kendilerinde birer haslet haline gelmesi hem kendi yaşantılarında hem de mensubu oldukları toplum içinde yararlı birer birey olmaları için olmazla olmazlar arasına girmektedir.

Çocuklara diğer yetişkin bireylerden ayırt edilip kendi seviyelerine uygun bir biçimde davranmak suretiyle verilecek olan bir ahlak eğitimi, edinilmesi istenen bu erdemlerin çocuğun hem zihninde hem de kalbinde yer edinmesi açısından büyük önem arz etmektedir. Bu noktada bir kaç hususa değinip çocuğa verilen ahlak eğitiminde dikkat edilmesi gereken noktaları incelemek, verilen eğitimin başarılı olması için bir önem arz edebilir.

2. Güzel Ahlakın İnşasında Çocuğu Telkin

Ahlak eğitimi verilen çocuğa karşı uygulanması doğru olan ilk metot olarak sözle telkinden faydalanmak, başarı elde etme açısından dikkate değer bir husustur. Zira çocuğun edinmesi istenen hasletler konusunda sözle anlatım ve bu erdemlere dair yapılacak teşvik minvalindeki sözlü anlatımlar müspet anlamda etkili olacaktır. Fakat tek başına nasihat yeterli olmamakta ve hatta kimi zaman aksi sonuçlar doğurabilmektedir. Bu sebepledir ki nasihatte bulunularak yapılan bir eğitim metodunda çocuğu eğiten kimsenin alabilecek olduğu tepkileri ölçebilmesi gerekmektedir. Aksi takdirde ahlaklı bir birey yetiştirme amacıyla eğitilmeye çalışılan çocukta tam tersi bir etki görülmesi muhtemel hale gelecektir. Zira çocuk, kendisine nasihatte bulunulan hususta kendisinin bir eksiğinin olduğunu düşünebilir ve bu konuda rencide edildiğini zannedebilir. Bu sebepledir ki nasihat edenin hem nasihat ettiği birey olan çocuğa yaklaşımını ince bir şekilde hesaplamalı ve bu nasihatin mahiyetinin öğretici bir tarzda olmasına dikkat etmelidir.

Yetişkin bireylerde bile karşılaşılması muhtemel olan nasihate karşı tepkinin aslında bir noksanlık olduğunun farkında olunmalı ve bu noksanlığın pek tabii olarak çocuklarda da eğiten kişinin karşılaşabileceği bir durum olduğu göz ardı edilmemelidir. Bu noktada çocukların ahlak eğitimiyle ilgilenen ve onların ahlaklı bireyler olmasını sağlamaya çalışan eğitmen ne kadar ince bir hat üstünde çaba sarf ettiğini unutmamalıdır. Böyle bir noksanlıkla karşılaştığı durumlarda da pes etmemeli ve her ne kadar zorlanacak olsa da hatasını telafi edip ahlak

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[5] el-Maturidi, Ebu Mansur, Kitabu't-Tevhid, tahk. Bekir Topaloğlu-Muhammed Aruçi, İSAM Yayınları, Ankara. (2005). s. 274
[6] Ünverdi, Mustafa, Ahlakın Epistemolojisi, Hitit Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, Yıl 7, Sayı 2, s. 329
[7] Izutsu Toshihiko, Kur'an'da Allah ve İnsan, Çev.: Süleyman Ateş, Ankara. (1983). s, 62.

eğitimini üstlendiği birey olan çocuğu geri kazanmalıdır. Nitekim çocukların istenen kıvama benliği, kişiliği ve karakteri oturmuş yetişkin bireylerden daha kolay geldiği muhakkaktır.

Ahlak eğitiminde bir metot olarak kullanılabilecek olan nasihat etmede dikkat edilmesi gereken bir başka husus ise nasihatin aralıksız ve yoğun bir şekilde verilmemesidir. Aralıksız ve yoğun bir şekilde verilecek olan nasihatin maksadını aşıp anlaşılmaz olmaması için eğitmenin karşısında bulunan çocuğun alması gereken nasihati aldığını ve benimsediğini hissettiği an nasihati kesmesi gerekmektedir. Bu yapılan işin etkili olması bakımından pek tabii olarak büyük önem arz etmektedir. Zira can sıkıcı bir biçimde ısrarcı olmak suretiyle bir kimsenin istenen kıvama gelebilecek olmasını düşünmek bizce pek mümkün gözükmemektedir.

Çocuğa verilecek olan ahlak eğitiminde dikkat edilmesi gereken bir başka husus ise bireyin konudan uzaklaşmaması ve dikkatinin dağılmaması için ele alınan konunun dağıtılmamasıdır ki eğer eğitmen konuyu genişletir ve dağıtırsa istenen başarı elde edilemeyecek bu da çocuk üzerinde etkili olmayı engelleyecektir. O yüzdendir ki verilen çocuğun yaşına uygun olarak da ahlaka dair anlatılan mesele mümkün olduğunca yüzeysel tutulmalı ve mümkün mertebe somut zeminde kalınmalıdır. Böylece çocuk kendi açısından gerçeklikle bağlantısını koparmadan nasihat edilen meseleyi kavrayabilecek ve kendi seviyesine uygun bir şekilde bunu hayatına tatbik edebilme imkanına sahip olacaktır. Ayrıca eğitmen bir noktaya yoğunlaşıp sadece o noktada nasihatte bulunduğu zaman bu çocuğun kalbinde ve zihninde dikkati dağılmadan daha kolay bir surette yer edinecektir.

Eğitici konumundaki kimse muhatabı olan çocuğun ilgisiz olduğunu tespit ettiği takdirde vermiş olduğu eğitime ara vermelidir ki çocuğun kökten bir ilgisizliğe dalmasına sebebiyet vermesin. Zira her ne kadar çocuk bir yetişkinden farklı olarak zihnine ve kalbine işlenmeye çalışılan meseleleri hemen kabul edebilse de ilgisini bir daha eski seviyeye çekemeyecek derecede kaybederse etkili bir ahlak eğitimi gerçekleşmemiş olacak ve ortaya ahlaki erdemleri kazanma konusunda eksik bir birey çıkacaktır.

Çocuğun almış olduğu ahlak eğitiminin etkili olabilmesi için eğitici konumundaki kişinin nasihat ederken bir takım hususlara dikkat etmesi gerekliliğinden bahsetmiş olsak da bunun bilgiyi ve telkini alan ve eğitilmek istenen konumundaki çocuk tarafında da karşılığı vardır. Zira eğitici konumundaki kişi her ne kadar başarılı ve etkili olabilse de muhatap konumundaki çocuk kendisine anlatılan mevzuyu anlayacak derecede zeki değilse ortaya yine başarısızlık sonucu çıkacaktır. O yüzdendir ki muhatabın akıl ve zeka seviyesine olabildiğince inilmeli ve o seviyede kalınmak suretiyle ahlaki erdemlere dair eğitim verilmelidir. Bununla birlikte çocuğun aklını karıştıracak şekilde kapalı ve soyut anlatımlara kaçınılmamalı, anlatım mümkün olduğunca yalın ve sade olmalıdır. Çocuğun konuya ilgisini çekecek bir ses tonuna sahip bir şekilde konuşmak da ilginin kaybolmaması için dikkate değer bir başka husus olarak değerlendirilebilir.

3. Çocuğun Eğitim Sürecindeki Davranışlarını Değerlendirme

Vahiy temelli bir eğitim ve öğretim sürecinin sonucu olarak ahlaklı bireyler yetiştirmek ve bu ahlaklı bireylerle erdemli bir toplum inşa etmek insanoğlunun temel gayelerinden biri olmalıdır.[8] Bu suretle toplumun ferdi olan insan gerçek mutluluğa erişme imkanı bulacak ve hem dünya hem ahiret saadetini gerçekleştirecektir. O yüzdendir ki ahlak eğitiminin verildiği çocuklara karşı, bu eğitimin de doğal bir sonucu olarak düşünülebilecek nazaklikle davranılması ve yapmış oldukları güzel işler karşısında övgüde bulunulması etkili bir teşvik metodu olarak değerlendirilebilir. Çocuklara karşı kaba bir söylem içinde bulunup verilmek istenen eğitimin zorbaca yapılmaya çalışılması ise ahlak eğitiminin de mahiyeti açısından mümkün gözükmemektedir. Zira matematik eğitimini zorba ve kaba bir biçimde veren bir eğitici bunu zorla da olsa karşısında muhatap olarak bulunan bir çocuğa öğretebilir. Fakat bir kişilik ve karakter olarak zihne ve kalbe işlenmediği takdirde gerçek anlamda tatbik edilmesi mümkün olmayan ahlaki erdemlerin zorbaca bir şekilde öğretilmeye çalışılması en fazla çocuğun bir hayvan terbiyecisin önündeki hayvana benzeyecektir. Nitekim hayvan terbiyecisinin karşısında onun her istediğini yapan hayvanın bunu isteyerek değil de dayak zoru ya da koşullandırma yöntemiyle yaptığı bilinen bir gerçektir. Oysa ki ahlaklı birer birey olmak suretiyle erdemli toplumun parçası olacak çocukların bu eğitimi dayak ya da koşullandırma yöntemiyle alması için doğasına aykırılık arz etmektedir.

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[8] Farabi, Kitabu't-Tenbih Ala Sebili's-Saade, Tahkik Cafer Ali Yasin, Daru'l-Menahil, Beyrut. (1987). s. 49

Bu sebepledir ki zorbalık ve kabalıkla verilecek bir ahlak eğitimi yerine bu eğitimin çocuklara karşı nazik olunma ve eğitimleriyle alakalı güzel işler yaptıklarında övülmeleri suretiyle yapılması pek tabii olarak daha etkili ve başarılı olacaktır. Nitekim Kuran-ı Kerim'de Hz. Lokman'ın (as) oğluna karşı nasihatte bulunurken üslubundaki yumuşaklığı da bunu destekler mahiyettedir.[9]

Verilen eğitim esnasında çocukta eğitime dair olmaması gereken hususlar ortaya çıkıyor ve çocuk aldığı eğitimin aksine davranışlar sergiliyorsa bunun uyarılması toplum önünde yapılmamalı aksine eğitici ve çocuğun baş başa olduğu anlarda endirekt bir şekilde misallendirme yöntemiyle olmalıdır. Muhatap her ne kadar çocuk da olsa ve uyarılma sebebi rencide etmek olmasa da ortaya çıkacak olumsuz bir sonuçtan kaçınmak adına böyle bir metot izlemek hem eğitici hem de ahlak eğitimini alan çocuk açısından daha doğru olacaktır.

Çocuğa verilen ahlaki değerler eğitiminde etkili olmak için eğiticinin kullanabileceği bir diğer yöntem ise çocuğun alışkanlıkları ve davranışları arasında bulunan ve zararsız kabul edilebilecek fiillerin görmezden gelmesi ve bu davranışı terk etmesi için herhangi bir uyarıda bulunmamasıdır. Zira çocuk bu şekilde kendini bu eğitim sürecine kendine olan güveni daha yüksek bir şekilde katılma arzusuna sahip olabilir ve karşılıklı etkileşimin yoğunlaşmasından dolayı eğitimin başarılı olmasında kazanılması büyük önem arz eden çocuğa etki edilebilecek kadar yakın bir mesafeye girilebilmiş olur.

Çocuğun güvenini kazanmış bir eğiticinin bu suretle onunla arkadaşlık kurabilmesi ve çocuğa daha iyi bir örnek olabilmesinin önü açılmış olur. Nitekim çocuk her yaptığı işin eleştirilmediğini ve kimi yerlerde mazur görülebildiğini anladığı takdirde orada daha güvende hissedecek ve kendini daha coşkulu bir biçimde bu eğitimin bir parçası haline getirecektir.

Bununla birlikte eğer çocukta mazur görülemeyecek derecede uygunsuz davranışlar tespit edildiyse ona karşı daha dikkatle yaklaşılmalı ve her türlü etkileşimde azami ölçüde yumuşak olunmalıdır ki bu konumdaki bir çocuk tabiri caizse yakalanmaya çalışılan ürkek bir kuş mesabesindedir. Ona karşı yapılacak kaba bir davranış ya da muamele onu ihtimal dahilinde olmakla beraber ahlak eğitimi sürecinden koparmaya sebep teşkil etmektedir. Çocuğun kötü alışkanlıklarından vazgeçmesi için vakti ve enerjisi daha anlamlı ve güzel bir işe sevk edilmek suretiyle çare üretilmeye çalışılabilir. Bu süreç içinde de çocuğa karşı kendisinde huy olmuş bu kötü davranış hiçbir surette kimseye söylenmemeli ve mümkün olduğunca bu çocuğun yüzüne vurulmamalıdır. Ahlak eğitiminin nazik ve hassas bir süreç olmasından dolayı aslında diğer eğitim süreçlerinin de parçası olan bu aşamalar bu eğitim sürecinde bir başka önem arz etmekte ve çocuğun erdemli bir toplum inşasında kaybolmaması için hayati önem taşımaktadır. Aksi takdirde erdemli bir toplumun bir bireyi olarak yetiştirilmek istenen birey, bu gaye ile yola çıkmış eğiticinin eliyle tam aksi istikamette bir kimseye dönüşüp kötü ahlaklı bir kimse olabilir. Nitekim toplumda, görevi insanları Allah'a davet etmek olan kimseler tarafından iş bilmemezlikten dolayı nice insan bu yoldan uzaklaşabilmekte ve iyi olan ne varsa her şeye düşman olabilmektedir. Ahlak eğitiminin ne kadar hassas bir süreç olduğunun farkına varmak en az bu eğitimin verilmesi kadar önemlidir.

Öyle ki görevleri Allah'ın emir ve yasaklarına çağırıp insanları bu doğrultuda yaşamaları için telkin eden kimseler, insanlara karşı kaba ve zorba olmayıp aksine yumuşak bir şekilde yaklaşsalar muhakkak daha başarılı olacaklardır. Zira yumuşak bir şekilde verilen eğitim çoğu zaman zorbalıkla verilen eğitimden daha etkilidir. Ahlak eğitiminde başarılı olan çocuk yetişkin olduğunda ahlaklı bir birey olarak kalıp Allah'ın emir ve yasaklarına uygun bir yaşam sürüp O'na karşı olan kulluk vazifesini ifa ettiği takdirde övülmüşlerden olacaktır.[10]

4. Ahlak Eğitimi Devam Ederken Çocuğa Karşı Takınılması Gereken Tavır

Ahlak eğitiminin bir seferde verilen bir eğitim olmadığı bunun bir süreç olduğu aşikardır. Zira ahlak eğitimi de dahil hangi eğitim olursa olsun bir süreçten bahsetmek gerekmektedir. Bu yüzdendir ki diğer eğitim süreçlerinde olduğu gibi ahlak eğitiminde de sabretmek büyük önem arz etmektedir. Çocuğa karşı sabrın olmadığı bir eğitim sürecinde bir başarı beklemek mantık dışı olmaktadır.

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[9] Lokman 31/13,16,17
[10] el-İsra 17/79

Sabrın mahiyetinde karşımıza eğitilene karşı aşamalı bir yaklaşım yer almaktadır. Çocuk görmüş olduğu eğitimi hem tek seferde almamalı hem de aldığı eğitimin geri dönüşü kendisinden tek seferde istenmemelidir. Nitekim Allah, Kuran-ı Kerim'de emir ve yasaklar bağlamında kullarından tek seferde bir değişim beklememiş ve onlara süre tanıyarak tedrici bir metodu tercih etmiştir. Buna içkinin tedrici bir şekilde haram kılınması güzel bir örnek teşkil etmektedir.[11] Hal böyle iken ahlak eğitimi verilen çocuktan tek seferde bir geri dönüş beklenmesi ya da eğitimin tek bir seferde koca bir yekün halinde tamamlanmaya çalışılması erdemli bir birey ve toplum inşa etme noktasında yanlış bir adım atmak olarak değerlendirilmelidir. Kullarına karşı kendilerinden daha merhamet sahibi olan Allah'ın[12], insanların değişiminde tedrici metodu tercih etmesi bunun aksine davranan eğiticilere karşı bir cevap mahiyetindedir.

Çocuğa verilen ahlak eğitiminde sabır göstermek suretiyle uygulanan tedricilik metoduyla çocuk zaman içinde gelişme gösterme imkanına sahip olacak ve bir süreç sonucunda yetişen sağlıklı bir ağaca benzer şekilde aldığı eğitim bakımından gelişip serpilecektir.

Tedriciliğin önemi bir başka hususta da karşımıza çıkmaktadır ki esas önem arz eden zannımızca bu husustur. O da kötü hasletlere sahip çocukların ahlak eğitiminde tedriciliğin bir metot olarak kullanılmasıdır. İçkinin haram olması meselesinde karşımıza çıktığı gibi bu durumda da çocuk ne tam başıboş bırakılmalı ne de üstüne çok gidilmelidir. Bu durumda olan bir çocukla karşılaşan eğitici konumundaki kimse bu metot yöntemiyle çocuğa yaklaşmalı ve kontrollü bir yöntemle onu kötü alışkanlıklarından alıkoymaya çalışmak suretiyle iyi ahlak sahibi bir birey olarak yetiştirmeye gayret etmelidir.

Eğitilen birey konumundaki çocuğun eğitimi esnasında her zaman istediği geri dönüşü alamayacağının farkında olmak suretiyle de eğitici konumundaki kimse kendi açısından tedriciliği tatbik etmiş olmaktadır. Zira eğitimin sonuç vermesini beklemek bir sabır işi ve en nihayetinde bir süreç işidir. Bu noktada eğitmen, verdiği ahlak eğitiminin sonucunda her zaman güzel bir sonuçla karşılaşmama ihtimali olduğunun farkında olmalı ve buna göğüs gerebilecek güçte olmalıdır. Zira eğitimin bir sonuç verip bireyde yer etmesi bir sürece bağlıdır. Eğitmen bu sürece katlanamayıp olumsuz bir geri dönüş aldığında pes ederse hem kendisi hem toplum hem de eğitilen çocuk açısından kötü sonuçlar doğurması kuvvetle muhtemeldir.

5. Ahlak Eğitiminin Somutlaştırılması

Örneklendirme yöntemi her ne kadar olması gereken bir yöntem olarak görülse de ahlak eğitiminde daha farklı bir önemi haizdir. Zira ahlak denen olgu çocukların algılamakta zorlanabileceği soyut bir kavramdır. O, çocuğun elle tutup hissedebileceği somut bir kavram değildir. Böyle bir ortamda çocukta iyi ahlak özelliklerinin yer edinebilmesi için örneklendirme metodunun kullanılması zaruridir. Örneklendirme suretiyle renklendirilen ahlak eğitimi bireyin iyi ahlak özelliklerini kendi karakterine katması anlamında etkili bir yardımcıdır.

Örneklerle anlatım neticesinde ahlak eğitiminin zihninde yer ettiği çocuğun eğitiminin kalıcı olmasının bir diğer aracı aldığı eğitimin devamlı surette tekrar edilmesidir. Zira bir şeyin kişide alışkanlık yapması ancak tekrarla mümkündür. Bu basit bir alışkanlıktan kompleks bir kavram olan ahlakın hayata tatbikine kadar her alanda geçerlidir. Öyleyse verilen eğitimin dönütünün sağlıklı olması için eğitmen eşliğinde hem lafzi hem de fiili anlamda tekrarlarda bulunmak gerekmektedir. Bu suretle de verilen ahlak eğitimi bireyin hayatında kalıcı olacak ve erdemli bir toplum inşa etme noktasında kendine önder olacaktır.

6. Çocuğu Ahlak Eğitimi Süresince Teşvik Etme

Çocuğa verilen ahlak eğitiminin etkili olması bağlamında değinilmesi gereken bir diğer husus da mükafat ve ceza meselesidir. Mükafat ve cezanın olduğu bir eğitim sürecinde disiplinden söz etmek mümkün olmak da bu da ahlaklı birey yetiştirme adına girişilen eğitim sürecinin ciddi bir şekilde işleyip başarılı olmasına zemin hazırlamaktadır. Karşımıza birer motivasyon aracı olarak düşünülmesinde bir sakınca olmayan bu iki metottan

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[11] el-Bakara 2/219, en-Nisa 4/43, el-Maide 5/90-91
[12] el-Enam 6/147

daha çok mükafat tercih edilmelidir. Zira verilen eğitim en nihayetinde bir ahlak eğitimidir ki korkudan çok teşvik etme yöntemiyle çocuk uyarılmalı yani motive edilmelidir.[13]

Yukarıda da bahsettiğimiz gibi bu mükafat ilk olarak sözlü bir şekilde yapılmalı ve çocuk başarısından dolayı bol bol övülmelidir. Bu basit bir iş de olsa çocuk üzerindeki etkisinin büyük olduğu muhakkaktır. Sözlü olarak övgüye mazhar olan çocuğun eğitimdeki başarısı devam ettiği takdirde onu sevdiği şeylerle mükafatlandırmak daha da iştah açıcı olacak ve çocuk eğitimine dört elle sarılacaktır.[14]

Çocuğun mükafat yoluyla teşvik edilmesinin bir diğer tarzı ise verilecek olan ödülün daha işin başındayken çocuğa bildirilmesi ve bu suretle eğitim sürecine ilgisinin aynı seviyede ya da eğitimde başarılı olabilmesine yetecek seviyede kalmasına imkan tanıyacaktır.

Ceza metoduna gelince bu, çocuğun aldığı ahlak eğitimi sürecinde uygulanacak olan bir yöntemden ziyade alınan eğitim bittikten sonra bireyin tekrar eski hale dönmesi durumunda uygulanan bir tutum olarak değerlendirilmelidir. Zira cezalandırma yöntemiyle verilen bir eğitim metodunun ne kadar başarılı olamama ihtimali mevcuttur.[15] O sebepledir ki cezalandırma yöntemi eğitim süreci bittikten sonra tekrar eski hale dönme durumunda uygulanmalıdır. Kaldı ki ceza kendinden ümit kesilen kimseye son bir çare olarak uygulanan bir metot olarak da görülebilir. Nitekim kendisine hiçbir şekilde tedriciliğin ya da mükafatın işlemediği kimseye son bir çare olarak ceza verilmesi ve böylelikle kendisinde görülen olumsuzluğun ortadan kaldırılması için mazur görülen bir yöntem olarak kabul edilebilir.[16]

Cezalandırma metodunda da mükafatta olduğu gibi birey fiilleri neticesinde cezalandırılacağını önceden bilmeli ve bu cezaya müsebbip fiilleri işlediği takdirde karşılığını hemen alacak olduğunun bilincinde olmalıdır. Aksi takdirde eğitici tarafından dahi ciddiye alınmayan cezalandırma metodu her ne kadar uygulansa da çocuk üzerinde etkili olmayacak ve bir anlam ifade etmeyecektir. Cezalandırma yönteminde eğer çocuğun ilgisi ahlak eğitimine karşı azalacaksa bu metottan uzak durulmalı bunun yerine o duruma uygun tutum takınılmalıdır. Nitekim burada maksat ahlak sahibi bir birey yetiştirmedir. İyi ahlak sahibi bireyin yetiştirilmesine bir bütün olarak baktığımızda herhangi bir önem arz etmeyecek derecede ufak meseleler için çocuğu cezalandırmak doğru olmayacaktır. Cezada dikkate haiz bir diğer unsur ise cezanın caydırıcı olması suretiyle aynı kötü fiili işlemeyi düşünen diğer çocuklar üzerinde etkili olup onları daha bu davranışta bulunmadan bu düşüncelerinden vazgeçirmesidir.

Cezalandırma metodunda ilk olarak yapılan davranışın uygunsuz olduğu vurgulanmalı ve çocuğun yaptığı fiilden dolayı pişman olması beklenmelidir. Bu tip davranış tarzları devam ettiği takdirde uygulanabilecek bir diğer metot ise çocuğu haklarından mahrum etme cezası uygulamaktır. Bu yöntemle çocuk elinden alınan hakların kendisine tekrar iade edilmesi için almış olduğu eğitime uymayan davranışlarından vazgeçme eğilimini pekala gösterebilir. Uygulanan cezalar fayda etmeyip de iş artık fiziksel cezaların uygulanmasına geldiği takdirde bilinmelidir ki bu tip cezaların eğitim sürecine bir katkısı olmamaktadır. Zira fiziksel cezalandırma sonucu çocuk aldığı eğitim sürecine ilgisini kaybedecek ve temel gaye olan ahlaklı bir birey yetiştirme işi hedefine ulaşamamış olacaktır.

7. Ahlak Eğitiminde Çocuğun Yaşıtlarıyla Olan İlişkisi

Çocuklara verilen eğitimin, onlar açısından sıkıcı hale gelmesini önlemek için aralarında bir husumete sebep olmadan ya da birini motive edip ötekini eğitim sürecinden kopartmadan rekabet ortamı oluşturulabilir ve çocuklarda eğitimin kendilerinin de zevk aldıkları bir yarış olduğu havasını uyandırır. Fakat burada dikkat edilmesi gereken nokta rekabet ortamının bir haset ortamına dönüşmesi ihtimalidir. Bu durumdan kurtulmak için eğitici nezaretinde verilen bu ahlak eğitiminde ortaya çıkabilecek haset durumlarının gıpta etmeye yönlendirilmesi

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[13] Gündüz, Yüksel; Balyer, Aydın, Eğitimde Ödül ile Cezanın Yeri ve Buna İlişkin Alternatif Yaklaşımlar, Çukurova Üniversitesi Eğitim Fakültesi Dergisi. (2011). Cilt:2 No. 40. s. 11
[14] Aydın, Ayhan, Sınıf Yönetimi, Anı Yayıncılık, Ankara. (2000). s. 162
[15] Çelik, Vehbi, Sınıf Yönetimi, Nobel Yayıncılık, Ankara. (2005). s. 180
[16] Heitzman, Andrew, Discipline and The Use of Punishment, Education, (2001). Vol. 104, No.1. s. 17

gerekmektedir. Bunu beceremeyeceğini düşünen eğitmen ise çocukları hiçbir şart altında rekabete sokmamalıdır. Zira hasedin oluştuğu bir ortamda iyi ahlaktan bahsetmek mümkün olmamaktadır.

Sonuç Yerine

Kuran-ı Kerim ışığında verilen ahlak eğitiminin sonucu olarak alınmak istenen bireyin iyi bir ahlaka sahip olmak suretiyle gerçek mutluluğu elde etmesi ve bu suretle de ideal toplumu inşa etme noktasında yetkin olmasıdır. Bunun için de bireye verilecek olan ahlak eğitimi daha küçük yaşta başlamalı ve birey daha çocukken bu ahlaki değerlerin kendi benliğine ve karakterine işlemesi gerekmektedir. Zira ideal bir toplum inşa etmenin yegane temeli bu toplumu inşa edecek insanların Allah'ın emrettiği doğrultuda bir yaşam sürmesiyle mümkündür. Nitekim Allah'ın emir ve yasaklarına uygun yaşayan birey iyi ahlak sahibi bir kimse olmakta ve böylece gerçek mutluluğu elde etmiş olmaktadır.

İdeal toplumu inşa etmek için daha çocuk yaşta Allah'a kul olma bilinci kendisine verilmek istenmesi suretiyle iyi ahlaklı bir birey olarak yetişen insanın almış olduğu eğitimin kalıcı ve başarılı olabilmesi için de Kuran-ı Kerim ışığında belli başlı kriterlere bağlı olarak devam eden bir eğitim sürecinden geçmesi gerekmektedir. Bu sayede insan kendisinden beklenen bir şekilde hem kendini hem de içinde yaşadığı toplumu inşa etme imkanını kendisinde bulacaktır.

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