CONTENTS

Book Review/s

Dear GLOKALde Readers,

First of all, greetings from Turkey and me that "Welcome to the second issue of the GLOKALde-2017, being as Volume: 3, Number: 2 April 2017 issue as an official online journal of the UDEEEWANA creation (for detailed info please. visit http://www.udeeewana.org) which is and covers new relationships between theoretical, technological and the practices of education in the countries in the tight boarder of the UDEEEWANA map, based on distance education and having a distance education learners population at more than eight million, it is one of the world-wide on distance education association

So, in this issue we are giving a place five papers, which are from Malaysia, Palestine, Turkey, Ukraine and USA with 10 authors. In addition, in this issue we gave a place one "Notes for Editor" letter and one "Book Review".

The GLOKALde will aim to establish a new channels of communication the for the distance education world in general, but for the regions and countries especially included in UDEEEWANA is suggested as the association for the region for Eastern Europe, Scandinavia, Baltic, Turkic, Caucasians, Middle East, Arab Peninsula and North Africa which are included the countries such as Afghanistan, Algeria, Azerbaijan, Belarus, Bulgaria, Cyprus, Egypt, Estonia, Finland, Greece, Georgia, Jordan, Hungary, Iceland Iraq, Iran, Israel, Kazakhstan, Kyrgyzstan, Latvia, Libya, Lithuania, Macedonia, Moldova, Morocco, Northern Cyprus Turkish Republic, Norway, Oman, Palestine, Poland, Romania, Russia, Saudi Arabia, Serbia, Slovakia, Slovenia, Sweden, Syria, Tajikistan, The Netherlands, Tunisia, Turkmenistan, Turkey, Ukraine, United Arab Emirates, Uzbekistan and so on.

I believe that we will be successful with all together for crowning GLOKALde too by display a good team work. I am sure that GLOKALde will keep its regular publishing with its highest academic quality authors, technical team well known editors in distance education field and experienced administration. I believe that the time is the wonderful and best moment to receive this responsibility with a new younger generation.

The 1st article is conducted by Dr. Gulsun KURUBACAK, from College of Open Education of Anadolu University, Eskisehir, Turkey and Pilot Caner ACARBAY Turkish Airlines, Istanbul, Turkey.

They mention in their paper that eLearning has many important components that can enhance students' situational awareness and, as a result of this, it has come to prominence as an approach that can replace traditional methods in theoretical pilot training.

Thanks to this method it is possible for learners to complete the longest stage of pilot training independent of time and place. Through eLearning that meets present day requirements, and that is supplemented by well-designed educational materials, it is possible to provide theoretical pilot training to the masses in a globally standardized way.

The main purpose of this study is to undertake a needs analysis for providing theoretical pilot training through eLearning and to determine possible opinions about the use of eLearning in these training programs. In accordance with this goal, an open-ended survey and individual interviews have been conducted with trainee pilots and instructor pilots to understand the target group's perspective on providing theoretical pilot training through eLearning. The study also makes an assessment of this new system from the perspective of the target group, and provides some recommendations for developing an eLearning program.

The 2nd article written on "THE CONFUSION BUTTON: A Formative Assessment to Identify Real-Time Student Misconceptions" written by Arnav CHOUDHURY and Jace HARGIS, from the University of California, San Diego, La Jolla, CA USA. This study explores a new approach to gathering real time student understanding of material being presented. A program has been created and currently being piloted, which allows students to indicate their "confusion" on a topic, as it is being taught by pressing the volume button on their mobile phone/device. In this way, instructors can stop discussing and address the confusion and/or proceed and after the class session view and address the problem, knowing precisely on what concept the confusion occurred.

3rd article has sent by Olena SOLOVIOVA whom she is from National University of Life and Environmental Sciences of Ukraine, Kiev, Ukraine. She wrote on "VOYAGE TO UKRANE'S DISTANCE EDUCATION: Distance Learning For Sustainable Development of All By 2030". She is mentioned that Ukraine is a post-Soviet country and got its independence in August 1991, in 1996 Constitution of Ukraine was adopted (Конституція України, 1996). Since that time all areas of Ukrainian economy have constantly been changing. Education has undergone rapid transformations as well. In 2016, a new Law "On Higher Education" was adopted. Among other principles of this law there is a principle of lifelong learning which enables Ukrainians to obtain higher education at all ages (earlier citizens were allowed to obtain higher education until they were 35 years old)

4th article is reached again Malaysia, titled as Impacting Learning Outcomes For Tourism And Hospitality Open Distance Learning (Odl) Programmes By Enhancing Students' Learning Ergonomics" which written by Hisham DZAKIRIA and Azilah KASIM, from Universiti Utara Malaysia, Sintok.

Their paper is intended to suggest improvement to learning ergonomics to reduce non completion rate among Malaysia students within the government's lifelong learning programmes particularly among tourism and hospitality professionals who are pursuing higher education and continuous professional development (CPD) training via open distance learning (ODL) programmes.

Learning ergonomics **relates to the design of the learning characteristics, processes and the environment which is intended to support, influence and impact on learning performance adaptability. Effective learning ergonomics offers improvements to the course design, meaningful learning experiences, student comfort and subsequently higher completion study rates. This chapter believes by understanding our learners (i.e their perspectives and narratives as learners, professionals and member of a given community) by means of profiling, learning ergonomics can be enhanced and improve the learning outcomes.**

The tourism and hospitality students' profile and narratives can help to improve the *institutional*, *physical* and *mindset ergonomics* in their respective vocational programmes. Their lives provide a narrative that could establish learner's voice on the respective learning experiences. This can result in possible improvements in course design, facilitation of meaningful and inviting learning experiences, student comfort and productivity. The accumulation of these attributes could reduce learning frustrations in tourism educational and promote a better structured learning experience and success and reduced attrition rates among the learners.

The fifth paper arrived from Ramallah, Palestine. Paper is titled as ""RM and RS": The First QOU MOOCs" which is written by. Randa Elsheik HNAJD, from Math Department, Al-Quds Open University, Palestine. She declared that recent proliferation of massive open online courses (MOOCs) demonstrates that technology continues to transform education in both the traditional and online settings. In May 2014, Queen Rania Foundation (QRF) for Education and Development of Jordan launched a non-profit massive open online course portal, in the Arabic language, called Edraak to promote knowledge in the Arab world. The course portal is hosted by EdX-platform. In 2016 Al-Quds Open University (QOU) introduced its first MOOCs called *Remedial Math (RM) and Remedial Statistics (RS)* through Edraak platform; the courses were designed in a simplified manner to provide learners with the fundamental math and statistical information.

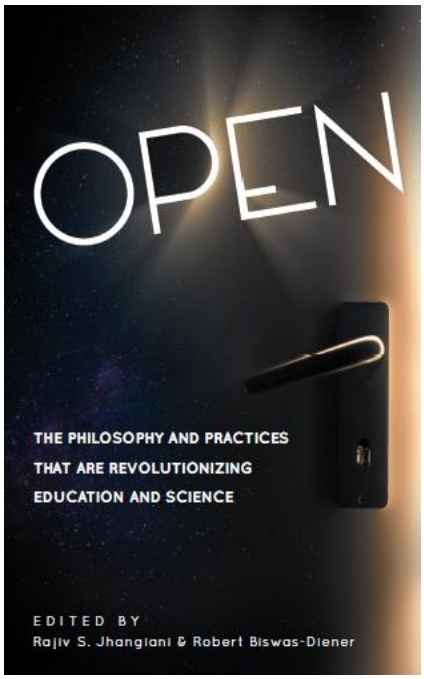
For almost 14 months, the courses teams had spent over 8000 working hours in designing and planning the MOOCs in a way to integrate technology and pedagogy. The courses were sent out on weekly basis where learners watched short-video lectures online and completed the assignments that were automatically graded. Learners were also able to get immediate feedback if questions arose. Over 18,000 nationwide learners, with a variety of qualifications such as PhDs, Mas, BS, middle school education, etc., enrolled in the course from 10 different Arab countries.

In this issue we published one book review from the literature. Book is titled as "OPEN: The Philosophy and Practices that are Revolutionizing Education and Science, Edited by Rajiv S. Jhangiani and Robert Biswas-Diener anmd published 2017, http://www.ubiquitypress.com Educational inequalities are as much a reality in affluent and industrialized societies as they are in developing economies.

In countries as diverse as New Zealand, Canada, and the United Kingdom, the histories of colonization and immigration have been associated with disparities in access to high quality education. Kozol (1992) points to racial segregation as a primary source of what he calls 'savage inequalities.'

He traces systematic differences in per pupil expenditure, funding structure, and facilities between affluent and poor minority school districts in the United States. This trend endures in the United States to the present: high schoolers taking advanced placement or international baccalaureate courses consistently outperform their less advanced counterparts on various measures of academic achievement and poor students are underrepresented among the educational elect.5

In just the first decade of this century, 2.4 million American students either did not attend, or could not complete, college because of the cost barrier.



The open education movement offers one possible, partial remedy to educational inequality. The most obvious benefit of open education is in its low cost. The word 'open,' in this sense, means 'allowing access to' although it is also often equated with 'free of cost.' In fact, most open education resources are freely available and even in cases where they are low cost, they still help to drive the market toward a lower price point. By removing or substantially reducing the expense normally associated with software, textbooks, and course fees, education becomes more accessible to more people. The open education movement can also help raise the quality of education for all students because instructors are better able to share and build on one another's pedagogical innovations. It is here, in the second sense of 'open,' meaning customizable by and shareable among instructors, that we have the potential to design more engaging, locally relevant, interactive, and effective teaching resources.

Cordially,
Hope to stay happy.

Happy 2017 for all you... and hope to meet 1st Jult 2017.
Cordially,

Ugur DEMIRAY, professor.
Editor-in-Chief of the GLOKALde
Email(s): udemiray33@gmail.com glokalde.editor@gmail.com
URL: http://www.glokalde.com

ANNOUNCEMENT OF UDEEEWANA LAUNCHING

Dear Distance Educators,

UDEEEWANA as a new distance education association is Launched.
A brief info is here dealt with UDEEEWANA.

UDEEEWANA -United Distance Education For Eastern Europe, Western Asia, Northern Africa- is suggested as a new association for the region Eastern Europe, Scandinavia, Baltic, Turkic Republics, Caucasians, Middle East, Arab Peninsula and North Africa which are included the countries such as Afghanistan, Algeria, Azerbaijan, Belarus, Bulgaria, Cyprus, Egypt, Estonia, Finland, Greece, Georgia, Jordan, Hungary, Iraq, Iran, Israel, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Macedonia, Moldova, Morocco, Northern Cyprus Turkish Republic, Norway, Oman, Palestine, Poland, Romania, Russia, Saudi Arabia, Serbia, Slovakia, Slovenia, Sweden, Syria, Tatarstan, Tajikistan, Tunisia, Turkmenistan, Turkey, Ukraine, United Arab Emirates, Uzbekistan and so on.

A Map of the UDEEEWANA Regions Countries

WHY UDEEEEWANA IS NEEDED?

It is mentioned in the book which is titled as "eLearning Practice.... 2010, that eLearning offers many opportunities for individuals and institutions all over the discussion technologies such as mLearning, tLearning and uLearning. Multimedia on the internet, telecommunications, wireless applications, mobile devices, social network software, Web 2.0, Web 4.0 etc are radically redefining the way people obtain information and the way to learn.Policymakers, international organizations, higher education institutions and researchers in the field of education agree that Information and Communication Technologies (ICT) have the potential to stimulate international collaboration, to create flexible learning paths and to open the borders of the university.

Western and Eastern Asian nations are increasingly embracing eLearning in education and training, both within their classrooms and in distance education. E-transformation has been much slower in the education systems of the Eastern Europe, Nordic, Turkic Republics, Middle East, Arab and North African countries.

It is, therefore, considered timely to conduct an inquiry into the ways and extent of eLearning in these countries, the factors driving and constraining such developments, and how progress might be further encouraged. Searching the literature, it is possible to find reports, accounts, research findings and conference presentations on eLearning in these countries but many of these are in languages other than English.

English language developed in collaboration with colleagues in these various countries and so will be a first and of international significance. Many of the institutions in the countries to be reviewed also make extensive use of traditional teaching and methods and media, so it will not consider for these countries only eLearning and mobile or mLearning in isolation but in blended or mixed-mode learning, both in classroom environments and in distance education.

This project is mentioning the distance education practices in Turkey, and will examine and discuss the role of leadership which should be undertaken by Turkey patronage in the region of Eastern Europe, the Middle East, and North Africa regions countries. It is a well-known fact that the international distance education organizations in the world are not well organized and functional in this area or for the regional distance education institutions. And De institutions are not organized up to now in the region of Eastern Europe, the Middle East, and North Africa regions countries. To fill this gap, it will be argued that Turkey might have a leadership role in the distance education field in the region and can organize the practices of the regional countries in academy and practice. Based on this argument, the structure of the potential organization and the regulation of the organization will be discussed.

And also, the draft of the constitution of the recommended association will be presented, which will be regulated and redesigned in accordance with the others. Thanks to this council, nearly more than 50 countries will have the chance to introduce their distance education practices to the world.

Expected these countries can use UDEEEWANA to discuss practical and scientific issues via conferences or journals, and they can even establish sub-distance education associations in their region or in their countries. Some of these countries are Afghanistan, Algeria, Azerbaijan, Belarus, Bulgaria, Egypt, Estonia, Finland, Greece, Georgia, Jordan, Hungary, Iceland, Iraq, Iran, Israel, Kazakhstan, Kyrgyzstan, Latvia, Libya, Lithuania, Macedonia, Moldova, Morocco, Norway, Oman, Palestine, Poland, Romania, Russia, Saudi Arabia, Serbia, Slovakia, Slovenia, Sweden, Syria, Tajikistan, the Netherlands, Tunisia, Turkmenistan, Turkey, Ukraine, United Arab Emirates, Uzbekistan and so on.

Please share with me your valuable thoughts at any level. Since UDEEEWANA will crown with your support and valuable participants.

Prof. Dr. Ugur DEMIRAY,
Founder President of UDEEEWANA

Ugur DEMIRAY is professor of Communication Teaching in the School of Communication Sciences of Anadolu University, Eskisehir, Turkey. He holds Undergraduate B.A. in 1981. And also Ph.D. degree completed at Anadolu University, in May 1986. His researches are dealt with distance education application of Anadolu University, Ministry of Education and by other universities in Turkey. His researches on communicational gaps of distance education students with their institution, also interest also lies towards the profile of distance education students, and relationship of graduates and job market in Turkey. He is also interested about changing of ethical behaviors around the world by inserting technological developments to the educational field especially distance education applications on marketing of distance education programmes and eLearning. In addition, his studies are focused on distance education field and scholarly online journalism especially on DE. He has an extensive experience publishing e-journal on distance education internationally under the patronage Anadolu University since 15 years, named, TOJDE-Turkish Online Journal for Distance Education. TOJDE is a peer-reviewed quarterly e-journal. He is also an editor, consultant editor, reviewer for more than 15 international journals which are deal with distance education and educational technology.In addition, he has responsibilities on advisory boards and as referee for conferences, symposiums, and panels. He has co-authored and individually contributed chapters in some Turkish and international books. Up to now he has around 15 imprint or eBooks dealt with distance education and many articles, which has been published national and international journals. He is now Editor-in-Chief of GLOKALde which is an official eJournal of UDEEEWANA creation.

Prof. Dr. Ugur DEMIRAY
Anadolu University Yunusemre Campus 26470-Eskisehir TURKEY
Office Phone: +90 (222) 335 05 80 Ofiice Fax: +90 222 320 4520
Mobile 1: +90 (542) 232 21 67 or Mobile 2: + 90 (533) 405 52 00
Skype: udemiray33@outlook.com
Emails: info@udeeewana.org udeeewana@gmail.com
udemiray@anadolu.edu.tr or udemiray33@gmail.com
URL1: http://www.ugurdemiray.com or URL2: http://www.midasebook.com

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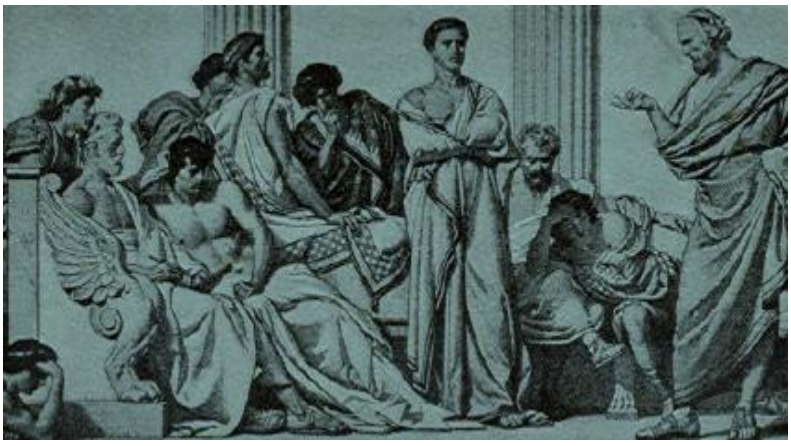
LOOKING FORWARD LEARNING GLASS:
A Return to Facing Students While Teaching

Jace HARGIS, Ph.D.
University of California,
San Diego, La Jolla, CA USA

BACKGROUND

Education often parallels life, and life is made of cycles. The cycles of education are far too numerous and fluid to count, although there are a few major trends, which we can observe. Early in the history of education, a teacher faced toward the student, speaking as the student faced the teacher and listened, made sense, and attempted to apply the information which was being shared.



The most notable person who taught in this way was Socrates of which a popular modern day strategy of teaching arose, the Inquiry-Based method. In the next major phase, the teacher continued to speak and now the student wrote notes on what was said, thereby facing forward, yet their line of sight would fluctuate between the teacher and their writings. Next, the teacher turned their back to the student to write information in a way that the student could view and perhaps copy the teacher's notes.

This paradigm created a dynamic, where students would not have to spend time looking at the teacher's back, the teacher's written notes, and what the student was writing.

As you might imagine, each iteration of these phases required students to acquire additional skills of organization, note-taking, and perhaps even critical analysis of which information is sufficiently important to duplicate on their notes, and ideally an enhanced level of metacognition and self-regulated learning to reconsider what they were thinking and how well they were processing the information.

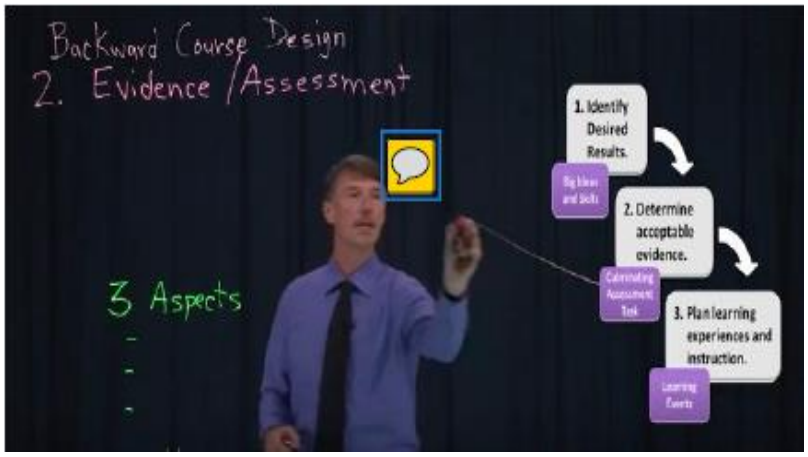
The next step added educational technology into the equation, albeit differentially as faculty select to integrate in widely diverse ways and levels (much like the art and science of teaching itself, perhaps).

As with many new approaches, the technology used in the beginning was difficult to implement and navigate.

However, today, there are many low threshold applications, which can empower both teacher and student to access information, simulate authentic scenario's and gauge student abilities through formative assessments, which can provide real-time data for better decision-making.

One educational technology, in particular has allowed faculty to return to an earlier step in the student/teacher interaction, where the teacher faces forward and the student can see their face and natural gesturing as they move, speak and write notes using a Learning Glass.

WHAT IS A LEARNING GLASS?



A relatively recent invention coupling physics and technology has created the ability to capture a video, where the teacher can face forward, write and speak normally as their image and writings create a unique electronic learning object. Perhaps the best way to clearly understand a learning glass video is to view a Learning Glass Example. From the San Diego State University (SDSU) website (SDSU Instructional Technology Services, 2015), the "Learning Glass was designed by Dr. Matt Anderson and built by Dr. James Frazee's group at Instructional Technology Services, SDSU. The presentation system uses LED side lighting on low-iron shower glass to create a see-through white board. In addition, the Frosted Glass attachment allows the ability to include slides, which may also be annotated on the Learning Glass system".

WHY USE A LEARNING GLASS?

Several universities are beginning to develop this technology and offer as a service to their faculty members, including San Diego State, Houston Community Colleges the University of Alaska, Fairbanks, California State University, San Marcos, Lehigh University and the University of California (UC) system.

The UC System has created a website, which shares how faculties are using the Learning Glass to enhance student engagement.

University of Wisconsin-Stout faculty have created 5-8 minute learning glass videos on their lectures and have seen benefits of being ability to make the lectures more interactive and open source, as well as show to prospective students (Leader Telegram, 2016). Dr. Matt Anderson, the inventor of the Learning Glass has gathered data comparing the efficacy of the Learning Glass vs. a document camera, which result in more engaged students with Learning Glass and better learning outcomes (Anderson, 2016). Perhaps one of the major reasons cited for using the learning glass is similar to using most any educational technology, which is to increase student engagement. There have been numerous studies, which correlate student engagement to many positive learning attributes, more recently, there are studies which indicate integrating appropriate educational technology can increase student engagement (Hargis, Cavanaugh, Kamali, & Soto, 2014; Hargis, Cavanaugh, Kamali, & Soto, 2013 Mayberry, Hargis, Meler, Boles, Dugas, O'Neill, & Rivera, 2012; Soto & Hargis, 2014; Davidson, & Hargis 2016; Hargis, & Soto, 2013).

From the research above, the key attributes that have been found to increase student engagement is:

- ✓ **The ability to connect with students, especially in a more humanistic way;**
- ✓ **To empower students to take more control of their own learning, especially when**
- ✓ **and where they are best able to sustain focus and attention;**
- ✓ **To create frequent interaction between the student and the content; instructor;**
- ✓ **and other students; and**
- ✓ **To provide as near of authentic experiences, that parallel the type of behaviors,**
- ✓ **which will be needed in their careers.**

In summary, since this technology is still relatively new, there are many remaining questions on its effectiveness for teaching and learning, which faculty are currently researching.

BIODATA and CONTACT ADDRESS of the AUTHOR

Dr. Jace HARGIS currently is the Director of the Center for Teaching & Learning at the University of California, San Diego. His prior positions include a College Director in Abu Dhabi, UAE; an Assoc. Provost of Faculty Development, Assessment and Research and Professor in Honolulu & Assis. Provost of Faculty Development and Assoc. Professor in northern California; and a Director of Faculty Development and Assis. Professor in Florida. He has authored a textbook and published over 100 academic articles as well as offered hundreds of presentations.

He has earned a B.S. in Oceanography from Florida Institute of Technology; an M.S. in Environmental Engineering Sciences and a Ph.D. in Science Education from the University of Florida. Dr. Hargis' research agenda focuses on how people learn while integrating appropriate, relevant and meaningful technologies.

Jace HARGIS, PhD
Director, Center for Teaching and Learning
University of California, San Diego, La Jolla, CA 92092
Email: jace.hargis@gmail.com

REFERENCES

Anderson, M. (2016). Research revealed: Better student outcomes with the Learning Glass project. Retrieved from on November 6, 2016. http://bbworld.com/session/research-revealed-better-student-outcomes-with-the-learning-glass-project

Davidson, J. & Hargis (2016). Serendipitous faculty development through Infographic active learning exploration, *International Journal on New Trends in Education*, 7(2).

Hargis, J., Cavanaugh, C., Kamali, T. & Soto, M. (2014). A federal higher education iPad mobile learning initiative: Triangulation of data to determine early effectiveness. *Innovative Higher Education*, 39(1), 45-58.

Hargis, J., Cavanaugh, C., Kamali, T., & Soto, M. (2013). Measuring the difficult to measure: iPad mobile learning*. International Journal of Mobile and Blended Learning*, 5(2), 60-77.

Hargis, J. & Soto, M. (2013). Effective large-scale integration of the iPad mobile learning device into first year programs*. Journal of Science Education*, 14(1), 45-49.

Leader Telegram. (2016). *Learning Glass helps professors connect with online students*. Retrieved from on November 1, 2016. http://ecweb.libercus.net/News/Front-Page/2016/04/11/Visibleimprovement(copy).html

Mayberry, J., Hargis, J., Meler, M., Boles, L., Dugas, A., O'Neill, D. & Rivera, A. (2012).New faculty explore teaching and learning in higher education using an iTouch. *Journal of Active Learning in Higher Education*, 13(3), 203-217.

San Diego State University Instructional Technology Services. (2015). Learning Glass information specifications assembly manual. Retrieved from on October 22, 2016.https://its.sdsu.edu/docs/Learning_Glass_Specifications.pdf

Soto, M. & Hargis, J. (2014). Students Explain Everything using iPads. ISTE *Learning and Leading with Technology*, 41 (7), 32-33.

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THE OPINIONS OF TRAINEE PILOTS AND INSTRUCTOR PILOTS TOWARD eLearning: A Needs Analysis for In-Service Training Programs

Dr. Gulsun KURUBACAK
College of Open Education of
Anadolu University, Eskisehir, TURKEY

Pilot Caner ACARBAY
Turkish Airlines, Istanbul, TURKEY

ABSTRACT

eLearning has many important components that can enhance students' situational awareness and, as a result of this, it has come to prominence as an approach that can replace traditional methods in theoretical pilot training. Thanks to this method it is possible for learners to complete the longest stage of pilot training independent of time and place. Through eLearning that meets present day requirements, and that is supplemented by well-designed educational materials, it is possible to provide theoretical pilot training to the masses in a globally standardized way. The main purpose of this study is to undertake a needs analysis for providing theoretical pilot training through eLearning and to determine possible opinions about the use of eLearning in these training programs. In accordance with this goal, an open-ended survey and individual interviews have been conducted with trainee pilots and instructor pilots to understand the target group's perspective on providing theoretical pilot training through eLearning.

The study also makes an assessment of this new system from the perspective of the target group, and provides some recommendations for developing an eLearning program.

Keywords: **eLearning, aviation, pilot training, need analysis, opinions, trainee and instructor pilots.**

INTRODUCTION

In the twenty-first century, air travel is the preferred method of long-distance transportation across the world. With ever-increasing numbers of passengers, the number of required airplanes and personnel has been increasing as well.

The most significant source of increase in personnel numbers comes from pilots. Pilot training is a long and labor-intensive process. On average, a pilot training program takes 18 months, 6 months of which is dedicated to theoretical training and the remaining 12 months of which are used for flight practice training.

Aviation is by nature a dynamic environment, both from the perspective of flight hours and team planning. During the pilot training process, the planning of practice flights, which are performed as part of practice applications, is also performed dynamically. The advantage of this dynamic approach is that working students can be provided with flexible practice flight times.

In this way, students can arrange their flights according to a certain program. Conversely, the same does not hold true for theoretical training. Theoretical training is held in a face-to-face environment in classrooms, with the presence of a teacher and other students. Theoretical training groups take place at a pre-determined time, and include people from different fields and different professions; as a result of this, some candidate pilots find them unable to carry on with their own profession and are eventually forced to resign from their jobs. Because of this, fewer people may apply to these training programs, resulting in a failure to meet the required minimum number of applications. The continuation of this vicious cycle may serve as a hindrance for those people who want to be pilots. By designing a training program that can be provided to students without being dependent on time and place, it is possible to take a step towards a solution for these problems. In this way, working students can be freed from the obligation of being present in a classroom at a certain time, and the provision of training can be increased.

ELearning allows learners to carry on with their education without being bound by time and place. Another advantage of this approach is that compared to classroom education its costs are much lower (Acarbay, 2016). Removing boundaries and decreasing costs are two factors that can facilitate the participation of more people in theoretical pilot training. In this study, the authors investigate possible opinions concerning the provision of theoretical pilot training via eLearning. The authors also analyze applications in the system, and attempt to recommend solutions for issues that people are doubtful about.

The Purpose of the Study

The main purpose of this study is to outline a needs analysis for eLearning that can be applied to trainee and instructor pilots in a theoretical pilot training setting. In line with this goal, and in accordance with feedback received from respondents, the authors aim to facilitate greater awareness regarding learning activities in theoretical pilot training that can be provided via different environments, such as eLearning.

On the other hand, this study is also to focus on trainee and instructor pilots' opinions about the provision of theoretical pilot training via eLearning, and to determine any reservations they may have about the matter.

The Background of the Study

Since the early 2000s, eLearning has begun to be used in academic education in the field of aviation. As Herron, Holsombach-Ebner, Shomate and Szathmary (2012) mention in their study, Embry-Riddle Aeronautical University provides eLearning in sub-fields of aviation. In the same study the researchers also point out that Embry-Riddle Aeronautical University benefits from web, mobile and cloud technologies in eLearning in the field of aviation.

They explain that, thanks to eLearning, there are many people who are married, and who have children, in the student profile of the university, as well as people from different occupation groups, including both civilians and the military. ELearning in aviation has in this way reached many more people than previously had access to aviation training.

Kearns (2013) studied the educational design strategies of mobile learning in the field of aviation. Kearns's study explains that aviation training can be provided in small time slots distributed across multiple sessions. Thus, thanks to mobile learning, the probability of students being affected by external commitments will be diminished and the quality of education can be increased.

Chuang, Chang, Wang, Chung and Chen (2008) looked at the training provided to TransAsia pilots in many different chapters and analyzed the effect of providing this training electronically. 2,660 trainees attended 143 courses that were provided via e-learning. According to the data obtained by the study, pilots were satisfied with the education provided in the electronic environment.

In addition, the company was able to increase its monetary gains as a result of electronic learning and contribute to the enhancement of aviation safety through the continuous education it provided. In another study, Raisinghani, Chowdhury, Colquitt, Reyes, Bonakdar, Ray and Robles (2005) mention that pilots who were in the target group had confidence in the eLearning method, which was carried out with educational materials that were equipped with audio-visual and interactive elements.

On the other hand, there can be a severe lack of effective communication between the flight crews (Demiray and Misnevs, 2016). The power distance in the cockpit needs to be understood and recognized by not only the flight crew but also management. Where multi-cultural crews are concerned, efforts need to be made to reduce the power gradient through eLearning.

With regards to studies conducted in the field in question, it is observed that schools which provide aviation education benefited from eLearning to different degrees in the mid-2010s. When one looks at the websites of schools that provide pilot training, for example, it is seen that 50% to 90% of theoretical courses are provided via eLearning. Courses that require usage of tools and operational equipment are provided face-to-face. Likewise, it is observed that in Turkish flight schools, too, there are perceptions that practical courses cannot be provided via eLearning. This study, therefore, has significance as it records the opinions of trainees and instructors with regards to how eLearning can be utilized in aviation.

METHOD

Research Model

The main goal of this study is to undertake a needs analysis for providing theoretical education through eLearning at flight schools that provide theoretical Airline Transport Pilot's License (ATPL) education.

In addition, since the authors aim to determine the thoughts and reservations of trainee and instructor pilots about the provision of theoretical courses through eLearning, the study has been designed as a qualitative case study.

Qualitative case research is built around the researcher's role and involves the processes of data collection, data analysis and data interpretation as well as involves seeking answers to a question from the viewpoints of different triangulations (Patton, 2001).

In this process, researchers establish their own concepts in this study. Within the scope of the above discussions, the reasons why this study has been designed as a qualitative case study are as follows:

- ✓ **Throughout the study, eLearning in theoretical pilot training was rigorously explored.**
- ✓ **The opinions of trainee and instructor pilots concerning the use of the eLearning method in theoretical pilot training were explored.**
- ✓ **The two items above were tackled by asking "How?" and "Why?"**
- ✓ **Trainee and instructor pilots' opinions about the use of eLearning in theoretical pilot training have not previously been made explicit.**

Research Field and Participants

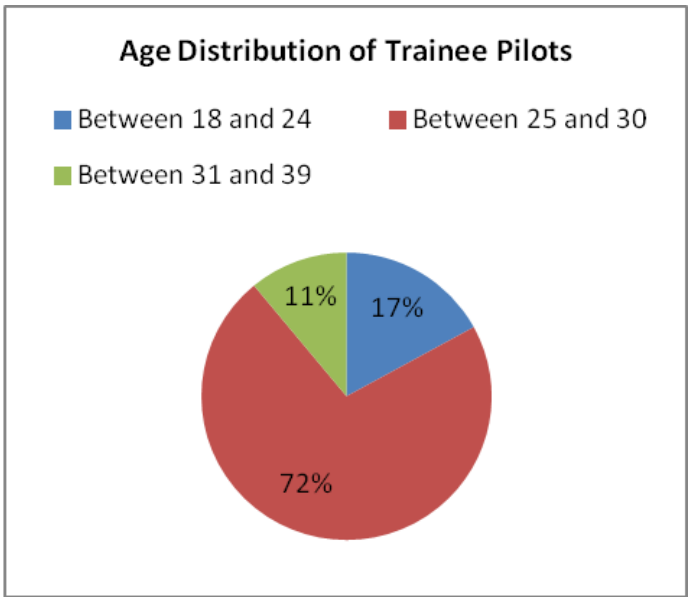
This research encompasses trainee pilots receiving pilot training at different institutions as well as instructor pilots working at these institutions. The trainees have been selected on a volunteer basis from two different flight schools and from among those who had completed their theoretical training. Ten trainees from the first flight school and eight from the second flight school, a total of 18 trainees, participated in the study. The reasons why trainees who had already completed their theoretical training were included are as follows:

- ✓ **They are knowledgeable about theoretical ATPL training.**
- ✓ **They can analyze the positive and negative aspects of the theoretical training environment.**
- ✓ **They are in a position to be able to provide recommendations for improving the theoretical ATPL training process.**
- ✓ **They have an idea about the strengths and weaknesses of face-to-face training that can be received via eLearning.**

The eight instructor pilots who took part in the study have been teaching at one of Turkey's long-established pilot training institutions, where pilot training has been carried out for the past 29 years.

All of the instructor pilots have 10 or more years' experience, having over 5,000-flight-hours experience.

The participating instructor pilots also took part in the study on a volunteer basis. Figure 1 shows the age distribution of participating trainee and instructor pilots. 72% of participating trainee pilots is in the age group 25-30, whereas all of the instructor pilots are 40 and over.



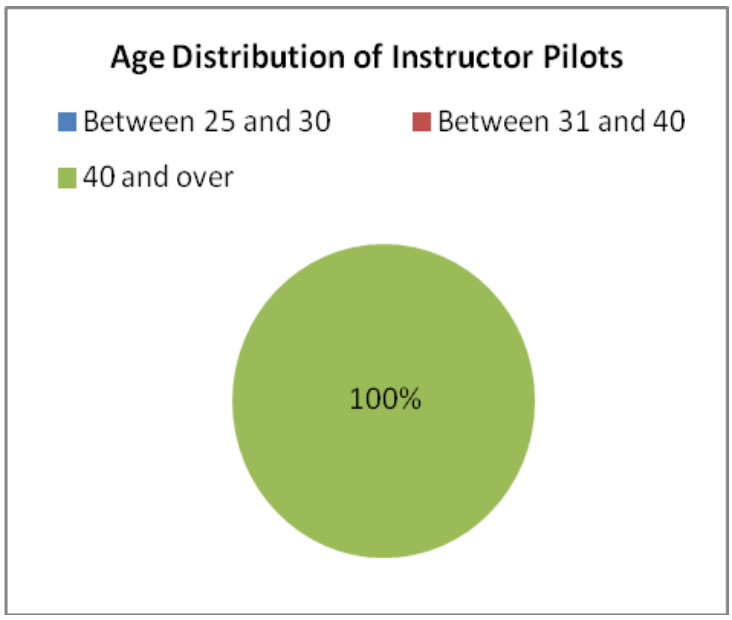
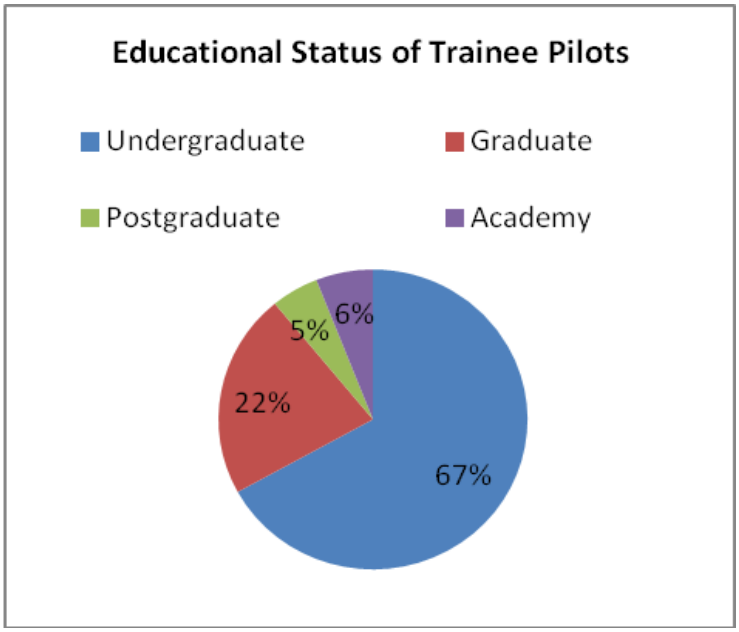


Figure 1.
Age Distribution of the Target Group

Figure 2 presents the educational status of participating trainee and instructor pilots.

,67% of trainee pilots have undergraduate degrees, while 56% of instructor pilots have a master's degree.



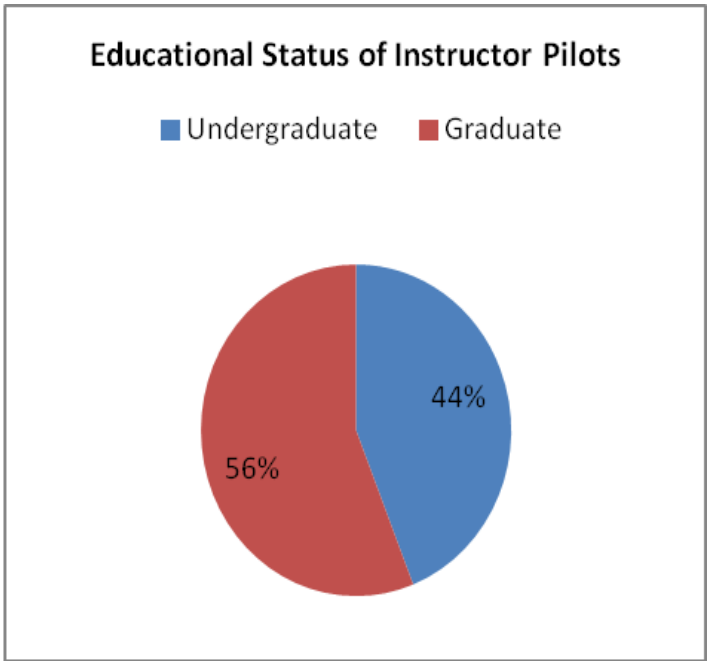
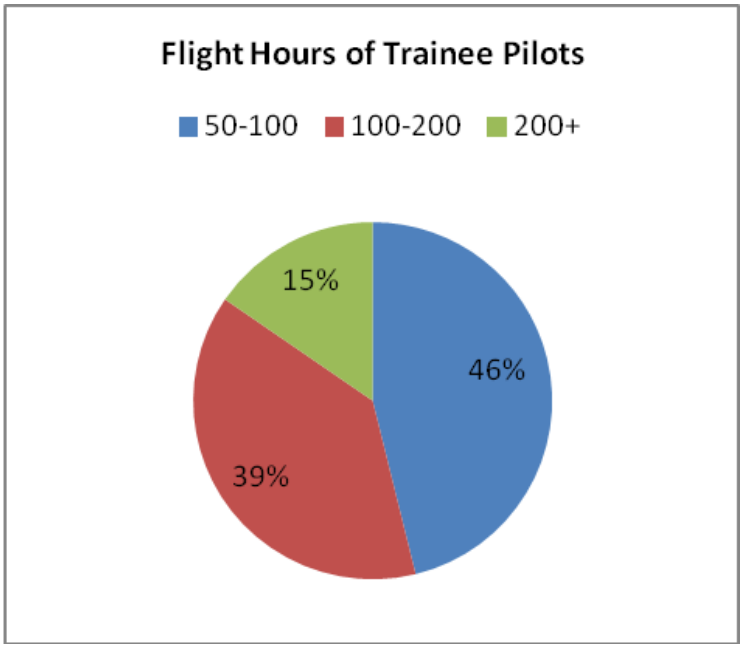


Figure 2.
Educational Attainment of the Target Group

Figure 3 presents the flight hours of participating trainee and instructor pilots. While 46% of trainee pilots have 50-100 hours' flight experience, all of the instructor pilots have more than 5,000 hours' flight experience.



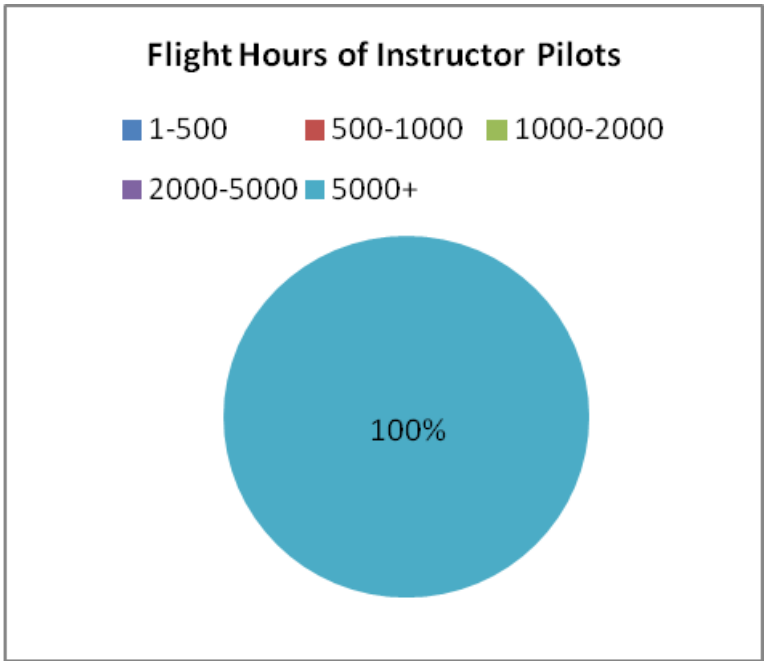


Figure 3.
Flight Hours of the Target Group

Figure 4 shows the distribution of the schools from which participating trainee and instructor pilots most recently graduated. 44% of trainee pilots and 67% of instructor pilots graduated from university engineering departments.

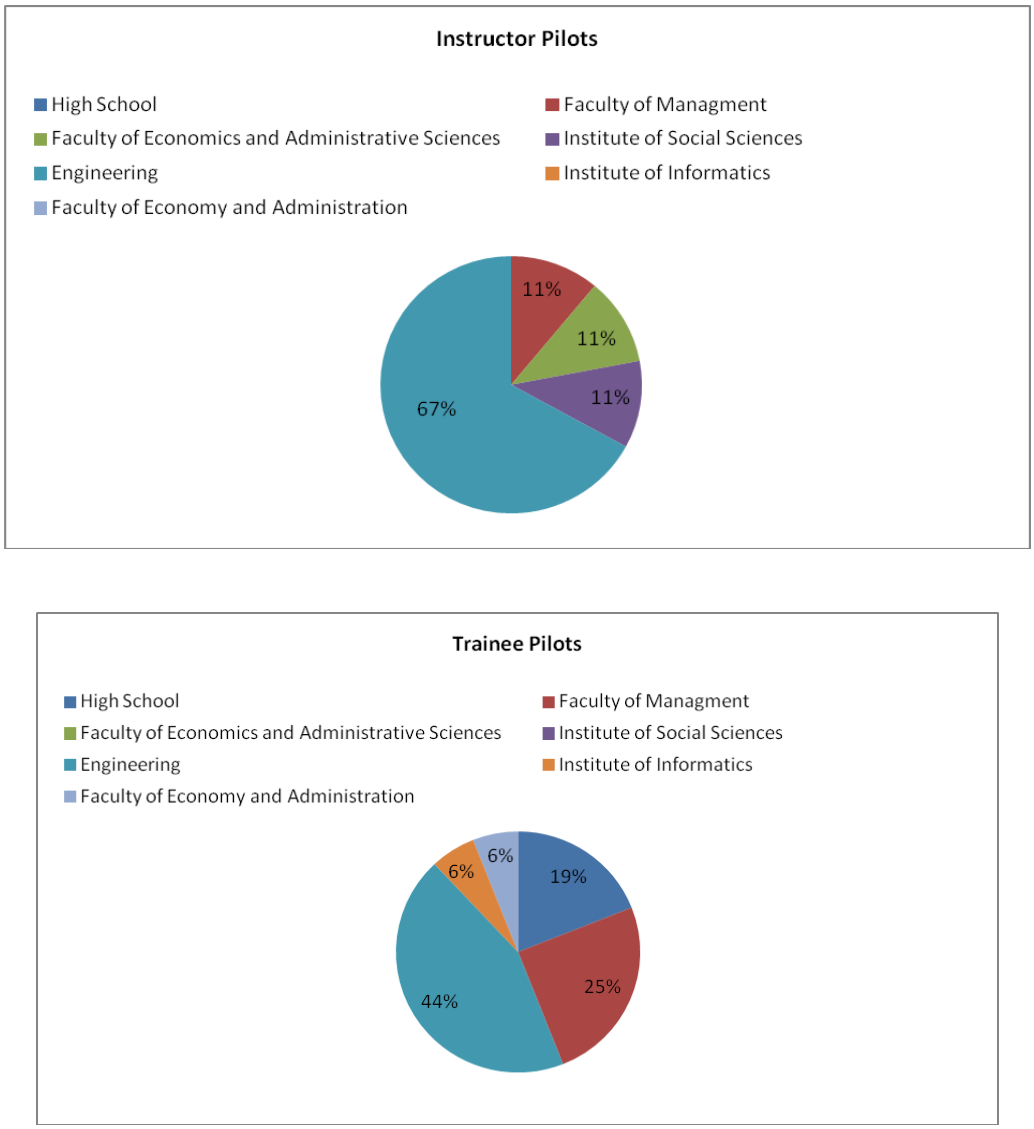


Figure 4.
Schools from Which Members of the Target Group Most Recently Graduated

Data Collection Instrument and Data Analysis

The study employed two different qualitative data collection instruments. The first of these instruments is the semi-structured and open-ended survey questions that were presented to the study's target group.

Open-ended survey questions were prepared using Google Forms and cloud technology. In the dissemination of the survey to the target group we utilized Google Drive cloud technology. While preparing the survey questions, we analyzed the previously-outlined studies in the literature.

As a result of this literature review, the analyses we conducted and a scope analysis, we prepared open-ended questions for the survey.

Trainee and instructor pilots were asked what they think about the provision of eLearning versus face-to-face training in theoretical pilot training.

In addition, survey participants were also asked how the training should be structured if it involved eLearning or face-to-face training.

In the second stage of the study, individual one-on-one interviews were conducted with the trainee pilots (4 people) and instructor pilots (3 people) who had positive or negative opinions about the subject matter of the study.

Survey and interview participants took part in these activities on a volunteer basis.

Throughout the study, the identities of participants were kept confidential and data was not shared with anybody other than the researcher.

The responses given in the survey and the individual interviews were analyzed by the researchers and their main themes were identified.

Credibility of the Study

One of the research criteria used in analyzing the use of the eLearning method in theoretical pilot training is that the data obtained in the study, and the analysis and results of this data, should be credible and reliable.

According to Creswell (2013), in order to achieve credibility in qualitative research, long term interaction, in-depth data collection, triangulation, expert analysis and participant approvals are required.

In order to attain credibility in this study, therefore, the following procedure was undertaken:

- ✓ **The survey and interview questions that were prepared in line with the needs analysis will be clearly stated, and the study will include appropriate stages of data collection, analysis, interpretation and conclusion.**
- ✓ **The scope of the methods and processes that the researchers followed throughout the study will be defined in a clear and detailed way.**
- ✓ **The validity of the study will be ensured with survey and interview questions having been prepared within the scope of research on the usability of eLearning in theoretical pilot training. Likewise, method triangulation, source triangulation, analytical triangulation and theoretical triangulation will help enhance the credibility of the study.**
- ✓ **In preparation of the survey and interview questions and during the pilot interview, an academic who is an expert in the field of qualitative research will accompany the researchers, and the interviews will be monitored and controlled.**

- ✓ **In order to prevent data loss in individual interviews, a voice recording device will be used. Without including any statements that may disclose the identity of the person being interviewed, all the data will be transferred to a computer and analyzed in detail.**
- ✓ **To ensure information security, security-related preventive measures will be taken for the interview records that are transferred to a digital environment.**

Strengths and Weaknesses of the Study

This study, which aims to outline a needs analysis for use of the eLearning method in theoretical pilot training, has been designed as a qualitative case study.

Guided by the literature review, survey questions were prepared and interviews were conducted with the people who were chosen by a purposeful sampling method.

In this way we aimed to systematically benefit from different data collection methods, in order to validate the data and increase the triangulation.

Each stage of the study was checked by experts in the field of qualitative research and continuous feedback was received.

One of the two researchers who carried out this study is a graduate of an aviation department, while the other is an expert in qualitative research.

Having researchers from different disciplines allowed the study to look at the same phenomenon from different angles, and simplified the process of making the required analysis.

In addition, since the data collected was transferable, this study can be used to shed light on subsequent studies.

These points constitute the strengths of the study. The data collected by this study reflects the opinions of trainee pilots who receive education at certain flight schools and instructor pilots who teach at these institutions.

It was observed that participants in the study mostly used the "responding at first sight" technique. In addition, the data collected does not allow for generalizations. These points constitute the weaknesses of the study.

FINDINGS AND DISCUSSIONS

The main goal of this study is to gather the opinions of trainee pilots and instructor pilots about providing theoretical ATPL training through eLearning. To this end, trainees and instructors were asked to respond to four open-ended questions.

Their responses to the questions were as follows Table 1.:

Table 1.
Trainee Pilots' Opinions about the 1st Question

Age	Education	Opinions
18-24	Undergraduate	1. The most effective educational environment is the classroom environment. 2. Problems can be overcome in a classroom environment.
25-30	Undergraduate, Master, PhD	1. With the condition of preserving the quality of education, eLearning can be applied. 2. Points that are unclear or things that are not understood will remain as question marks, and that eLearning will give way to an education system based on rote learning. 3. Students' educational background is the determining factor. ELearning can be applied for students with an engineering background. 4. With the condition that practice-oriented courses are provided in a classroom environment, other courses can be taught via eLearning. 5. ELearning can be an applicable system if it is supplemented with educational materials. 6. ELearning is a useful system for students and instructors if there are questions and answers at the end of chapters. 7. ELearning can be useful from the perspective of time and efficiency. 8. ELearning can save time and money, however, understanding the subject matter will be more difficult than in a classroom environment.
31-39	Undergraduate, Master	1. ELearning cannot be applied in all courses. On the other hand, application /practical courses should be provided in a classroom environment. 2. The theoretical pilot training system itself has some problems, so that eLearning can be a good educational system for saving time.

The first question of the survey is about what trainee pilots think about providing theoretical ATPL training via eLearning. The opinions of trainee pilot who responded to this question are summarized in Table 1.

When the students who responded to the survey were analyzed, we observed the following:

- ✓ **Students in the 18-24 age group think that theoretical pilot training should be given in a classroom environment.**
- ✓ **Survey participants in the 25-30 age group have more positive opinions about eLearning than other age groups. Another opinion held by this age group is that practical training cannot be performed via eLearning. In addition, this group thinks that for eLearning in theoretical pilot training, supplementary materials should be developed.**

- ✓ **Students in the 31-39 age group have some reservations about providing theoretical pilot training via eLearning. They mentioned that applications and practices would be better if they were held in classroom environment and that eLearning environments should be equipped with supplementary materials.**

In the light of the data obtained from the trainee surveys, it is observed that the trainees underline the existence of a lack of information about providing theoretical pilot training via eLearning.

Many of the survey participants mentioned that they did not have enough information about the provision of theoretical pilot training through eLearning.

Half of the students who did not have enough information mentioned that they may possibly want to try eLearning, while the other half mentioned that they would not want to try it.

Table 2.
Instructor Pilots' Opinions about the 1st Question

Age Group	Educational Attainment	Opinions
40+	Undergraduate, Master's	1. Thinks that not all courses can be taught via eLearning. 2. Thinks that theoretical training can be provided via eLearning. Thinks that the language used in this training will have a determining effect. 3. Thinks that eLearning cannot be applied to all courses. Thinks that there is no adequate educational material for eLearning in the current system. 4. Thinks that eLearning can be applied in theoretical pilot training. Mentions that training should provide answers to all possible questions. 5. Thinks that eLearning is an applicable system. Mentions, however, that it is hard to apply it for all the courses.

Table 2. presents the answers of instructor pilots who responded to the first question. When the responses of participant instructor pilots are analyzed, we observe the following:

- ✓ **In general, instructor pilots think that eLearning is an applicable system in theoretical pilot training.**
- ✓ **Instructor pilots think that there are no adequate educational materials for eLearning.**
- ✓ **Instructor pilots describe the requirements of eLearning as follows:**
- ✓ **ELearning must be supported with appropriate supplementary materials**

- ✓ **Possible hard-to-understand points must be anticipated ahead of time and the education must be structured accordingly**
- ✓ **Points that students do not understand must be reinforced with question-and-answer sections.**

As a result of the interviews conducted with instructor pilots, it is suggested that the eLearning system can be tried in theoretical pilot training.

One of the instructor pilots interviewed pointed out that this system could be useful in decreasing costs, but that it would not be useful from the perspective of educational efficiency.

The opinions of trainee pilots who responded to the question,

"If ATPL theoretical training in pilot training is provided through eLearning, how would you like this training to be structured?",

are presented in Table 3.

When the trainee pilots' responses were analyzed, we observe the followings:

- ✓ **Students in the 18-24 age group want the eLearning to be conducted in English by instructor pilots who have airline experience. They also think that training should be reinforced with end-of-chapter questions and exams.**
- ✓ **Likewise, students in the 25-30 age group think that questions in the question bank should touch upon appropriate subjects in the theoretical training. Students in this age group support the idea that the educational environment should be updated with respect to student needs.**
- ✓ **Students in the 31-39 age group think that there should be a question-and-answer section at the end of each chapter, and that training should be flexibly structured.**

In the light of the information obtained from the three different age groups, we determined that student expectations were similar.

The common expectations of the students who participated in the study can be summarized as follows:

The questions in the ATPL question bank should be included in the subjects during the training, training should be updated with respect to classroom and environmental conditions, and training should be supported with supplementary materials.

During the interviews, with regard to the second question, the trainee pilots mentioned that subjects should be treated in phases, and that courses should allow for retrospective tracing of each subject.

In addition, trainees commonly agree on the idea that course materials should be supplemented with videos, animations and materials that help motivate the students.

Table 3.
Trainee Pilots' Opinions about the 2nd Question

Age Group	Educational Attainment	Opinions
18-24	Undergraduate	1. Thinks that the instructor should be a pilot who has experience of airline companies and that teaching should be in English. 2. Thinks that after the online course videos, questions about the subject matter should be pulled from a question pool, and that periodical exams should be held during the training.
25-30	Undergraduate, Master's, PhD	1. Thinks that lecturing should be supported by a platform whereby students can ask questions. Finds it appropriate that there should be questions and answers analyzing each question type in the pool. 2. Considers the system inadequate. Thinks that lecturing subjects from a distance with respect to questions will be the most appropriate for students. 3. Thinks that, without elaborating too much on theoretical issues, the classroom environment and face-to-face training should be provided together and that this should be determined by experts in the field. Argues that training should be supported by homework and online exams. 4. Believes that the educational environment should be renewable with respect to students. 5. Thinks that subjects should be accessible whenever the student wants. Suggests that a person who knows the system should lecture in a question-oriented way. 6. Suggests that eLearning should not bother fast-learners and wear away slow-learners. 7. Suggests that training should be designed to steer the student to thinking. Also mentions that theoretical training should be supplemented with appropriate materials. 8. Suggests that course materials should be open to student access. Also mentions that there should be a question-and-answer chapter.
31-39	Undergraduate, Master's	1. Points out that there should be a question-and-answer section at the end of the chapter. 2. Thinks that there should be an educational system that allows for flexibility.

The opinions of the instructor pilots who responded to the second question are presented in Table 4. When we analyze instructor pilots' opinions we observe the following:

- ✓ **Instructor pilots think that training in which eLearning and face-to-face education techniques are used together is better.**
- ✓ **They argue that training should be supported by supplementary materials and that there should be question-and-answer sections at the end of each chapter.**
- ✓ **They think that courses should be taught by people who are experts in their fields and who can certify their qualifications.**

When we analyze the opinions of trainee and instructor pilots we see that these two points come to the fore with regards to what the features of the use of eLearning in theoretical pilot training should be: questions in the question bank should be discussed at the end of chapters, and instructors should be pilots and have experience in the field.

Table 4.
Instructor Pilots' Opinions about the 2nd Question

Age Group	Educational Attainment	Opinions
40+	Undergraduate, Master's	1. Thinks that training can be in the mother tongue or in English, if the instructors can certify their level of proficiency. Thinks that there should be quizzes at the end of chapters. 2. Thinks that a system should be designed in which certain courses are taught through eLearning and other courses are taught in a classroom environment. 3. Thinks that courses should be taught as a block, successively following one another, in a hierarchical manner. 4. Thinks that 20%-30% of the training should be face-to-face, while the rest of it should be designed and taught in an interactive way or using CDs. 5. Thinks that training must be designed and constructed by a commission in which both instructor pilots and experts in the field of eLearning take part. 6. Thinks that teaching of the theoretical part of the lecture should be followed by practices and applications. 7. Thinks that courses should be taught in an interactive way and recorded so they can be watched again later.

The instructor pilots who responded to the second question mentioned that course content should be in line with internationally recognized legislation and content, and that the same course content should be adopted by all flight schools. Instructor pilots also underlined the suggestion that the lecturer should be someone who is experienced in the field, who is knowledgeable about the course content and who can lecture interactively through eLearning.

The opinions of trainee pilots who responded to the question, "*What do you think about the provision of face-to-face teaching in theoretical ATPL training?*", are presented in Table 5. When the answers are analyzed, we observe the followings:

Table 5.
Trainee Pilots' Opinions about the 3rd Question

Age Group	Educational Attainment	Opinions
18-24	Undergraduate	1. Thinks that since theoretical pilot training is quite a difficult program, education in a classroom environment is more advantageous. 2. Thinks that since it is possible to intervene Instantaneously when a student has even a small problem in a classroom environment, this training method makes the learning process easier and shorter.
25-30	Undergraduate, Master's, PhD	1. Thinks that since there is abundance of subjects to cover in theoretical ATPL training, these subjects should be treated in an exam-oriented fashion. 2. Thinks that in face-to-face training, airplane related courses should not be taught with sketches on the board or presentations, but with animations and practical applications. 3. Thinks that students' attention should be drawn to the course and they should be compelled to think about the subject matter. 4. Thinks that courses should be taught by instructors who have comprehensive knowledge of the subject, who can explain adequately and who know the system well. 5. Thinks that it is easier to understand the main theme of the subject by education in a classroom environment. 6. Thinks that students should always be kept within the education process and that their active participation in the class should be facilitated. 7. Suggests that the training program should encourage students' thinking. In addition, thinks that theoretical training should be supplemented with appropriate materials. 8. Thinks that application and practical courses should be held in a classroom environment.
31-39	Undergraduate, Master's	1. Thinks that students should be able to find the answers to all their questions.

- ✓ **Students in the 18-24 age group think that the training of difficult and hard-to-understand subjects can be taught more effectively in a classroom environment.**
- ✓ **Students in the 25-30 age group want to receive lectures from people who are experts in their fields and in a classroom environment with exam-oriented content.**
- ✓ **One respondent in the 31-39 age group, however, thinks that he should get answers to his questions in the training that is provided in a classroom environment.**

Students who participated in the interviews expressed the opinion that in regards to this question, application-oriented courses should be taught face-to-face. Another opinion that was suggested by the students was that students' motivation can be maintained more effectively in a classroom-based educational environment. The opinions of instructor pilots who responded to the third question are presented in Table 6.

Table 6.
Instructor Pilots' Opinions about the 3rd Question

Age Group	Educational Attainment	Opinions
40+	Undergraduate, Master's	1. Thinks that training can be in students' mother tongue or in English, if the instructor can certify their language proficiency. 2. Thinks that the instructor should pass their experience to the students during the lectures. 3. Thinks that rather than face-to-face training, eLearning is more useful with the condition that students should be able to ask instructors about elements that they did not understand in the course.

In the interviews held with instructors, all but one of the instructor pilots mentioned that, rather than teaching all courses in a classroom environment, it would be better to apply a combined education structure to the theoretical pilot training system. Only one instructor expressed the opinion that educational efficiency would be higher if education was provided within a classroom environment.

The opinions of trainee pilots who responded to the question, "*How would you like the theoretical ATPL training in pilot training to be structured, if is provided face-to-face?*", are presented in Table 7. When the responses of students are analyzed, we observe the following:

- ✓ **Trainees think that application and practice should be given more coverage in the training.**
- ✓ **Instead of lecturing a single course consecutively throughout 5-6 hours, they think that lectures should be divided and taught in certain time slots.**
- ✓ **They think that a combined approach in training would be more appropriate.**

Table 7.
Trainee Pilots' Opinions about the 4th Question

Age Group	Educational Attainment	Opinions
18-24	Undergraduate	1. Any available materials should be used to facilitate students' understanding of the subject in the simplest way. An experienced instructor should lecture and state-of-the-art technology should be used. 2. Because students take theoretical ATPL courses face-to-face in a school environment, does not think structuring is needed.
25-30	Undergraduate, Master's, PhD	1. Thinks that, rather than teaching courses in one day covering many chapters, dividing them and providing teaching at different times is far better for students' learning. 2. Thinks that subjects that are no longer in existence should not be covered in the courses. In addition, mentions that courses with similar content should be taken in the same term to simplify the learning process. 3. Thinks that courses should be taught as packages. 4. Thinks that the classroom environment and eLearning should be used together. Underlines the point that the instructor should be experienced and should be able to pass his knowledge to students. 5. Thinks that practice and application should be given more space in training. 6. Thinks that theoretical training materials should be supplemented with more visual materials and that there should be application and practices in the courses. 7. Supports the idea that classrooms should have fewer students. 8. Thinks that theoretical pilot training needs to be modernized with respect to the requirements of the present day. 9. Suggests that students should be provided with content that will enhance their motivation during training.
31-39	Undergraduate, Master's	1. Thinks that in order for the courses to be fully comprehended there should be time intervals between lectures, and that course content should be designed in a way that would allow anyone to understand it.

In response to this question trainee pilots expressed the opinion that interactive environments should be utilized more extensively. The trainees mentioned that teaching with presentations and using the board made it harder to understand some subjects; therefore new educational methods in the classroom environment would be beneficial.

The opinions of instructor pilots who responded to the 4th question are presented in Table 8. when respondent instructor pilots' opinions are analyzed, we observe the following:

- ✓ **Similar to the opinions of trainee pilots, instructor pilots think that a combined educational system would be more advantageous.**
- ✓ **They suggest that applications and sample questions should be given more space in training, and that a more interactive training environment should be implemented.**
- ✓ **They think that the instructor should be a pilot who can convey his or her experience to the trainee pilots.**

When the answers of trainee and instructor pilots to the 4th question are analyzed, we see that both groups support the combined training method. In addition, trainee and instructor pilots agree that there should be a more interactive environment in the training.

Table 8.
Instructor Pilots' Opinions about the 4th Question

Age Group	Educational Attainment	Opinions
40+	Undergraduate, Master	1. Emphasizes that textbooks should be colored and genuine. Also approves the suggestion that training should supplemented with visual and audio materials. Thinks that the answers to ATPL questions should be provided to instructors during the course term. 2. Thinks that the instructor should be a pilot and should demonstrate experience and knowledge of practical applications, and should convey this knowledge to trainees. 3. Thinks that courses should first be treated in a theoretical framework and then in a problem-solving setting. 4. Instead of a singular approach in education, finds the adoption of an approach combined with eLearning more appropriate.

Interviews held with instructors show that instructors agree that the pace of lecturing, details of the subject and supplementary course materials should be determined with respect to the levels of students.

CONCLUSION AND RECOMMENDATIONS

In order to investigate the applicability of eLearning in theoretical pilot training, this study used a survey that had open-ended questions, and conducted one-on-one interviews.

As a result of the analysis and interpretation of all the information we obtained, we have reached the following conclusions:

- ✓ **In designing eLearning methods in theoretical pilot training, the prime objective should be not to lower the quality of education.**
- ✓ **The success of the new system to be used in theoretical pilot training is dependent on the qualifications of those who implement it. The common desire of both trainees and instructors is that training should be provided by instructor pilots who have experience in the interface.**
- ✓ **The design used in eLearning for theoretical pilot training must take students into account above all else, and should allow for interactive approaches.**
- ✓ **The following points should be taken into account in the content to be designed for theoretical pilot training:**
- ✓ **Questions in the question pool should be answered at the end of relevant subjects.**
- ✓ **Course content should be compatible with fast search.**
- ✓ **Courses should allow for watching lectures multiple times.**
- ✓ **Exams should be knowledge and practice-oriented.**

Figure 5 shows positive and negative opinions regarding the use of eLearning in theoretical pilot training.

Figure 5.
Results Pertaining to Trainee and Instructor Pilots' Opinions about the Use of eLearning in Theoretical Pilot Training

Throughout the study, it has been observed that trainee pilots keep themselves at arm's length with regards to the use of eLearning in theoretical pilot training. Possible recommendations for eliminating this distanced attitude and introducing students to eLearning are as follows:

- ✓ **For trainees who receive theoretical pilot training in a classroom environment, educational environments should be designed in which they can have access to the eLearning method. Encouraging steps should be taken to incentivize students to use these environments in their training. In this way, students' introduction to eLearning can be facilitated and it will be possible to collect more robust data in the future.**
- ✓ **In theoretical pilot training there is no worldwide system, such as Massive Open Online Courses (MOOC), which can be easily accessed by anyone. Therefore a primary and/or supportive platform should be established for pilot training students. This platform should be able to meet the requirements of trainee and instructor pilots. For example, it should be designed in the English language. A design such as this will facilitate the introduction of trainee and instructor pilots to eLearning.**
- ✓ **In theoretical ATPL training, there are courses that require an understanding of practical applications. There are some doubts as to whether these courses can be taught via eLearning. Therefore, particularly for practice and application oriented courses, eLearning materials should be prepared and put to the use of students. Necessary arrangements and updates should be made in line with any feedback obtained.**
- ✓ **By means of a commission of experts, the advantages of eLearning should be applied to theoretical pilot training. On the other hands, the development of new educational materials for pilot training should be facilitated by means of sub-commissions.**

In conjunction with other studies that will be conducted in the light of the information obtained from this study, it will be possible to take steps towards active use of eLearning in theoretical pilot training.

In this way, it will be possible to introduce standardization to the eLearning method, which is presently used by flight schools in their theoretical pilot training. Likewise, thanks to these standards, it will be possible to reach maximum educational efficiency.

Since eLearning is not very frequently applied in theoretical pilot training, taking steps to eliminate the points that people are doubtful about is of significant importance for trainee and instructor pilots. For an effective application of eLearning, national and international aviation authorities at different levels should form various commissions.

These commissions should be able to guide education towards more innovative approaches. Furthermore, they should work towards determining an educational interface that is supplemented with appropriate learning materials, in line with today's requirements.

This is important from the perspective of structuring the theoretical pilot training via the eLearning method. In this way, it will be possible to implement an approach which is, to a great extent, standardized, which saves time and money, and which allows more people to become pilots.

In line with the rapid growth of the aviation sector, the need for qualified and well-educated personnel has been increasing at a steady pace. Including the training for the airplane they will use, the average training period for pilots who are brought into the sector is close to two years. Provision for this long training process, which requires the utmost care, and which must be carried out in the best possible way, is very important from the perspective of flight safety.

In order to increase students' situational awareness, therefore, it is important that the theoretical courses in which information about aviation and pilot training is provided benefit from new teaching methods and educational supporting materials.

BIODATA and CONTACT ADDRESSES of AUTHORS

Gulsun KURUBACAK is a professor in Distance Education at the College of Open Education of Anadolu University. Dr. Kurubacak undertook graduate studies at Anadolu University, Turkey (MA. Educational Technology) and the University of Cincinnati, USA (Ed.D. Curriculum & Instruction), and also has worked a post-doctoral fellow at the College of Education at New Mexico State University, USA (2001-2002).

Dr. Kurubacak earned her B.S. degree in Computer Engineering from the College of Informatics Technologies and Engineering of Hoca Ahmet Yesevi International Turk-Kazakhstani University in the year 2012-2013. Also, she is currently a graduate student in the Department of Computer and Instructional Technologies of Anadolu University.

Dr. Kurubacak has thirty years of experience in focusing on the egalitarian and ecological aspects of open and distance education; finding new answers, viewpoints and explanations to online communication problems through critical pedagogy; and improving learner critical and creative thinking skills through project-based online learning, universal design principles and new communication technologies (ubiquities technologies, mobile technologies, virtual reality, augmented reality, mixed reality, ect.). She continues to manage and provide pedagogical support for distance learning programs.

Dr. Gulsun KURUBACAK
Anadolu University Open Education Faculty
Group Coordinator of R&D and International Relations
Office: 3/313, Yunusemre Campus, 26470, Eskisehir, Turkey.
Phone (w):+90 (222) 335 0580 / Ext. 2669
Email: gkurubac@anadolu.edu.tr

Caner ACARBAY Pilot Caner Acarbay, lisans eğitimini Anadolu Üniversitesi Havacılık ve Uzay Bilimleri Fakültesi Havacılık Elektrik Elektroniği ve Mühendislik Fakültesi Elektrik Elektronik Mühendisliğinde tamamlamıştır. Acarbay, yüksek lisans eğitimine de Anadolu Üniversitesi Fen Bilimleri Enstitüsü Pilotaj Ana Bilim Dalı'nda tamamlamıştır. Doktora eğitimine Anadolu Üniversitesi Fen Bilimleri Enstitüsü Havacılık Elektrik Elektroniği Ana Bilim Dalı'nda a devam etmekte olan Acarbay, halen Türk Hava Yolları'nda ikinci pilot olarak çalışmaktadır.

Pilot Caner ACARBAY
Türk Havayolları, Istanbul, Turkey.
Email: cacarbay@gmail.com

REFERENCES

Acarbay, C. (2016). Havacılık hizmetiçi eğitiminde uzaktan eğitim. *AUAd*, 2(1), 148-161. Retrieved November 28, 2016 from http://auad.anadolu.edu.tr/makale_goster.php?id=131

Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five approaches*. Los Angeles, CA: SAGE.

Chuang, C.vK., Chang, M., Wang, C.vY., Chung, W.vC. & Chen, G.vD. (2008). Application of e-learning to pilot training at TransAsia Airways in Taiwan. *International Journal on E-Learning,* 7(1), 23-39. Chesapeake, VA: Association for the Advancement of Computing in Education (AACE).

Demiray, U. & Misnevs, B. (2016). Communication and meta-communication in software engineering. *International J. Soc. Sci. & Education*, *6*(2), 235-262. Retrieved January 15, 2017 from http://ijsse.com/sites/default/files/issues/2016/v6i2/Paper-12.pdf

Herron, R., Holsombach-Ebner, C., Shomate' A. & Szathmary, K. (2012). It's not rocket sciences, or is it? Large scale quality engineering in distance learning programs. *Journal of Asynchronous Learning Networks*, 16(5), 19-33.

Kearns, S. (2013). An instructional design strategy for aviation mobile learning. *Collegiate Aviation Review*, *Spring*, 69-78.

Patton, MQ. (2001). *Qualitative research and evaluation methods* (2nd Edition). Thousand Oaks, CA: Sage.

Raisinghani, M.vS., Chowdhury, M., Colquitt, C., Reyes, P.M., Bonakdar, N., Ray, J., & Robles, J. (2005). ELearning in the business aviation industry: issues and opportunities. *International Journal of ELearning Technologies*, 3(1), 20-43.

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THE CONFUSION BUTTON: A Formative Assessment to Identify Real-Time Student Misconceptions

Arnav CHOUDHURY
University of California, San Diego
La Jolla, CA USA

Jace HARGIS, Ph.D.
University of California, San Diego
La Jolla, CA USA

ABSTRACT

In a perfect world, instructors would be able to share information in class and at the same time, be assured that students understood the concepts as they were being taught. Historically, instructors have attempted to determine student understanding by simply asking if there are any questions about the material (of which, there are typically none), or employing various low or high tech student response systems, which provide a sense of which students can answer a provided prompt.

This study explores a new approach to gathering real time student understanding of material being presented. A program has been created and currently being piloted, which allows students to indicate their "confusion" on a topic, as it is being taught by pressing the volume button on their mobile phone/device.

The only requirement is that the device/hardware owned by the students could connect to the internet. On a very high level, Student signals produce an anonymous aggregate signal to the instructor desktop computer, which graphs time vs. number and level of student confusion.

In this way, instructors can stop discussing and address the confusion and/or proceed and after the class session view and address the problem, knowing precisely on what concept the confusion occurred. This paper presents early development, faculty and student attitudes and processes for implementation.

Keywords: **Confusion, Student Response Systems, Formative Assessment, Active Learning, Large Classrooms, Student Interactions.**

INTRODUCTION

The derivation of this study originated from an initial experience as a Teaching Assistant (TA) at a research intensive university assisting a large class. On the first day of class, I tried to lecture to 300 students. I had no idea if they were understanding, if they were following my presentation, or how they were making sense of the material. So I offered office hours to provide assistance, although only a few students attended.

I was disappointed at the outcome, perhaps mainly because I was aware of the problems they were experiencing as I experienced similar challenges as a student as well.

A different method was needed, for students to share with instructors what they know and when there were not following the lecture and especially the specific time when they became confused. An efficient approach is for students to discuss and work more cooperatively without taking the valuable time of the lecture class.

The goal then became to create a learning strategy that was more connected and personalized.

For this study, a personalised, data driven student response system (SRS) was created that addresses many of the challenges of the modern lecture hall using statistical machine learning and natural language processing algorithms.

The SRS provides a modular platform that caters to instructors' needs while also having the ability to grow into ideas that they believe are needed. This is accomplished while providing students with a mechanism to gain personal attention in a non-personal environment in today's growing classroom sizes. The system addresses these needs with the help of the following three features:

- ✓ **Confusion Button**
- ✓ **Question Curation**
- ✓ **Reflective Assessment**

The confusion of conceptual frameworks is a common issue for students in a large classroom setting where some students might not feel comfortable asking a question.

The student response system provides a live feed indicator of "confusion" that notifies a professor when students in their class are not following the material.

In addition, the system maps the confusion level so an instructor can review later and consider specific material to revisit and perhaps remediate. In addition, a report is generated that indicates the number, topics and subtopics, which were selected by students as confusing.This approach provides a way to correct conceptual gaps of knowledge in real time, not after inadequate homework or examination results. This assists the instructor to efficiently be more aware of how the class is progressing.

Moreover, the SRS provides meaningful data to the instructor so they know exactly how many students and in what topics they were confused about for every lecture.

Moreover, whenever a student indicates that they are confused, they are automatically directed to a pertinent question, allowing for a more fluid interaction with the classroom as a whole. A natural language processing algorithms was developed to categorize similar questions together to help ensure that every question is unique so valuable lecture time is used most efficiently.

Literature on effective teaching and learning demonstrates that an active discussion is integral to the learning process, which can often be overlooked, many times due to time constraints. Due to logistical reasons, there is typically less discussion and other interactive learning in lecture halls. To increase the interaction, the newly developed SRS provides an efficient manner for an instructor to either verbally propose a question or enter the question into their computer. Upon activation, students are prompted to answer the proposed question through their device.

While students are entering their thoughts, data is streamed to the instructor's computer dashboard providing information of the how students are thinking in the classroom. The system essentially gives instructors access to actionable insights using data that has been very difficult to achieve historically. This approach could reinvigorate the Socratic method, a long-standing and effective inquiry-based teaching strategy into the large classroom setting.

RESEARCH QUESTIONS

The two research questions for this study are the following.

- ✓ **What is the anticipated effect of providing students a "confusion button" to express precisely when they begin to lose conceptual understanding?**
- ✓ **What is the attitude of faculty on students expressing real-time triggers on when they are confused and when receiving real time notifications?**

LITERATURE REVIEW

Confusion

Confusion is good. The concept of confusion is common among students, although frequently perceived as a negative outcome. While in actuality, educational theorists have promoted confusion and disequilibrium as a necessity for deep learning (Piaget, 1974).

Piaget found that when a student encounters a state of disequilibrium, they will either assimilate the information into existing schema, or accommodate, by replacing the new information for the prior information.

In this way, equilibrium returns and the concepts are theoretically positioned in the learners long term memory (Atkinson & Shiffrin, 1971).

Ideally, the learner then uses this new information to scaffold subsequent unknowns and a healthy cycle of self-regulated learning continues (Zimmerman, 1990). The cycle of confusion, resolution and higher level confusion is actually a healthy approach to making important conceptual connections.

The period of known versus unknown create a comfort/discomfort philosophy, where the learner can value the known, although realizes the unknown is the "yin" of the "yang" of complete understanding.

The philosophy of valuing confusion may remain elusive for many learners. Craig, Graesser, Sullins, & Gholson (2004) revealed that learners who spent a greater proportion of the lessons in a state of confusion exhibited significantly greater gains in learning. Liu, Pataranutaporn, Ocumpaugh, and Baker (2013) found that learning may be stronger for frustration than confusion, but is strongest when these two affective states are taken together.

This effect is strongest if the two affective states are considered together, and weakest if confusion is considered alone. Another study showed that students who were presented conflicting claims and subsequently confused performed higher on final exams (D'Melloa, Lehmanb, Pekrunc, & Graesserb, 2014). In a tangent study, (Liu, Pataranutaporn, Ocumpaugh,, & Baker, 2013) found that frustration has an even stronger effect than confusion on performance, although confusion was a key factor "as long as students were able to resolve their confusion.

Therefore, it is not merely the confusion that adds power, but the resolution that is key. So, the question remains on how to identify the critical point of confusion, and subsequently resolve the confused state, as well as by what methods can used to help clarify and return the learner to an equilibrium state. Historically, instructors have simply asked students if they are confused, with little success for many reasons.

First of all, students may be apprehensive to speak for fear that peers will perceive them unintelligent (Hargreaves, 1984). Secondly, many times learners simply are so completely behind in their understanding that they are unable to articulate a clear, sensible question. Finally, the instructor's open-ended prompt does not initiate the learners ability to retrieve sufficient information from their long-term memory, so that they may be able to realize the point of their confusion sufficiently to ask a question (Partin, 1979).

Therefore, the ability to identify the beginning of learner confusion in an unobtrusive way is both critical to understanding and can act as a redefinition of instruction, which has previously been nearly impossible (Puentedura, 2006; Hargis, & Soto, 2015). To attempt to gain an understanding of student questions, historically, instructors have employed various methods of Student Response Systems.

Student Response Systems (SRS)

Research has shown that Student Response Systems (SRS) can increase student engagement and participation (Heaslip, Donovan, & Cullen, 2014; Galal, Mayberry, Chan, Hargis, & Halilovic, 2015). In addition, Barnett (2006) has shown that SRS provide students more opportunities to respond, thereby encouraging reflection and metacognitive processing; timely feedback to assist in reducing misconceptions and solidifying conceptual understanding; and opportunities for formative assessment providing venues for just in time remediation. Hall, Collier, Thomas, and Hilgers (2005) has shown that SRS can create an open, accessible learning environment where all learners feel open to contribute.

They can also assist instructors in assessing student comprehension and developing classroom activities that allow for the application of key concepts to practical problems. There are many types of Student Response Systems.

Student response sytems include basic hand raising to raising colored sheets of paper to more contemporary forms of using technology, such as clickers and applications including www.polleverywhere.com, www.padlet.com, www.kahoot.com, www.plickers.com, http://goformative.com, www.twitter.com and even an audience participation function on Google Slides. Although these SRS's are beneficial, they require substantial efforts in planning and perhaps even more costly is the class time to set up, gathers, interpret and act on the results.

Advance use of SRS using instructional technology has dramatically advanced using mobile learning (mLearning), most notably from tablets and/or smartphones. Research in this area has shown significant enhancement in student engagement; faculty perceptions; innovative approaches to technical challenges; and development and evaluation of new digital content (Cavanaugh, Hargis, Kamali, & Soto, 2013; Hargis & Soto, 2013; Hargis, Cavanaugh, Kamali, & Soto, 2013; Hargis, Cavanaugh, Kamali, & Soto, 2014; Davison, & Hargis, 2016). One of the major advantages of using technology is the ability for rapid, graphical feedback in various, flexible forms. The instructor can present traditional bar and pie graphs, or more creatively portray qualitative data in a word cloud frequency diagram (Greer, & Heaney, 2004). The ability to quickly assess student needs and get visuals on the same can provide access to more ways that students process information.

METHODS

Setting

This study was conducted at a large research intensive public university located in the southwest United States. The data was collected through individual face to face interviews with faculty members.

There was no attempt to randomize the population, and at the same time, there was nothing in particular about the faculty members selected for the study, except that they agreed to be interviewed.

Every interview involved the primary author arranging a meeting with the faculty member in their office at a time that was convenient for them to meet. The time of most interviews was between 30 and 60 minutes. During this time, the interviewer verbally asked each question on the survey (Appendix A).

Note that the survey had two parts, one before the discussion of the idea and one after the discussion. In both cases, the same interview approach was followed. The interviewer asked the questions and recorded the faculty member's responses.

Participants

The participants for this study included 65 faculty members at the same southwest U.S. university, selected through a snowball sampling technique. All of the participants were contacted through the university email system.

Out of the 65 faculty interviewed, 62 were asked the full set of interview questions (Appendix A), and three were only asked a subset because they were not teaching faculty, but held an academic coordinator or research role.

Figure 1. and 2. lists the number and background of the faculty that were surveyed.

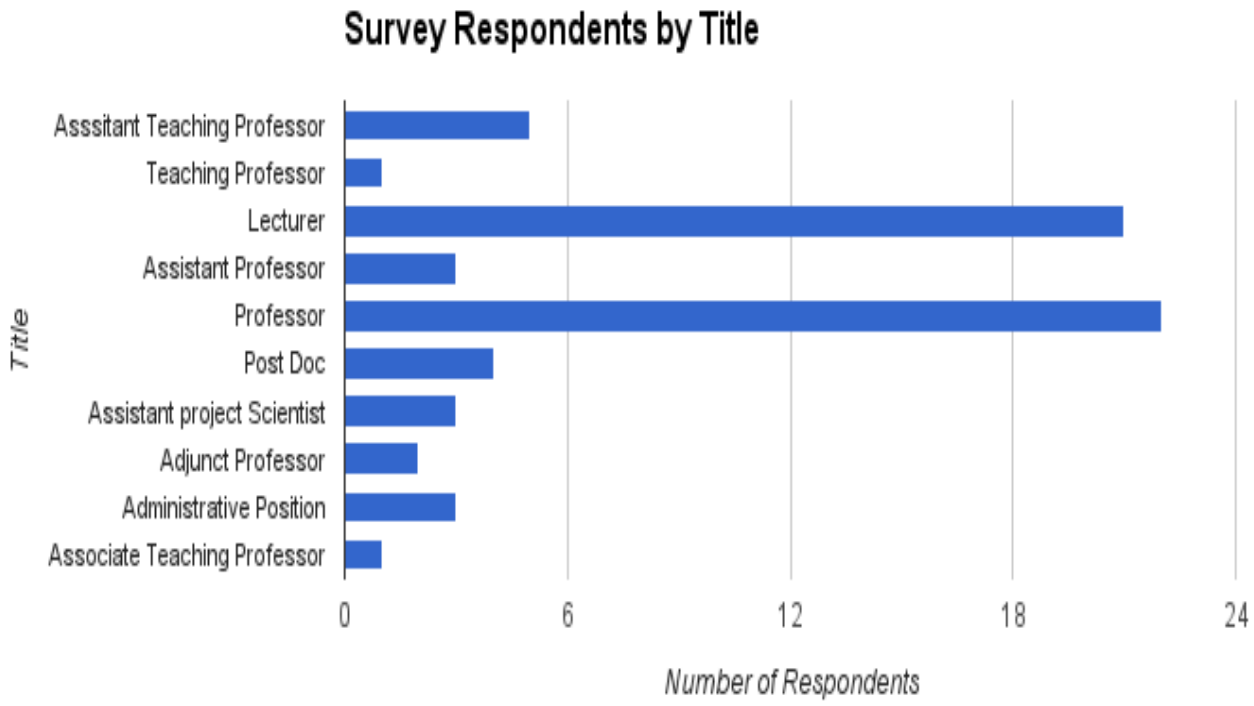

Figure 1.
Survey Respondents by Teaching Title

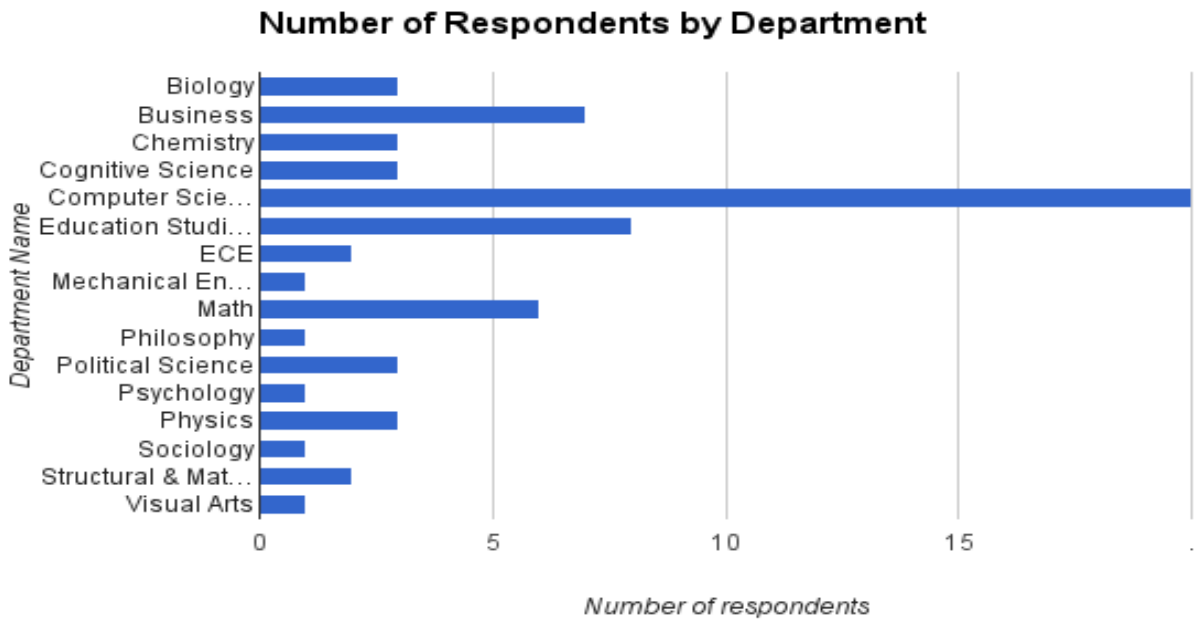

Figure 2.
Survey Respondents by Department of Appointment

RESULTS

Sixty-two participants completed all of the questionnaires. The data were analyzed and each of the hypotheses explored. The corresponding results are described below.

The hypotheses were designed to measure the;

- ✓ **Anticipated effect of providing students a "confusion button" to express precisely when they begin to lose conceptual understanding; and**
- ✓ **Attitude of faculty on students expressing real-time triggers on when they are confused and of faculty when receiving real time notifications?**

The data include:

- ✓ **Figure 1: Title, Department and Number of Faculty**
- ✓ **Figure 2. Segmentation Survey Analysis**
- ✓ **Table 1. Student Evaluation of Instruction Results for Math Class**
- ✓ **Figure 3. Regression Tree Diagram for Engineering Classes.**
- ✓ **Figure 4: Scatter plot showing correlation between Mean**

Professor Recommended Class ratings and Mean Recommended Class Ratings

Table 1.
Student Evaluation of Instruction Results for Math Class

Term	Recommend Class	Recommend Instructor	Study Hours/ Week	Average Grade Expected
Average	86.4	86.7	6.5	3.3
Maximum	100	100	-	4

Note: Teaching professors were included in the Professor category.

Figure 3 presents an initial data regression analysis based on student evaluation data. The figure demonstrates how student recommended professor ratings vary with different variables, such as class ratings, homework, time etc.

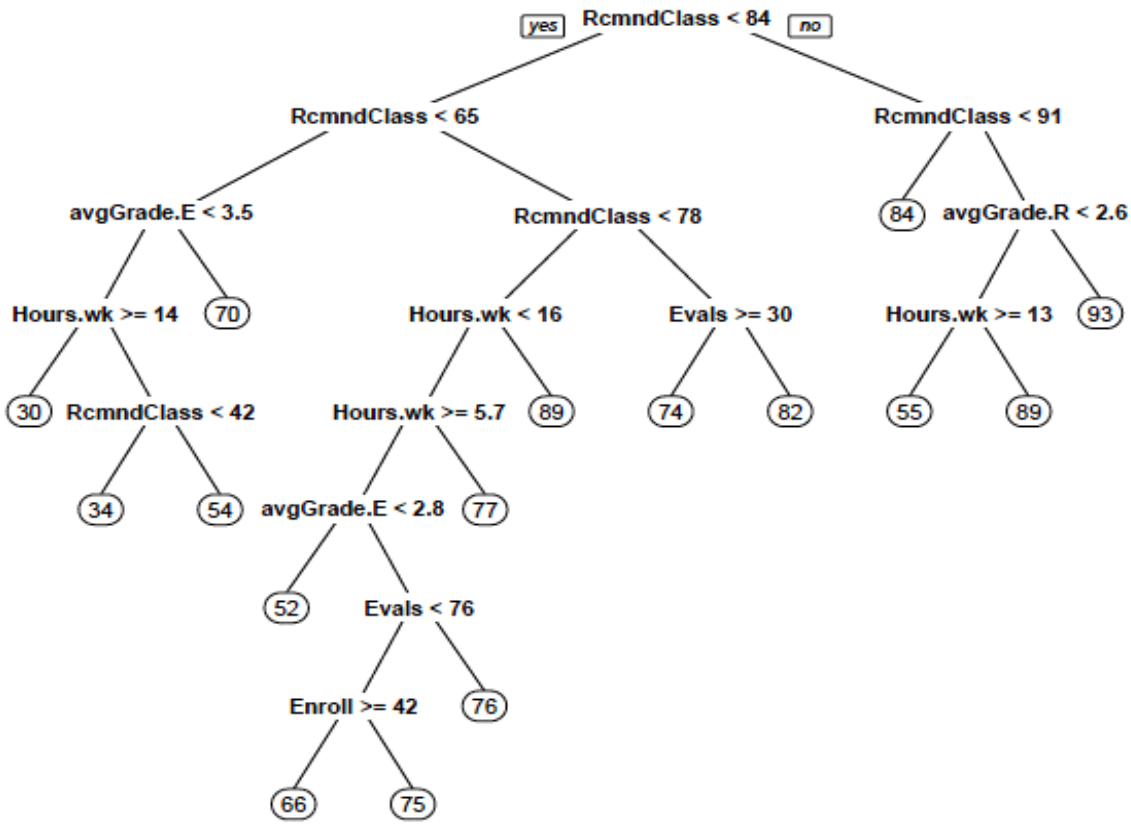

Figure 3.
Regression Tree Diagram.

The final numbers in the boxes are student recommended professor ratings (out of 100). For example, if you select a class with a recommended class rating less than 84 and greater than 65 and it is also more than 78. The recommended class rating, therefore, is between 84 and 78, then the most important variable for determining predicted student rating depends on the number of evaluations submitted.

DISCUSSION

The Regression Tree Diagram (Figure 3) was made using a statistical software called R in which pre-built statistical packages were called to generate the classification tree. Data was input into the model, mined from student evaluations in particular for all engineering courses taught. Some courses, such as Computer Science Engineering, had student evaluation data since the year 2004, while others did not contain as elaborate history of student evaluations.

As a result, data from a number of years was removed to make sure the student evaluation scores from every department (Bioengineering, Computer Science and Engineering, Electrical and Computer Engineering, Mechanical and Aerospace Engineering, NanoEngineering, Structural Engineering) started from the same year. The goal was to predict a professor's recommended student evaluation rating (out of 100). The numbers represent the predicted student evaluation recommended Professors scores (out of 100).

The finding may be of interest is the (heaviest weighted) factor in predicting how students may rate their professors, which seems not to be based on whether the class was difficult or easy; or if the homework required substantial time; or if the average course enrollment was high or low; but on whether the class traditionally had a high recommended class rating. For example, for a professor who is teaching a class that has historically been 'Liked' by students as judged by their hgh recommended student ratings, i.e., greater than 91%.

In addition, when the average grade (Grade Point Average) received by students in the course was more than 2.6 (a B- or better), the professor's recommended instructor rating produced an average score of 93%.

Perhaps even more surprising is that the variable Average Grade Received is the third most important factor, even more important than Average Grade Expected. This is unexpected as student evaluations are completed by students before final exams are taken and hence students do not know their ultimate course grade.

It can, however, be speculated that the students already have a good idea of how they are doing in the class on the spectrum of grades as they typically have access to the way the grade would be calculated based on the homework, quiz, midterm, and finals scores.

So the variable, Average Grade Received, may in fact be very similar to Average Grade Expected.

If this is in any way representative of the state of evaluations, theoretically, a professor could adjust their student evaluation scores by teaching a traditionally 'Liked' course and maintain the average course grade as a "B" or better.

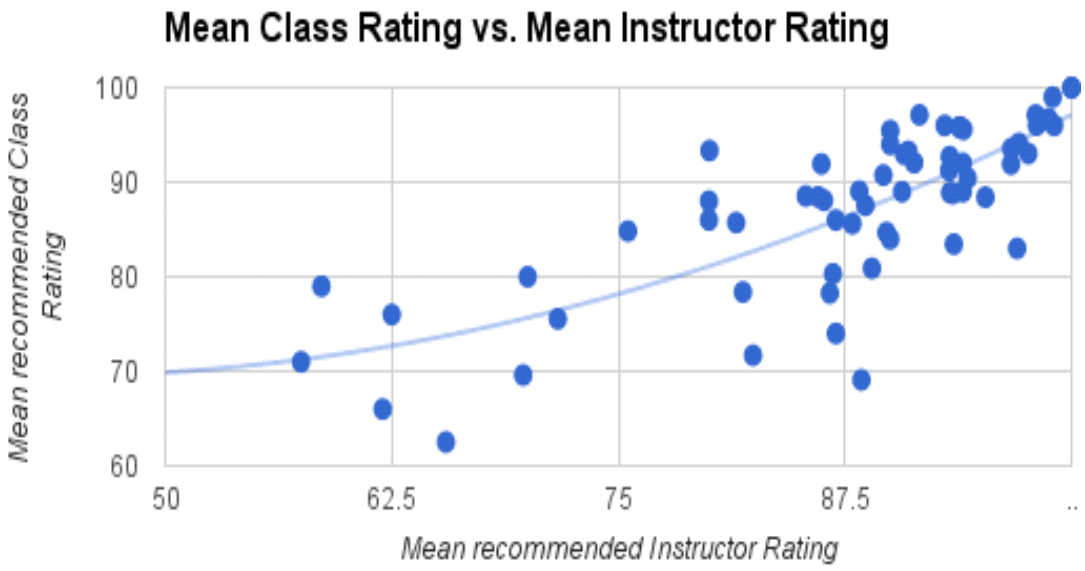

Figure 4.
Scatter plot showing correlation between Mean Professor Student Evaluation Recommended Class ratings and Mean Recommended Class Ratings

As shown in Figure 4, most responses were received by professors followed by Surprisingly, full tenured professor's response rate was the most and it is suspected that was a result of their interest in helping students along with the sense of responsibility of improving education for students by improving their own teaching skills.

Another reason could be they are in pursuing of an efficiency model for high quality teaching. If an automated student response system could provide accurate, meaningful, actionable data - such as could be found through a "confusion" button, this may increase student performance. If this happened, the result would be an asset for both the student (higher grades); and the faculty success, as well as possible higher student evaluations.

Hypothesis 1
What is the anticipated effect of providing students a "Confusion Button" to express precisely when they begin to lose conceptual understanding; and When students are able to indicate their confusion in a highly discreet and low threshold manner, this empowers them to express clearly the concepts, which they may not fully understand and also provides the opportunity for real time clarification from the instructor.

A critical component is both noticing the confusion and the ability to seamlessly address it with minimal disruption of the course progress.

As a result of these factors, faculty has expressed their expectations that students will embrace a tool that allows them easy access to participate in their own learning.

Perhaps just as important, integrating the student response system provides students with frequent opportunities to consciously think about their thinking and to develop the abilities to recognise topics how they process the information.

Therefore, appropriate use of these student engagement tools can help students learn valuable metacognition by recognising when they are confused and acting upon that belief.

The availability of a "Confusion" button creates a more interactive learning environment, recalibrating the tone of a traditional static classroom and reinforces that being in a state of confusion is not only acceptable, but can often become a more efficient and deeper path of learning, applying and retaining conceptual frameworks.

By providing students an opportunity to reflect on their confusions, while they are occurring, they have a more accurate perception of their lack of knowledge and hence we expect that such students would put in more time to improve on those areas. (Pintrich, 2002)

Approaching teaching and learning in this fashion can be a substantial change from traditional approaches as many students arrive in post-secondary settings with very little metacognitive lecturers.

One reason for this result could be that since lecturers success is more closely tied to teaching, they may spend more time to improve their own teaching while professors who are not tenured yet may be more focused on their research (to secure tenure) and as a result did not reply as frequently, abilities (Hofer, Yu, & Pintrich, 1998; Pintrich, McKeachie, & Lin, 1987).

This may be a major reason why increasing their abilities in this area is an interest of both instructors and students, as a key factor of teaching the ability to become a self-regulated learner. Winne (1997) found that self-regulated learners are students whose academic learning abilities and self-discipline make learning easier so motivation is maintained.

In addition to modifying individual student attitudes towards the concept of confusion, the learning culture could be updated to reflect recent literature on effective teaching. Faculty have expressed they predict that students would become more open to express their current understanding individually, which could provide a model for other students to engage and subsequently create a more inclusive and collaborative learning experience.

Hypothesis 2

What is the attitude of faculty on students expressing real-time triggers on when they are confused and of faculty when receiving real time notifications? Another potential positive effect when using the "Confusion Button" could be on how faculty prepare, provide and think about their instructional philosophy.

In general, faculty care about students and teaching, although many do not have an instructional background or have minimal opportunities for faculty development in the area of teaching and learning.

Therefore, by providing easy-to-use applications, which can capture real-time student notifications on when they are confused on a topic, faculty can rethink their instructional approach.

Frequently, instructors are sharing information in ways that they learned which a normal approach is. However, if students are processing in different ways, it is difficult for the instructor to realize this and perhaps more importantly, precisely when this is occurring, so they can adapt.

Another benefit of this learning tool would be to assist faculty with timely and focused faculty development services.

Whenever faculty redesign their courses or instructional methods, there will be opportunities for adjustment, such as allowing faculty to think about how they teaching in a different, perhaps more informed way (Tanner, 2012).

BIODATA and CONTACT ADDRESSES of the AUTHORS

Mr. Arnav CHOUDHURY is currently a senior in Biomedical Engineering with a minor in Mathematics at the University of California, San Diego (UCSD). He led his four person team to win a Startup Competition granting them dedicated office space among other perks at the Qualcomm Institute Innovation Space. He has extensive experience in peer tutoring and has worked at the UCSD Office of Academic Support leading workshops for undergraduate engineering students where he was responsible for leading the intellectual discussion. His research focus is on integrating functional technology, where he has developed an innovative technology to address formative assessment.

Arnav Choudhury
Founder MESH Education (www.meshedu.com)
University of California, San Diego,
Qualcomm Institute La Jolla, CA 92092
Email: arnav13@gmail.com

Dr. Jace HARGIS currently is the Director of the Center for Teaching and Learning at the University of California, San Diego. His prior positions include a College Director in Abu Dhabi, UAE; an Associate Provost of Faculty Development, Assessment and Research and Professor in Honolulu; an Assistant Provost of Faculty Development and Associate Professor in northern California; and a Director of Faculty Development and Assistant Professor in Florida. He has authored a textbook and published over 100 academic articles as well as offered hundreds of academic presentations. He has earned a B.S. in Oceanography from Florida Institute of Technology; an M.S. in Environmental Engineering Sciences and a Ph.D. in Science Education from the University of Florida. Dr. Hargis' research agenda focuses on how people learn while integrating appropriate, relevant and meaningful technologies.

Jace HARGIS, PhD
Director, Center for Teaching and Learning University of California, San Diego, La Jolla, CA 92092
Email:jace.hargis@gmail.com

REFERENCES

Atkinson, R. C., & Shiffrin, R. M. (1971). The control of short-term memory. *Scientific American*, 225, 82-90.

Barnett, J. (2006). Implementation of personal response units in very large lecture classes: Student perceptions. *Australasian Journal of Educational Technology*, 22(4), 474-494.

Cavanaugh, C., Hargis, J., Kamali, T., & Soto, M. (2013). Substitution to augmentation: Faculty adoption of iPad mobile learning in higher education. *Interactive Technology and Smart Education*, *10*(4),270-284.

Craig, S., Graesser, A., Sullins, J., & Gholson, B. (2004*). Journal Of Educational Media*, 29 (3).

Davison, J., & Hargis, J. (2016). The challenges of determining student engagement in a digital, mobile learning age. Special edition on Mobile learning as a scholarship for teaching and learning. *Glokalde* eJournal, 2(3).

D'Melloa, S., Lehmanb, B., Pekrunc, R., & Graesserb, A. (2014). Confusion can be beneficial for learning. *Learning and Instruction*, 29, 153-170.

Galal, S., Mayberry, J., Chan, E., Hargis, J., & Halilovic, J. (2015). Technology versus pedagogy: Instructional effectiveness and student perceptions of a student response system. *Currents in Pharmacy Teaching and Learning*, 7(5).

Greer, L, & Heaney, P. (2004). Real-time analysis of student comprehension: An assessment of electronic student response technology in an introductory earth science course. *Journal of Geoscience Education*, 52 (4), 345–351.

Hofer, B., Yu, S. & Pintrich, P. (1998). *Teaching college students to be self-regulated learners. Self-regulated learning: from teaching to self-reflective practice*. NY: Guilford Press, 57-85.

Hall, R., Collier, H., Thomas, M., & Hilgers, G. (2005). A student response system for increasing engagement, motivation, and learning in high enrollment lectures. Proceedings of the Americas Conference on Information Systems, 621–626.

Hargis, J., & Soto, M. (2015). Embracing the critical issues in higher education. Journal of Science Education, 16(2), 44-48.

Hargis, J., & Soto, M. (2013). Effective large-scale integration of the iPad mobile learning device into first year programs. *Journal of Science Education*, *14*(1), 45-49.

Hargis, J., Cavanaugh, C., Kamali, T., & Soto, M. (2014). A federal higher education iPad mobile learning initiative: Triangulation of data to determine early effectiveness. *Innovative Higher Education*, *39*(1), 45-58.

Hargis, J., Cavanaugh, C., Kamali, T., & Soto, M. (2013). Measuring the difficult to measure: iPad mobile learning. *International Journal of Mobile and Blended Learning*, *5*(2), 60-77.

Hargreaves, D.H. (1984). Teachers' questions: Open, closed, and half-open. *Educational Research*, 26, 46-51.

Heaslip, G., Donovan, P., & Cullen, J. (2014). Student response systems and learner engagement in large classes. *Active Learning in Higher Education,* 15, 11-24.

Liu, Z., Pataranutaporn, V., Ocumpaugh, J., & Baker, R.S. (2013). Sequences of frustration and confusion, and learning. Proceedings of the 6th International Conference on Educational Data Mining, 114-120.

Liu, Z., Pataranutaporn, V., Ocumpaugh, J., & Baker, R. (2013*). Sequences of frustration and confusion, and learning*. Educational Data Mining.

Partin, R.L. (1979). How effective are your questions? The Clearing House 52, 254–256. Piaget, J. (1974). Cognitive development in children: The Piaget papers, *Journal of Research in Science Teaching*, 2,170-230.

Pintrich, P. (2002). The role of metacognitive knowledge in learning, teaching, and assessing. *Theory Into Practice*, 41 (4), 219-225.

Pintrich, P., McKeachie, K. & Lin, P. (1987). Teaching a course in learning to learn. *Teaching of Psychology*, 14 (2), 81-86.

Puentedura, R. R. (2006). Transformation, technology, and education. Retrieved on September 2, 2016 from http://hippasus.com

Tanner D., K. (2012). Promoting student metacognition. *CBE-Life Sciences Education*, 11 (2), 113-120.

Winne, P. H. (1997). Experimenting to bootstrap self-regulated learning. *Journal of Educational Psychology*, 89(3), 397-410.

Zimmerman, B. J. (1990). Developing self-regulated learners: From teaching to self-reflective practice. New York, NY: Guilford Press.

APPENDICES

Appendix A: Professor Survey

- ✓ **What is the size of classes you typically teach?**
- ✓ **How many years have you been teaching?**
- ✓ **Do you tend to teach more lower or upper division courses?**
- ✓ **Do the courses you teach change? How often?**
- ✓ **Do you use Clickers or a similar device in your classes? How do you feel about them?**
- ✓ **What tools do you use to teach (Powerpoint, handwritten notes, etc.)?**
- ✓ **What methods do you use to assess student comprehension during lecture?**
- ✓ **How many students ask questions in class? Are they the same students?**
- ✓ **Is it easy to determine when students are confused during lecture?**
- ✓ **Do you have to adapt lectures spontaneously? How often?**
- ✓ **Would you like to measure attendance?**
- ✓ **How do you feel about students using mobile devices in the class for learning?**
- ✓ **Do you do in class discussions by forming small groups? What are its limitations?**
- ✓ **What's the purpose of doing these discussions?**
- ✓ **Do you podcast lectures? If not would you be ok recording the lecture and sending it to students?**
- ✓ **What would you say is one thing you wished Clickers had?**
- ✓ **What is the one thing you wished you knew about students during lecture?**
- ✓ **How do you go about the grading process? Do you provide a key to your graders? Are you selective about who grades your student's exams etc? How much time does it generally take to return exams**

Appendix B. Post Device Feature Discussion Survey

- ✓ **If you were interested in a product like this, how would you find about it?**
- ✓ **Do you discuss educational technology apps with your colleagues? How often?**
- ✓ **Where would be your preferred place to place a device - pocket, belt or shirt?**
- ✓ **Would you be okay wearing a microphone in addition to the one you already wear?**
- ✓ **Every class has students that are strong, weak, and average. While preparing for lectures which group do you try to target?**
- ✓ **Who else do you believe would be good to speak to about this learning tool?**

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VOYAGE TO UKRANE'S DISTANCE EDUCATION:
Distance Learning For Sustainable Development of All By 2030

Olena SOLOVIOVA
Senior Teacher of Romance and Germanic Languages and Translation Department,
National University of Life and Environmental Sciences of Ukraine, Kiev, UKRAINE

ABSTRACT

Ukraine is a post-Soviet country and got its independence in August 1991, in 1996 Constitution of Ukraine was adopted (Конституція України, 1996). Since that time all areas of Ukrainian economy have constantly been changing. Education has undergone rapid transformations as well. In 2016, a new Law "On Higher Education" was adopted. Among other principles of this law there is a principle of lifelong learning which enables Ukrainians to obtain higher education at all ages (earlier citizens were allowed to obtain higher education until they were 35 years old) (Закон України «Про вищу освіту», 2016). This principle challenges higher educational establishments to introduce new techniques to the academic process, to bring novelty into the classroom. Two issues are being brought out into the open to enhance the process of learning. They are the promotion of distance learning in order to enable all learners irrespective of their age, sex, religion and beliefs to get higher education and the second issue is how to cultivate creativity in those who learn distantly. Currently the concept of distance education is based on the following legislative documents:

- ✓ **Constitution of Ukraine (www.zakon.rada.gov.ua);**
- ✓ **Law of Ukraine "On Education" (www. zakon.rada.gov.ua);**
- ✓ **Law of Ukraine "On National Programme of Informatization" (www.zakon.rada.gov.ua);**
- ✓ **Resolution of Verhovna Rada (Parliament) 06.07.2000, № 1851-III "On approving tasks of National Programme of Informatization for the period 2000-2002" (www.zakon.rada.gov.ua);**
- ✓ **Decree of President of Ukraine 31.07.2000, № 928/2000 " On measures to develop the national component of global information network (Internet) and to provide a wide access to this network in Ukraine" (www.zakon.rada.gov.ua);**
- ✓ **Decree of Ministry of science and education of Ukraine 07.07.2000, №293 "On the establishment of Ukrainian centre of distance education" (www.osvita.org.ua).**

Keywords: **Distance education, distance learning, Ukraine.**

INTRODUCTION

The goal of this study grew out of difficulties caused by attempts to incorporate distance learning in Ukraine's education system.

We are living in a globalized world, better to say in the era of instant messaging, email, Facebook, Skype, or Twitter communicating and video conferences etc. Having become an integral part of people's life information and communication technologies transformed systems of education and consequently educational establishments.

Nowadays traditional that is face-to-face education in Ukraine is widely utilizing information and communication technologies in order to suggest new ways of obtaining education, to enhance its academic process, to motivate learners. Skills in information and communication technologies enable a future specialist to improve their professional qualification or to have a dramatic change in their career sitting in a comfortable armchair at home, or in a public place or even after a hard working day at night. Thus the issue of distance education is being brought to open.

The key factor that distance education is coming out on top is its high quality comfortability. Why is it then that over the last decades Ukraine's education has been tussling with integrating distance learning into the higher education curriculum? Declaring the advantages of distance education in contemporary Ukraine, universities are reluctant to suggest distance courses to learners.

What is interesting is that currently traditional academic process has its twin online sibling that is almost all universities use e-learn platforms. Lecturers have developed online versions of their syllabus with the intention of providing students with appropriate material. The problem is that sitting in the classroom full-time students study the material online. It is claimed to be easy to master and more significantly to be more fascinating and motivating to get involved in the process of learning. However, advocates of this technique equate it with distance education.

Taking into account that a society, globalisation and informatization are developing speedily especially in the western side of the world, the awareness that obtained knowledge, skills and abilities are getting old arouses a new reality of contemporary life. Professional knowledge, skills and abilities need retraining, developing and enhancing. Many people lose their job and sometimes their life focuses just because they are not able to change themselves for better in order to become competitive.

People are the value of a society, a driving force of its development and thus the more competent people are the more developed the society become. Here, a concept of adult, vocational education lifelong learning-LLL, through distance or online education offers new tools for tackling this burning, deeply seated problem. Thus, this study aims to examine the problem of lifelong learning and distance education within the diachronous framework offering some possible suggestions.

DISTANCE EDUCATION
AND HISTORY OF DISTANCE EDUCATION IN UKRAINE

Distance Education

With distance learning increasing in popularity across the country and the world, a review of the extant literature as it relates to distance learning and face-to-face learning is warranted. In particular, this paper examined distance learning, including a historical overview, prevailing themes in past research, and studies relating the importance of the community concept in distance education. (Carmen, Tejeda-Delgado, Brett, & John, 2011). Loosely defined, distance education can be seen as any formal approach to teaching in which the majority of the learning process occurs while the teacher and the students are at a distance from each other (Verduin, Jr., & Clark, 1991).

Writing about distance learning in higher education, Phipps et al. (1998) defined distance learning by suggesting that all forms of distance education possess four characteristics:

- ✓ **the teaching/learning process involves activities where the teacher and learner are separated by a distance;**
- ✓ **a combination of media and technology, including print materials, television, video, CD, audio, and electronic communication mobile, IPTV may be used;**
- ✓ **knowledge and content is available through more sources than just the teacher; and**
- ✓ **delivery of the course material can be done anytime and at anyplace, with teacher/learner, learner/learner, and learner/group based interaction all able to take place.**

This definition of distance education allows for more flexibility as technological innovations, from the nineteenth century to the present, have allowed this form of education to evolve.

However, most studies regarding distance education today focus on online education. Online courses, then, are defined as those where a minimum of 80% of the course content is delivered through the Internet (Allen & Seaman, 2010).

We know that in theory of economics of education, employment of free market forces is an extreme method of manpower planning as opposed to central planning, and educational demand can boil down to its economical based only if and after the social demand ingredient is met. Also we must not forget that the additional need for public current and investment expenditures is estimated on the assumption that the existing qualitative and quantitative standards are satisfactory. If we compare the current pupil/teacher ratios, pupil/meter square schooling ratios, teachers' compensations and the other indicators with western standards, we can easily observe that a proper attainment of above mentioned target is even more unrealistic than it appears to be at the first glance. Moreover this analysis does not take into account the private and alternative cost of education, which in reality plays a very important role in a developing country like Turkey (Ozgü, 1998).

Cost analysis is impossible without specifying the particular institutional and pedagogical environment and clearly identifying the stakeholders referred to. Copying and pasting and the comfort of actual platforms ease considerably the production of content. For detailed assessment of costs, online cost calculators are available today. The entire way of producing content and organizing communication has changed today; it is therefore not comparable to prior ways of doing so. Learning effects are another important issue to be considered here. However, all in all, the different perspectives and expertise of the authors who come from different cultural contexts enriched the reader's perception of the problems involved to determine the costs and benefits of educational offerings today (Laaser, 2011). First of all, as literature about costing of distance learning and of online learning is relatively seldom treated and quite limited.

However, at first sight I expected to learn more about the economics of distance learning in the sense of modeling economic decisions of stakeholders rather than about the historical development and organizational changes of distance learning. From the various some statements are emphases that while online education might be more expensive than conventional education and probably also more expensive that the so-called "Fordist Model" of distance education, cooperation and modular production may reduce the potential gaps. Under the light of these senses the rapid diffusion of e-learning technologies lacks explanation. Or is it that educational institutions wrongly believed in the promises of the software vendors?

Today, although nearly every educational institution in industrialized countries uses learning platforms, in such varied contexts it is difficult to provide common definitions of the terms distance learning *or* online learning. Costing and estimating of financial aspect approach is very important for all organizations when mentioned globalization and historical development process of distance educations which are have faced in our new century.

This information and communication technologies based structural transformation process requires the developing new perspectives for restructuring the knowledge society. The knowledge society is being formed on communication networks. Therefore, the knowledge society is also being called the network society. From a general point of view, the network society is based on Networks. If worse comes to worse, when we think cost and economics of distance education related and parallel via technology-based researchers says that distance education getting as expensive as the system or applications are how much using technology.

The cost effective subject or component was one of the most powerful side of the distance education at the beginning years. Researches were saying that distance education systems are cheaper 1/8 portion cheaper when compared via traditional application for the same subject (i.e. business administration or sociology programmes). On the other hand, another major changing of he distance education systems' are has to chancing their title belonging which technology they using at the moment such as computer-aided DE, Internet-based DE, elearning, mLearning tlearning or ulearning etc. They have to identify themselves according to the most used technology.

Another technology based costing is effects individuals and institutions. When institutions inserted any developed a new technology to their body, it gets more cost to the system and application too. Of course this situation reflects to the learners' budget too.

History of Distance Education in Ukraine

In 1998 the board of National Academy of Sciences of Ukraine and collegium of Ministry of education of Ukraine joined founded Association of users of telecommunication net of scientific and educational establishments of Ukraine. The coordinator of this Association became Centre of European integration in Kyiv; it was later renamed into Ukrainian Research and Academic Network "УРАН" (http://www.uran.net.ua).

In February 1998 the Supreme Council adopted Law of Ukraine "On National Program of Informatization". This Law outlined the focus of this new area and formulated the process of informatization of Ukraine's education system. Since that time Ukraine has been hosting National conference "Internet technologies in the society" (Закон України «Про Національну програму інформатизації», 1998). In 1998 in Odessa a memorandum on cooperation was signed by representatives of 27 higher educational establishments in Ukraine.

In 2000 Ministry of science and education in Ukraine approved the Concept of the development of distance education in Ukraine. Since that time the concept of distance learning has been the issue of consideration at every higher educational establishment in Ukraine National Education Program-UNEP.

Ukraine of the 21st century" outlines the development of education on the basis of new concepts, implementation of new pedagogical technologies, the establishment of a new system of information support, introduction of Ukraine into a transcontinental system of computer information. Thus, new education system in Ukraine aimed to reconsider the existing concepts of learning and techniques of teaching different subjects, to expand the access to all degrees of education, to enable all population strata to obtain education irrespective their financial or physical abilities, work time, their place of living, etc, thus realizing the strategy of continuing study and life long learning. To achieve the set goals it was necessary to introduce distance learning, and this was asserted by National program of informatization (Постанова Верховної Ради України «Про затвердження завдань Національної програми інформатизації», 2005).

The document defined distance education as the form of education, the same as full-time, part-time and external studies and which uses technologies of distance education. Technologies of distance education include pedagogical and distance education technologies. Pedagogical technologies of distance education are the ones that enable educators to communicate with learners using telecommunication means and the technique of self-study utilizing electronic academic material. According to Ukrainian scholars information technologies are technologies which help educators to create, transfer and store academic materials as well to organize and to support distance learning academic process by means of telecommunication. This law also defined advantages of distance learning in Ukraine. They are as follows:

- ✓ **Flexibility, that is learners studying distantly mainly do not attend classes but they can manage their time and study at any place.**
- ✓ **Module system, distance learning curriculum consists of modules which meet individual or group needs.**
- ✓ **Parallelism, that is distance learning does not interrupt professional engagement of a learner or other study.**
- ✓ **Simultaneous, a large audience means that a great number of students and learners can study simultaneously.**
- ✓ **Economy–efficient (Cost effective) utilizing classrooms and technical equipment, unified presentation of the material, computer modeling reduce the expanses in order to train specialists.**
- ✓ **Affordable a person who studies distantly is able to use new vistas in information technologies which enhance the chances of a person to enter the information world.**
- ✓ **Social equality, all classes are able to obtain education irrespective of their health and social status.**
- ✓ **Internationality, as nationally as learners are able to obtain education in educational establishments of other or over seas countries without leaving their home country and at the same time educational establishments are able to provide education to learners from other countries.**

In these terms there appear new perspectives. First of all there is a new responsibility for a teacher. A teacher becomes an instructor who consults and coordinates an academic process, improves the courses they teach, fosters creativity in their learners (Указ Президента України «Про заходи щодо розвитку національної складової глобальної інформаційної мережі Інтернет та забезпечення широкого доступу до цієї мережі в Україні», 2000).

Then, distance learning has a positive impact on a learner such as they enhance their creative and intellectual potential by means of self-study, the use of information and telecommunication technologies, ability to make important decisions by themselves. Still there is downside of the development of distance learning in Ukraine. Distance education in Ukraine does not to meet enough, the needs and demands to be an information society by putting together chancing values which keeping their main own values, besides adopting them to the western way of life values, the society having the potential to integrate into European and world community.

Firstly, Ukraine lags well-developed countries behind in using techniques of distance education when training, retraining, and improving specialists of different spheres of economy day by day.

Secondly, we can speak confidently about the low quality of telecommunication, low connection reliability.

Thirdly, legal framework in Ukraine is poor to regulate and support the activity of educational establishments to incorporate distance learning together with full-time, part-time and external learning.

Fourth, nowadays centers of distance education function in 32 educational establishments(http://mon.gov.ua/activity/education/distanczijna/distantciyna.html) The total amount of higher educational establishments is 3,862 (http://mon.gov.ua/edebo/vidkriti-dani).

And the last but not the least is the number of users that access the Internet is very small. According to The World FactBook (2015) it is totally 21.886 people that is 49,3% of all population.

In comparison, top ten countries that access the Internet (in millions) are here.

In comparison, top ten countries that access the Internet (in millions) are	
China	6877.9
India	325.4
United States	239.6
Brazil	120.7
Japan	118.5
Russia	104.6
Nigeria	86.1
Germany	70.8
Mexico	69.9
United Kingdom	59.0

Source: https://www.cia.gov/library/publications/resources/the-world-factbook/fields/2153.html#126

Some Characteristics and Contents of the Distance Education or Online Programs and Courses in Ukraine

Nevertheless, the number of students and learners who are eager to study distance education is increasing. Thus we can speak about possible positive changes in Ukraine after distance education fully functions in the country. They are as follows:

- ✓ **As eastern part of Ukraine is now at war conflict with Russia, the population living now on the occupied territory has neither financial support nor opportunity to travel to Ukrainian territory to study. Distance education enables these learners to get high quality education.**
- ✓ **A larger number of military men after retirement seek for new jobs. Many of them while being in the army pursue ways of obtaining first or second higher education, or improving their civil professional skills. Distance education with its flexibility and comfort ability is of use here for them.**

- ✓ **Adults who have already had higher education but under different conditions can't apply their knowledge and experience are able to improve their professional skills and moreover change their profession using distance learning courses**
- ✓ **Lifelong learning is the "ongoing, voluntary, and self-motivated pursuit of knowledge for either personal or professional reasons. Non-native English language teachers, for example, are in crucial need to study through all their lives to be competent to create highly professional learning environment for their learners.**
- ✓ **Women who do not have a possibility to study full time at a university because they have to take care of their family are able to get a higher education via distance courses. They strongly believe that distance education will increase their confidence and maturity.**
- ✓ **Self-study being the main principle of distance education, a learner may become aware of the limits of their knowledge, thus seeking new distance courses for self-development**
- ✓ **Low cost does not mean low quality. This postulate cannot be applied to distance education. Traditionally higher educational establishments charge much for educational services. It is economically confirmed in terms of all expenses universities meet to provide high quality educational services. Distance education in its turn demands less expenses as the main principle of distance learning should self-study.**

Therefore, it does not only enhance social inclusion, active citizenship, and personal development, but also self-sustainability, as well as competitiveness and employability. (https://en.wikipedia.org/wiki/Lifelong_learning)

Used Technology in Ukrainian Distance and Online Education

Tradition learning in most cases bases its process on printed materials. Printed materials include printed books, textbooks, workbooks, posters, charts these things have some advantages such as simplicity and their use by people of all ages, should their independence from unfixed technical equipment. Most people even claim the smell of newly printed book among other advantages of printed materials.

Among disadvantages the most significant is the weight of these as learners having from five to eight classes a day should carry them to school every day. The use of tape- and video players with audio- and video cassettes brought some novelty to the classroom. Learners began excitedly to wait for the lesson to start as they could get new information which could be presented in a new way.

After the Law "On Informatization in Ukraine" had been adopted schools were computerized though this process was slow and thorny. In many cases computers just served as decoration of the classroom as teacher were incompetent how to switch them not speaking about utilizing them in order to intensify the academic process though the most courageous and creative educators started to use new techniques such as radio- and video conferences (though it was costly), emailing to learners and first computer programs for learning English for example.

Currently in Ukraine (http://www.nbuv.gov.ua/webnavigator/Dystantsiyna_osvita) there function the following online institutions to meet the demands of those who want to obtain education using distance education:

- ✓ **Arzamas (http://arzamas.academy)-so called an online university which cosists of "humanitarian series" covering specific issues. Video lectures are conducted by either scientists or experts.**
- ✓ **Corsera (https://www.coursera.org)-an educational platform offering free online courses provided by leading universities and organizations of the world.**
- ✓ **Duolingo (https://uk.duolingo.com) -an online platform to help learners to study Spanish, French, German, Portufgese, Italian, English and other languages.**
- ✓ **eDX-(https://www.edx.org) the web-site offers access to free online courses conducted by leading universities of the world, particularly Massachusetts Technological University, Harvard, Berkli and others. The courses cover the issues of business, information technologies, finance, history, literature, mathematics, science, etc.**
- ✓ **General Assembly-(https://generalassemb.ly) an educational company which helps to study the basics of projecting, business and technologies.**
- ✓ **Khan Academy-(https://www.khanacademy.org)-the website of non-commercial organization which enables to study algebra, geometry, banking, biology, physics, chemistry, astronomy, economics, finance, statistics online.**
- ✓ **Learn typing online (https://www.alfatyping.com)-learners learn to type. After competing the course participants get a certificate of completion.**
- ✓ **Learning (http://elearning.if.ua) specializes in business and management, offers online courses for professional development.**
- ✓ **Mentor.zp.ua (http://mentor.zp.ua)-suggests materials for planning classes in carpentry.**
- ✓ **Open-study (https://www.open2study.com)-Australian website suggesting academic online courses in Fine Arts, business, medicine, management, science and technologies, etc.**
- ✓ **Prometheus (https://prometheus.org.ua)-the website of a non-commercial project enabling Ukrainians to access free online courses which are offered by universities.**
- ✓ **TED (http://www.ted.com)-lectures are given in 100 languages.**
- ✓ **Udacity (https://www.udacity.com)-the website offers online courses for top-instructors in the sphere of web-design, mobile development etc.**
- ✓ **Udemy (https://www.udemy.com)-more than 40, 000 online academic courses are presented on this website.**
- ✓ **Бизнес школа для старшеклассников (http://edma.com.ua)-the website gives an opportunity to high school students to sales agents, regional manangers.**
- ✓ **Вища математика. Дистанційна освіта (http://matem.com.ua)-the website is interesting for those who are keen on mathematics.**
- ✓ **Віртуальний університет (http://vu.net.ua/uk)-"Віртуальний ніверситет" -deals with finding possible solutions to problems in distance education in Ukraine.**

- ✓ **Дистанционное обучение (http://www.distance-learning.ru) -the website which focuses on implementation and use of distance education, electronic courses, virtual classes and other contemporary educational technologies.**
- ✓ **Дистанционное обучение (все о дистанционном обучении в России и Украине) (http://distancionnoeobuchenie.com) -the website presents information about problems of distance education in educational establishment.**
- ✓ **Дистанційне навчання в СумДУ (http://dl.sumdu.edu.ua/ua) -the website gives access to academic material, consults teachers, conducts online video lectures etc.**
- ✓ **Інтуїт (http://www.intuit.ru)n -the website presents courses in different subjects.**
- ✓ **Інститут дистанційного навчання МАУП (http://maup.com.ua) -the teachers conducts online lectures and university events.**
- ✓ **Інтерактивні технології громадянської освіти (http://westukr.itgo.com) -the website specialises in humanities.**
- ✓ **Компьютерное обучение. Школа архитектурного дизайна. (http://www.uspehdist.net.ua/)n -the website gives a possibility to download online courses.**
- ✓ **Обучение в интернет (http://www.lessons-tva.info) -the website enables learners to study economic information tecnology, computer networks and telecommunications, foundations of e-business, etc.**
- ✓ **Основы информатики и вычислительной техники (http://inform-school.narod.ru) -the website deal with foundations of programming.**
- ✓ **Портал знань (http://www.znannya.org) -presents free online courses in information technologies.**
- ✓ **Региональный Центр Новых Информационных Технологий (http://rcnit.com.ua) -the website presents more than 20 computer courses.**
- ✓ **Центр Дистанционного Обучения НАДУ (http://bizztobizz.net) -the website of an affiliate of National academyСайт Центру дистанційного нав of state management.**

TRADITIONAL AND NEW DISTANCE EDUCATION PRACTICES

Traditional Distance Education Practices

Now telecommunication based distance education including real time interaction is a part of distance teaching and training at all levels, from primary school to university, for formal as well as non-formal education around the world. The history of international development is more than 50 years old. The origin of its prehistory may be located hundreds of years earlier, when the efforts of navigators and new conceptualizations by scientists started changing our idea of the world and of our place within it. Initial ideas about development focused on technology transfer.

The world was seen as polarized between developed and underdeveloped nations (terms that were later replaced by industrialized and developing nations).

Distance education and technology are contributing to this general fact. Interactions between people and society make education institutionalized and develop technology. The most important factor in new knowledge society is to use new technologies in education. It speeds up the process of social mobility, and condenses socialization. In conclusion, researches in the field of distance education should cover all social units in which socialization is in question. Distance education is based on technology, so the two main concepts that must be examined are education and technology. Therefore, the first perspective is the relationship between education and technology. In this frame, new problems arise that depend on them. They must be evaluated while we practice them, and the analysis to be done concerning distance education in this paper must be critical. The second perspective is an interaction between individual and society. Furthermore, separated discussions must be done from the angle of individual and society. It must be questioned how distance education is effected from these factors, and what the reasons are for them, and what the direction of change is. Looking for answer for those questions is to frame a perspective.

Distance learning is a crucial channel offering the opportunity to use mass media devices and its new technologies for education. The first contemporary distance-learning models have been used for various educational problems are tackled through use of DE in many parts of the world in which helping those wishing to have a vocation and those others hoping to improve their educational backgrounds (Demiray, 2010). Rapid advances in information and communications technology in the digital age have brought about significant changes in the practice of distance education (DE) worldwide. DE practitioners refer to the new forms of DE, which is characterized by the convergence of an open learning philosophy, DE pedagogies, and e-learning technologies.

Of course, early distance education applications were running in correspondence education form. Infact, the first correspondence style is started by appearing in newspapers, aiming to educate people. While the term 'distance Education' is more than hundred years old, recently the field is reborn parallel to the new developments and innovations at technology.

Substantially, rapid progress in technology changed the nature of distance education. In this context, history of distance education can be discussed generally in five clear periods. Historical milestones of the distance education can be summarized as fallows:

- ✓ **A period of before correspondence education. Some educational activities which are try to aiding for lack of education process before constructing and establishing correspondence education systems.**
- ✓ **Heavily applied correspondence education systems period. Correspondence education systems widely used printed materials by using postal system for delivery such books, newspapers, guide books or other printed medium for realizing their aim.**
- ✓ **Instructional radio and television which is called one-way communicational period by broadcasting. In this period broadcasting radio and television used functionally beside of printed material for being audio and visualizing of course materials.**

- ✓ **Than started two- way communicational audio and interactive period. With two-way audio and video between teachers and students these emerging technologies, educators are able to include more interaction in educating at a distance.**
- ✓ **In delivery of distance education, the fifth period can be described using satellite and future technologies which are integrating via computer and computer combining systems. Telecommunication technologies such as radio, television, video cassette, computer, satellite, and fiber-optics are aiding educators by development in communication and electronic industry.**

In 1833, an advertisement in a Swedish Newspaper opened to study "Composition Through The Medium of Post". In 1971 an advertisement was found in Boston Gazette of March 20, 1728, Quoting the offer self instructional materials in shorthand (and possible correspondence education). 90 In 1977 it was quoted the following advertisement of 1833 (in Lunds Weckebland, Lund Sweden), which explicitly refers to postal teaching:

"A card.
The undersigned respectfully inimates to those Ladies and gentlemens, in the adjanet Towns,who study Composition Through The Medium of Post that the address or the month of August, will be little Grey Friars Street, Lund"

The main goal of correspondence education was to provide equal educational opportunities for everyone in the country. It helped colleges, universities, and state departments of education to solve problems of equal education. Distance education began from its origins in correspondence education. Correspondence education programs were developed in Canada, New Zealand, Australia, China, and USA in places where people lived far away from each other. Other variants of distance education began in Britain, in 1836 when the University of London added external examination application in its system. Main aim was to offer a credible examination service to people studying in small colleges. However, the porportion of candidates preparing themselves for the exams by private study grew steadily.

New Distance Education Practices

Today, distance education systems are very flexible for to meet a learner's demands rather than masses. The individualistic needs are getting more important and emergency to meet learner demands by using the latest and the best available technological developed component and items in their applications. This is another reason which distance education perceiving are more expensive and cost effective when we compare former costing of around the world in private or state application sector.

New technologies, globalisation and new ideas about student learning challenged the traditional approaches to the practice of distance education. Advances in technology have promoted key changes in distance education and changed the learners' needs. As a result of these changes, there has been a shift from mass to 'boutique' education, which takes the characteristics of diverse learners into account.

This new environment requires a flexible structure in which ideas are readily tried and shared. It is claimed that in distance education, post-Fordist systems would be able to rapidly respond to the needs of the learners. Post-Fordism is directly related to constructivism. The constructivist approach to learning in which individuals give meaning to the world through experience underlies the post-Fordist position. The post-Fordist approach to distance education focuses on the consumer rather than the product. Administration can be characterized as decentralized, democratic and participatory and the division of labour is informal and flexible.

In the context of constructivist ideas and post-Fordism, in higher distance education, programmess have been developing that focus on individual needs of learners. Learner-centered, interactive and collaborative practices are being experienced in addition to the traditional distance education practices. In these new learning environments, learners are given the opportunity for having the control of their own learning process.

In addition to these, by the integration of Internet to educational settings, traditional forms of distance education have been transforming and the Internet has become the new medium for distance education. (Gunawardena, & McIsaac, 2004) are state that the explosion of information technologies has brought learners together by erasing the boundaries of time and place for both site-based and distance learners. For instance, synchronous and asynchronous technologies allow learners to interact with various agents and study in challenging collaborative environments. Today's usage of the technologies are given an opportunity on prepare their study materials for presenting overseas education services mass or individually, wherever possible, at any time and level on any kind of content.

VALUE CHANGING EFFECTS OF EDUCATION and DISTANCE EDUCTION

The cognitive component of readiness implies that primary school teachers have professional expertise, which combines psychological, pedagogical and methodical knowledge and the knowledge of the DL problem. Psychological and pedagogical knowledge includes the knowledge of the DL technologies use in professional pedagogical activity. Methodical knowledge is the knowledge about the general methods and techniques of the organization of the teaching-learning process using DL technologies. Knowledge of the DL technology is the knowledge of software and hardware of DL technologies (Mukoviz, 2016).

Literature review shows that there are several approaches in value education (Sunal and Haas, 2002; Superka et.al, 1976). Value approaches above can be applied by associating them with relevant units and topics in several courses within distance education (Deveci, 2015).

Inculcation, clarification, moral development, analysis and character training are general guidelines as to how these approaches can be employed within distance learning. Small details of these approaches are here;

Inculcation

In this approach aims to instill and internalize certain values in students and to change the values of students so that they can more nearly reflect certain desired values (Cengelci, 2010).

Activities targeting value education can be conducted across several courses within distance learning. For instance, some short stories can be placed in course books in order to guide the students, and animations of these stories can be incorporated within TV programs.

This approach facilitates value education through participation into various activities within the scope of Community Service Course included in the curriculum of distance learning.

Clarification

This approach makes the individual aware of his/her emotions, beliefs, values, strengths and weaknesses, helps him/her own the honor of life. This one investigates the ways how students state their value choices, how they evaluate them, and how they use the values in their daily lives (Akbas, 2008).

Within this approach, it may be possible to enclose several problem-solving activities into the course books or courses conducted through video-conference method so as to make students think about their own solutions. Related dramas can be broadcasted via TV or radio programs in order to help students with their decision making skills.

Moral and Value Development

Moral and value dilemmas can be questioned through group discussions to be held in e-learning courses with the aim of supporting moral development of students within distance learning system.

Anchored by a teacher, these moral discussions offer students the chance to verbalize what they think about the dilemma and to defend their standpoint.

Analysis

The aim of this approach is to help students employ scientific research and thinking process to be able to solve problems they face concerning the values (Doganay, 2009). Problem cases about values can be derived based on the life of an important person, and these can be provided to the students via books, television, and other e-learning opportunities within distance learning. Since this approach depends on the questions posed by the teacher about the case study, it is perfectly appropriate for educating adults.

Character Training

Character Training is defined as the process to help students understand basic ethical concepts, bond with these concepts, and change their behaviors in accordance with these values (Cengelci, 2010). Within this approach, it may be possible to conduct e-meetings, make use of cooperative learning activities, design tasks to improve consciousness, and teach conflict management via utilizing the learning tools of distance education.

The stages have no strict limits as it is impossible to fragment the integral process, define its links: where education begins and where beliefs continue, and where the latter pass into active and volitional sphere. However, each stage requires appropriate organizational and pedagogical content.

Clearly, primary school teachers' readiness to DL in the system of lifelong education is formed during their professional training and covers the stages of forming motivational and target areas, knowledge about the nature of DL and the possibility of its application in modern lifelong education while teaching academic subjects, developing skills in using the mentioned technology in lifelong education.

The stages have no strict limits as it is impossible to fragment the integral process, define its links: where education begins and where beliefs continue, and where the latter pass into active and volitional sphere. However, each stage requires appropriate organizational and pedagogical content. (Mukovic, 2016).

Paradigm changes in science, technology, society, economics, and politics and learning theories impacted the status of distance education around the world. Behaviorism constituted the basic principles of Fordist approach to distance education. Post-modernism and post-Fordism had been the new concepts in this age.

The reflection of this age on learning theories was the emergence of constructivism, which assumed that knowledge and truth were constructed by the learner and did not exist outside of his mind.

The Fordist strategy for distance education Learning Theories and Distance Education Practices are fully centralized, single-mode, national distance education system using economies of scale by offering courses to a mass market. Constructivism and post-Fordist approach suggested creating programs that focus on individual needs of learners.

Post-Fordism is directly linked to constructivism, which suggests learner-centred interactive and collaborative learning environments. In addition to these, online environments have been an appropriate medium for the application of constructivist principles to learning in higher distance education practices (Kocdar & Keskin, 2010).

Although it is not among the 'higher' education practices, it can be regarded as a pioneering example of post-Fordist design for the future higher distance education practices

The changing of values of education in the transformation between industrial society and post-industrial society is an important issue that today world generates a rethinking process about education's ability to respond to the contemporary needs of knowledge management and for reflecting about "relevance/obsolescence" of new contents and methods, that are necessary for renewing all over the world training programs in a way that they can be useful for the socio economic development in the Knowledge Society age.

One of the most important changes is a consequence of the possibility to transform "Distance Education to Distributed on line Learning" to organize a "Sharing Knowledge Methodology" in the World Wide Web.

It is important to remember that "Distance education" is normally working as an extension of the traditional education based on the "transfer of knowledge" in a less distance environment, while the "Distributed learning" is based on a WEB-Editorial approach to publicize new advanced educational resources on line and this can be possible within the co-operation of Virtual Communities organized for improving the "knowledge sharing in the WWW", and for overcoming skill shortage especially in relation to new approaches of knowledge management for renewing socio-economic development through rethinking education values and strategies in an international multidisciplinary dimension.

It is easy to understand that today the improvement technology of the WEB-based education, favor the changing on the division of international working society. In fact the work world is living in a fast-changing of the future knowledge society age where educational demands of intellectual workers need to be continually self-correct and adapt to new directions of trans-national socio-economic development.

Therefore the needs of vocational training of individual learners go far beyond traditional "start-up" curricula organized within specific disciplines. Therefore the use of the World Wide Web Portals for improving "Learning WEB-domains" in various advanced fields of education is growing rapidly. Web resources are often included in web-reading seminars and being extended by the use of electronic discussion of collaborative net-learning groups.

In other side integrated methods of knowledge building (Demiray, 2008) covering by in changing traditional values of education and developing "Novel Learning Approaches" using the World-Wide Web (Demiray, Taskiran, & Yilmaz, 2011).

These correspond respectively to education innovation activities especially for developing "Lifelong Learning" resource-supports as well as to create web-powerful engines and web-educational experts tutoring, for helping the mastery of multidisciplinary subject material and finally to enhance evaluation criteria for assessing interaction between functional, application and contextual learning domains correlated with the requirement of developing an interactive and effective "Mutual Learning" achievement.

In addition "Virtual WEB-communities" in research educational innovation , will provide the implementation of such learning WEB-environments, by means supporting the financing of international projects in favour of developing international co-organization of Institutions and groups of authors for sharing the production and the dissemination of "Net-Learning" best practices based on the common principle of "WEB-Learning Domains Collaborative Construction".

In reality the demands of the contemporary "Knowledge Society Age" are having a profound impact (Demiray, Taskiran, & Yilmaz, 2011) on fundamental patterns and modulation of learning (net. learning or mutual learning), throughout improving the transformation between Distance Education to Distributed Learning.

Therefore in this context new values of world wide education are emerging towards holding up co-operation though developing mutual learning methodology based on sharing of knowledge among different types of cultural environments; this new methods and innovative contents of Distributed Learning, gradually develops into a world wide dimension a better critical understanding how global socio-economic reality can be changed in the near future.

The WEB-editorial environments are building upon the "principle of interactive learning domains" where the individual's learning criteria has been broken down into the procedure of web-based experience" that enable people to share and use innovative integrated knowledge in contents and methods into new settings of Networking e.Learning (i.e. NET-Learning) strategies.

As a matter of fact "Net-Learning" need to be considered more adequate for permanent adult education in relation with the changes in "networking knowledge management innovation" based on growing up Digital or Virtual enterprises into an extended learning enterprises acting in the WWW without cultural barriers for improving Knowledge Developmental Society.

In this case the integration among sociological and economic research has increased the understanding of the nature of competent performances (skills and abilities) reinforcing the principles of knowledge management reorganization that underlies the contemporary growing of the economic value of Intangible Assets (i.e. human resource and social capital) in relation to "Tangible Assets"(goods, machinery); this change of the relative proportion in economic value is extremely necessary to solve and or to save problems in a world wide variety of business areas, in a way that can fit the Knowledge Economy world wide development.

In this way "Education Innovation by Web-Integrated Resources" development is becoming an progressive world wide necessitate that changes the concept of National Education and therefore transforms the traditional values of learning goals built up during the Industrial Society into a more scientific one concept of learning acquisition. In fact in this context of changing educational and economic values it is important to consider that Science from an historical point of view is a "Universal knowledge", while the construction of social knowledge especially for the duration of the past industrial society epoch, was mainly focused to the "National Identity".

In spite of this nowadays the separation between social knowledge linked to the National Identity and the Universality of Science understanding go forward a deep modification.

In fact Web-centric experiments in the Digital Communication oriented to build up new Knowledge Integrated System-KIS, demonstrate that it will be no possible an homogenization of cultural identity and instead of it can be possible to develop and improve the cultural differences also in science understanding by means a sharing methodology for implementing the same goal of the construction of the contemporary Knowledge World Wide Society.

The above consideration is not so extraordinary. In fact the neurological scientific advances can be useful to understand possibility of modifying the contents and methods of the multidisciplinary WEB-Learning Integration principles and criteria, following the fundamental need to change the old industrial knowledge based education, in a way that that can advance the Intangible Assets economical values.

The main function of the brain is to develop an adaptive flexible system to the environmental and social changes to be naturally creative. Therefore the most potent feature of the brain is its capacity to function on many levels and in many ways simultaneously.

As a matter of facts the brain is based on a parallel processor that generate different possibility of goal oriented meaning We get at least two ways of organizing memory, although there are many models of memory. In spite of this neurological potential of human learning processes the traditional method of instruction of the Industrial society, followed a criterion useful for building up a particular social division of labour and for this objective has utilized an arbitrary disciplinary taxonomy of unrelated contents for the transfer of knowledge. In this way the educational disciplinary methodology restricts only a fragment the brain natural potentialities based on multiple understanding.

Therefore to fully understand the contemporary fundamental change of economic values of education we need to remember and underline that in the past following an industrial criteria of industrial work efficiency all over the industrialized world see the education subdivided in an historical disciplinary taxonomy.

In this manner the learning acquisition during the Industrial society occurred not for improving the potential creativity of the human brain, but for conditioning the society through disciplinary "patterning" and schematic maps and arbitrary categories of subdivision of knowledge, to control the nature of the historical relationship of the social division of labour that was a condition for improving the industrial society.

In spite of this in the current post industrial society new strategy of education must become to develop the requisites of the complex multifaceted nature of the human brain potential for bringing up a new social construction of the world wide knowledge Society. Hence looking to the future we can see the learning innovation into an evolutionary growth where the successive development can occurs in several creative ways throughout the contemporary times of ICT development.

So that "Distributed Web-Learning" innovative approaches can be useful to facilitate the fundamental plasticity of the human brain; in fact neurons continue to be capable of making new connections throughout life so that the search for new meaning remain innate and permits to introduce a more natural approach for improving human potential creativity.

Starting from those fundamental considerations the LRE-EGO-CreaNET of the University of Florence , proceed in developing new projects on "Novel Learning Approaches" using the WWW" by focusing on the following principles and criteria for changing values of education:

- ✓ **The disciplinary method of knowledge acquisition is obsolete because cannot generate new model of knowledge processing to support new crucial skills for the Construction of the World Wide Knowledge Society.**
- ✓ **For this goal the new acquisition of knowledge need to improve a conscious world wide reflexivity upon the changes on knowledge economy for understanding what kinds of integrated contents people need to learn in the next future for developing useful work and for better life.**
- ✓ **The acquisition of knowledge need to follow shared and differentiated tasks convergent to the same goal of the Knowledge Society Construction,**
- ✓ **The existing knowledge cannot moreover be a constrain to the innovative educational research developing of new integrated knowledge; this because only the process of integrating the new knowledge with the old one, may identify and generate additional opportunities for overcoming the contemporary skill shortage and realizing the human resources needed for modifying knowledge-based systems (KBSs).**

Education, and, especially distance and open learning systems are getting more expensive (for the using any new technology inserting to the system) and need extra increased budgets for the education institutes and to the learners. Every inserted technology item is increasing the cost of the produced study materials for both sides.

Besides this chancing there is another new trend again for the education and especially distance and open learning systems which is call "Individual Education System-IES" or with a term "individualism" or "individuation".

Since every used new technology has specialty for to meet the need of demands individual's. Versus these developments, we have to say to quality of education especially for the distance education and its applications increasing nearly in every field.

In this meaning the countries which are separated from soviet block in late 1970 and early 1980s like Czech, Poland, Yugoslavia etc. and 1990s such as Ukraine or some Turkic countries, by deciding and choosing new way of life sociality, western type.

Here we should heavily mention Ukraine which they separated in 1991. Which are especially Ukraine and its educational decider should be locomotive of the system on what world authorities and developed countries are doing for the future their society with their own today's technology authorities and developed countries are now trying to change their younger generations' values with the parallel administrational ideology to carry on their hegemony as they own.

They are focusing on for expanding their tradition and distance education system to vocational education degree programs much more than before they have for to support their intellectuals and qualified work and man power in any field. Another approach is they motivate especially distance learning and online applications are focusing on adult education for to close the gap between older and younger generation for the future life for not falling live conflict. Ukrainian education system gives an opportunity to get education to all population strata. At the same time if to look at those who study at vocational or higher educational establishment we in most cases see young learners that is those who just left high school.

In scarce occasions we can notice those who want to retrain, or to improve their professional skills. In most cases adults who crucially need new knowledge, improved skills to adapt to complicated life in an information society, developed abilities to set life goals and achieve them seek other ways of satisfying these needs. At the same time this process though being slow is effectively pushing the necessity and significance of adult learning and thus LLL into minds of Ukrainians.

Online courses which are being introduced by universities enable Ukraine's citizens to get involved in their own professional growth using high information and communication technologies, for example, free Google applications and gadgets, a mobile phone being the most popular one, using interaction IPTV for global communication. Ukrainian society is changing its values, and for the period of 2030 the main principle of Ukraine's education system will become lifelong learning. In addition, education and especially distance and open learning systems should be chance their curriculums and using technologies mostly for the Lifelong Learning-LLL to integrate their any kind people and any level worker and any type to social group for to keep society together or the speedily westernalization.

CONCLUSION AND SOME SUGGESTIONS

Conclusion

The findings confirm that Ukraine has chosen the right way to progress in order to establish new Ukrainian values.

These values reflect the concept of integrating adult, vocation and especially LLL through distance and online learning in order to make an ordinary person competitive on the labor market, open to novelties, flexible and being able to adapt to different situations as well as being able to effectively use its own potential for self-improvement at all ages, irrespective time and place, nationality, gender, health, social troubles.

The results of the study are applicable when analyzing the mistakes Ukraine is making on the way to introducing Western values in the society. More and more Ukrainian citizens do not stop learning. They develop themselves professionally and even study to get new professions. It is caused by the loss of interest in a profession, low salary, the popularity of a profession.

Suggestions

Possible suggestions are making the process of Ukraine's entering an information society and might be as follows:

- ✓ **to constantly develop legal framework in terms of distance education and lifelong learning;**
- ✓ **to establish centers of distance education (Наказ Міністерства України «Про створення Українського центру дистанційної освіти», 2000) and to provide their functioning;**
- ✓ **to provide the adjustability of the content of academic material (that is to constantly bring the academic material to date) to meet the needs and demands of distance education deal adult, vocation and especially LLL;**
- ✓ **to coordinate academic process at different levels of education;**
- ✓ **to stimulate learners for self-study utilizing technology applications and gadgets;**
- ✓ **to integrate academic curriculums and programs;**
- ✓ **to develop new online courses for adults when new professions appear on the labour market;**

Only Ukrainians' constant obtaining new knowledge, cultivating new professional and personal skills and abilities will provide a sustainable development of Ukraine in the era of an information society.

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BIODATA and CONTACT ADDRESSES of the AUTHOR

Olena SOLOVIOVA is a full senior teacher at National University of Life and Environmental Sciences of Ukraine, the third biggest university in Ukraine and a visiting professor at KROK University, the biggest private university in Ukraine. Before devoting her work fulltime to teaching, Olena graduated from Cherkasy Teacher's Training University, graduates of which are highly competitive at a labour market. Following her own rule "when you really want to develop yourself you seek a way" Olena has completed an online course "Critical Thinking in Language Learning and Teaching" at University of Oregon and participated in 16th American

Studies Summer Institute "Promoting Transparent and Accountable Leadership" which have changed her view on many issues of life. Olena is currently doing her Phd thesis and studying ways of enhancing creative potential in future teachers of English as a foreign language. Olena has a cute daughter of eight who inspires her Mom to enjoy the beauty of life.

Olena SOLOIOVA,
Senior Teacher of Romance and Germanic
Languages and Translation Department,
National University of Life and Environemntal
Sciences of Ukraine, Kiev, UKRAINE,
Mobile: +380730509695
Skype: olenasoloviova1
Email: lena7008soloviova@gmail.com

REFERENCES

Allen, I. E. & Seaman, J. (2010). ***Class Differences*****. BABSON Survey Research Group. Newburyport, MA: The Sloan Consortium.**

Akbas, O. (2009). İlköğretim okullarında görevli branş öğretmenlerinin değer öğretimi yaparken kullandıkları etkinlikler [Values education activities used by branch teachers in primary schools]. 2004 ve 2007 yıllarına ilişkin bir karşılaştırma [A comparison between 2004 and 2007]. ***Kastamonu Eğitim Dergisi*****, 17(2), 403-414. Kastamonu, Turkey.**

Cengelci, T. (2010). A Case study regarding values education in the fifth grade social studies course in primary education. Unpublished PhD. thesis. Andolu University, Social Graduated Science Institution, Eskisehir, Turkey.

Demiray, U. (2008). Dancing With Metacommunication For Distance Education: Functions and role of meta-communication concept for knowledge-building process in distance education. ***FormaMente-anno III,*** **Numero 3- 4, pp.111-140, Italy.**

Demiray, E. (2010). ***Kadın eğitimi ve uzaktan eğitim [Women's education and distance education]*****. Efil Yayınevi, Ankara, Turkey.**

Demiray, U., Taskiran, N., & Yilmaz, R. (2011). Meta Communication Conceptand the Role of Mass Media inKnowledge Building Process for Distance Education, Chapter 15, in Demiray, U., Taşkıran, N. Ö. ve Yılmaz, R. (2011). ***Meta Communication Concept and the Role of Mass Media in Knowledge Building Process for Distance Education, Meta Communication for Reflective Online Conversations: Model for Distance Education*** **Ed. U. Demiray, G. Kurubacak & T. V. Yuzer. IGI Global Publishing, pp. 249-264. DOI: 10.4018/978-1-61350-071-2.ch015**

Deveci, H. (2015). Value Education Through Distance Learning: Opinions of Students who already Completed Value Education, ***Turkish Online Journal of Distance Education-TOJDE.*** **January, ISSN 1302-6488 Volume: 16 Number: 1 Article 8, Eskisehir, Turkey.**

Doganay, A. (2009). Değerler eğitimi [Values education]. In C. Oztürk (Ed.) *Sosyal bilgiler öğretimi [Social Studies Teaching].* Pp.225-256. Ankara: PegemA, Ankara, Turkey.

Gunawardena, C. N., & McIsaac, M. S. (2004). Distance education. In D. H. Jonassen (Ed.), in *Handbook of Research in Educational Communications and Technology, 2nd ed.* Mahwah, NJ: Lawrence Erlbaum Associates.

"http://www.ehea-journal.eu/index.php?option=com_content&task=view&id=52&Itemid=171"&

Koçdar, S. & N Özdamar, N. (2010). The Nature of Learning Theories and their Effects on Distance Education Practices in Turkey, in *At the Interface, PART II Higher Education in Specific National Contexts*. (Ed. By Iva Apostolova and Tom Claes, Inter-Disciplinary Press Oxford, UK.

Laaser, W. (February-2011). *Book Review from Economics of Distance and Online*. (Edited by Bramble, W. J. & Panda, S. 2008). London: Routledge. 312 pages. ISBN 13: 978-0415963893.

Mukoviz, P., O. (2016). The Examinatıon of Readiness of Primary School Teachers To Distance Learning In The System of Lifelong Education*, GLOKALde*, January 2016, ISSN 2148-7278, Volume: 2 Number: 1, Article 1, Eskisehir, Turkey.

Ozgü, T. (1989). *Distance Education and Its Contribution to the Solution of Educational Problems in A Developing Country: (Turkey),* Anadolu Üniversitesi Eğitim Teknolojisi ve Yaygın Eğitim Vakfı Yayınları, Yayın No: 018, 1988, Eskisehir, Turkey. (This study has been printed from the Anadolu Üniversitesi Yayınları, Eskisehir, Turkey.

Phipps, R., Wellman, J. V., & Merisotis, J. P. (1998). *Assuring Quality in Distance Learning*. Washington, DC: Council for Higher Education Accreditation.

Sunal, C. S., & Elizabeth M. H. (2002). *Social studies for the elementary and middle grades*. Boston: Allyn and Bacon.

Superka, D. P.; Ahrens, C.; Hedstorm, J. E.; Ford, L. J., & Johnson, P. J. (1976). *Values education sourcebook: Conceptual approaches, material analyses and annotated bibliography.* Colorado: Social Science Education Consortium Publication, No: 176. USA: Retrieved on February 14, 2017, available from http://www. eric.ed.gov

Tejeda-Delgado, C., Brett, J. M., & John R. (2011). Distance and Face-To-Face Learning Culture And Values: A Conceptual Analysıs Texas A&M University – Corpus Christi, *Administrative Issues Joournal: Education, Practice and Research*, Volume: 1 Issue: 2, ISSN: 2153–7615, Retrieved on 14.02.2017, also available from http://www.swosu.edu/academics/aij/2011/issue2.aspx

Verduin, Jr., J. R., & Clark, T. A. (1991). *Distance Education: The foundations of effective practice*. San Francisco, CA: Jossey-Bass.

UKRANIAN REFERENCES

Закон України «Про вищу освіту» [Law of Ukraine "On Education"]. Retrieved on 15.02.2017. Available at http://zakon0.rada.gov.ua/laws/show/1060-12

Закон України «Про Національну програму інформатизації» [Law of Ukraine "On Education"]. Retrieved on 15.02.2017. Available at http://zakon0.rada.gov.ua/laws/show/74/98-%D0%B2%D1%80

Закон України «Про освіту» [Law of Ukraine "On Higher Education"]. Retrieved on 15.02.2017. Available at http://zakon.rada.gov.ua/go/1556-18

Конституція України [Constitution of Ukraine]. Retrieved on 15.02.2017. Available at http://zakon2.rada.gov.ua/laws/show/254%D0%BA/96-%D0%B2%D1%80

Наказ Міністерства України «Про створення Українського центру дистанційної освіти» [Decree of Ministry of science and education of Ukraine "On the establishment of Ukrainian centre of distance education"]. Retrieved on 15.02.2017. Available at http://www.osvita.org.ua/distance/pravo/01.html

Постанова Верховної Ради України «Про затвердження завдань Національної програми інформатизації» [Resolution of Verhovna Rada "On approving tasks of National Programme of Informatization for the period 2000-2002"]. Retrieved on 15.02.2017. Available at http://zakon2.rada.gov.ua/laws/show/1851-14

Указ Президента України «Про заходи щодо розвитку національної складової глобальної інформаційної мережі Інтернет та забезпечення широкого доступу до цієї мережі в Україні» ["On measures to develop the national component of global information network (Internet) and to provide a wide access to this network in Ukraine"]. Retrieved on 15.02.2017. Available at http://zakon2.rada.gov.ua/laws/show/928/2000

WEBLIOGRAPHY

http://mon.gov.ua/activity/education/distanczijna/distantciyna.html
http://mon.gov.ua/edebo/vidkriti-dani
https://www.cia.gov/library/publications/resources/the-world-factbook/fields/2153.html#126
https://www.cia.gov/library/publications/resources/the-world-factbook/fields/2153.html#126
http://www.swosu.edu/academics/aij/2011/issue2.aspx
https://en.wikipedia.org/wiki/Lifelong_learning
http://www.nbuv.gov.ua/webnavigator/Dystantsiyna_osvita
http://arzamas.academy
https://www.coursera.org
https://uk.duolingo.com
https://www.edx.org
http://www.uran.net.ua
https://generalassemb.ly
https://www.khanacademy.org
https://www.alfatyping.com
http://elearning.if.ua
http://mentor.zp.ua)
https://www.open2study.com
https://prometheus.org.ua
http://www.ted.com
https://www.udacity.com
https://www.udemy.com
http://edma.com.ua
http://matem.com.ua
http://vu.net.ua/uk
http://distancionnoeobuchenie.com
http://dl.sumdu.edu.ua/ua
http://www.intuit.ru
http://maup.com.ua
http://westukr.itgo.com) -
http://www.uspehdist.net.ua
http://www.lessons-tva.info
http://inform-school.narod.ru,
http://www.znannya.org
http://rcnit.com.ua
http://bizztobizz.net
http://www. eric.ed.gov

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IMPACTING LEARNING OUTCOMES FOR TOURISM AND HOSPITALITY OPEN DISTANCE LEARNING (ODL) PROGRAMMES BY ENHANCING STUDENTS' LEARNING ERGONOMICS

Hisham DZAKIRIA, PhD
Azilah KASIM, PhD
Universiti Utara Malaysia, Sintok, MALAYSIA

ABSTRACT

This paper is intended to suggest improvement to learning ergonomics to reduce non completion rate among Malaysia students within the government's lifelong learning programmes particularly among tourism and hospitality professionals who are pursuing higher education and continuous professional development (CPD) training via open distance learning (ODL) programmes. *Learning ergonomics* relates to the design of the learning characteristics, processes and the environment which is intended to support, influence and impact on learning performance adaptability. Effective learning ergonomics offers improvements to the course design, meaningful learning experiences, student comfort and subsequently higher completion study rates. This chapter believes by understanding our learners (i.e their perspectives and narratives as learners, professionals and member of a given community) by means of profiling, learning ergonomics can be enhanced and improve the learning outcomes. The tourism and hospitality students' profile and narratives can help to improve the *institutional*, *physical* and *mindset ergonomics* in their respective vocational programmes. Their lives provide a narrative that could establish learner's voice on the respective learning experiences. This can result in possible improvements in course design, facilitation of meaningful and inviting learning experiences, student comfort and productivity. The accumulation of these attributes could reduce learning frustrations in tourism educational and promote a better structured learning experience and success and reduced attrition rates among the learners.

Keywords: **Learning support; ergonomics; institutional ergonomics; physical ergonomics; mindset ergonomics; profiling learners' lives; open and distance learning (ODL).**

INTRODUCTION

Globally, human resource is an area that is growing in importance. As tourism and hospitality industry continues to grow the workers in these sectors needs to be continuously trained and retrained as service providers.

The rise in job demand requires increased staffing levels at a time when the labor pool is shrinking. Tourism and hospitality is a service industry, which is dependent upon the quality of manpower. In Malaysia the shortage of skilled manpower poses a major threat to overall development of tourism and hospitality industry.

Consequently today, we have many local higher institutions that are offering various types of progarmmes to help mitigate the shortage of workers in this field and help the current professionals to continuously upgrade their skills and knowledge. Nevertheless, like other industries Tourism and hospitality industry in the country is also facing the problem of talent crunch and high attrition rate that must be attended to ensure the continuous growth of this sector in Malaysia and elsewhere.

In spite of prevalent improvements in Open and Distance Learning (ODL) with greater technology and educational tools, stronger learning platforms, improved ODL programmes and courses, advancement of Open Educational Resources (OER) and better tutor training programmes, non completion rates (attrition) in ODL around the world is alarming at 30% - 45% (Jenkins, 2012; Jung, 2009; Simpson, 2003). Various factors have been linked with this phenomenon. Nevertheless, the strongest ones are related to learners' demography (i.e., educational background, age factors; digital divide, learning traditions, etc.) which may attribute to the the high percentages of attrition rates (Harold & Russum, 2000; Dzakiria, 2006; Hara & Kling, 2001; Kember, 1989; Mannan, 2007; Wickersham & Dooley, 2001). In spite of continuous concern on the non-completion rate, what actions have ODL stakeholders pursued to address the high attrition rate. How and in what ways have the research findings been used to improve learning? What improvements have been put forwand and implemented? What role does learning ergonomics play in reducing attrition rates?

The attrition (non-completion) rates in lifelong learning initiatives programmes via Open Distance Learning in Malaysia is very close to the above statistics (Lai, 2012; Mohamed & Zulkipli, 2014). This cut across many programmes offered through ODL in Malaysia, and tourism and hospitality is one of them. One way to mitigate such situation is to improve the learning support for the learners (Cercone, 2008; Dzakiria, 2013). This relates to searching the "best fit" for conditions that promote effective learning. These may include the learning materials (resources) available, conducive environments, good institutional policies that support learners' enrolment and learning activities, various types of support systems, and so forth.

Authors of this paper believes that by humanizing the learning ergonomics by leveraging on the students' profile and customizing the content to meet the students learning goals could enhance the learning experiences. This chapter is intended not just to illustrate the importance of improving learning ergonomics in open distance learning, but improving it better through learners' narratives which is a method that this chapter prescribes to improve the overall ergonomics where learners' aspects of learning will be considered to maximize learning.

Tourism is vital for Malaysian economy. Just like any other professions or fields, it is important to continuously upgrade professionals in this field to ensure that they are always competent, functional and professional. With the Blue Print on Lifelong Learning launched in 2011, Malaysia aspires to democratize learning to all Malaysians.

The government wants Malaysian workforce to be more dynamic, knowledgeable and be the best they could be to serve their clientele and people. This chapter argues that the best approach to developing skilled and professional tourism and hospitality labour force is to improve the students' learning ergonomics to support their continuous learning in this field. Specifically efforts must be made towards profiling the learners in a way that would allow important stakeholders in ODL (i.e. course designers, instructional technologists, administrative, etc.) design courses that are customized to the students' needs, and aspirations to excel in future undertakings. Understanding who the learners' are and profiling them accordingly helps course designers to design and deliver learning materials that would match with the required andragogical approaches to impact on learning. Relative to tourism and hospitality industry, learning approaches such as case studies or problem based learning for example may suit various types of learner groups in the field, and this may be more meaningful as they can relate learning to their own experiences.

Lifelong education involves continues formal, non-formal and informal education and learning activities. It involves learning and re-learning. Objectives of Lifelong learning in tourism is to support tourism professionals to continuously learn and upgrading their vocational knowledge and ability, and up-skilling the skills, and increasing their competitiveness by increasing knowledge, sharing best practice and providing continuous training for others. CPD and ODL for that matter are tools to help tourism professionals to become more competent and professional and become active participant making them more engaged workforce. This is imperative as tourism and hospitality in Malaysia like many other sectors have become intensely competitive. In fact, if Malaysia does not do enough (i.e. in upgrading and training the professionals) as iterated by Taib (2011), Malaysia may fall behind Thailand, Singapore and other countries in this region.

Through Ministry of Higher Education are highly supportive of lifelong learning across many disciplines in Malaysia government today. There is growing demand to enhance the human resources in tourism industry in Malaysia (Taib, 2011).Consequently, many institutions are offering various programmes in tourism and hospitality comprising of short courses at certificate level, diplomas, undergraduate degree programmes up to doctorate of philosophy.

In addition, there are also executive programmes to upgrade skills and knowledge offered my various institutions and training agencies. In addition, with the advancement of educational technology and with the rapid development of massification of online courses (MOOCs), many institutions are also beginning to offer various tourism and hospitality online courses (e-learning) with e-tourism curriculum to prospective learners.

The latter approach is hoped to open doors for more learning and training for tourism and hospitality professionals and learners making learning more accessible and flexible. ODL is seen as the mode that could reach to more learners regardless of where they are, what they do, what learning objectives they have, and etc. Nevertheless, to inculcate or instill lifelong learning and make learning a culture, there are fundamental requirements that must be met. These include:

- ✓ **Collaboration among stakeholders on diverse levels (local, regional, national). These refer to the team efforts to provide the best learning opportunities and experiences to learners. Benchmarking best practices, learning from others, leveraging and maximizing recourses to provide the best-fit;**
- ✓ **Designing curriculum that is carefully crafted to provide contemporary skills and knowledge that match the future labour demands in tourism and hospitality;**
- ✓ **Learning must be made more accessible and flexible all stages of their life cycles;**
- ✓ **Creation and establishing learning culture; and**
- ✓ **Creation of standards to assure quality assurance of all lifelong learning programmes.**

The above are prerequisites to ensure success in lifelong learning initiatives. These must be strategize to support the learning demand. Various factors need to be considered. Some of these factors may be relative to educational institutions, others are related to policy, and there is also a socio-cultural dimension that must be attended to. Therefore, this chapter as iterated earlier focuses on learning ergonomics particularly those that relates to tourism and hospitality programmes in Malaysia Specifically, this chapter is intended to define what constitute learning ergonomics and why improving the learning ergonomics would offer better learning support to learners; and how can learning ergonomics can be improved.

DEFINING LEARNING ERGONOMICS

If institutions are able to provide 'best-fit' support system between *learner-content-learning-teaching*, then logically the output would be positive. When learning are made more conducive, learners can learn better and improve their performance greatly. However, a "best fit" does not mean a single ergonomic solution that is best for all students, learning environments and institutions. It would be difficult to design given the broad students' demography. Tourism and hospitality learners may use a variety of learning styles. As a result, it is difficult for institutions to cater for all students equally. However, with effective learning ergonomics, students can be guided by harnessing on values such as convenience, efficiency, flexibility, cost-effectiveness and instructional effectiveness and better for support knowledge management (Gagne et al, 2005). With much consideration into enhancing the learning ergonomics, the learning experience within the tourism and hospitality programmes for example can be tailored more towards student-centred (Golas, 2000).

This can be done by providing essential support to learners that could help them in their future career. For instance if the profile of learners learning to become tour guides show that many of them are inadequate in terms of presentation skills or public speaking, perhaps the Programme can add on these imperative skills.

The ergonomics that this chapter focuses is not just looking for physical fit, but one that includes other factors. These includes learners' educational background, working experiences, psychological state, personalities, personal interests, strengths and weaknesses, etc., which help to build the learners' "mindset" and expectations towards completing their respective programmes successfully (Nagel, 2009, Tung, 2012).

In order to progress students' performance and deliver a worthy educational experience, related stakeholders must provide better learning ergonomics - which include not just the *physical*, but *cognitive* and *mindset ergonomics* must also be considered to provide better learning experiences. This can be achieved by profiling the students' lives and back round. If this is done with proper planning, it may provide institutions with meaningful information of their students. This information on learners' human factors is important to support learning. Such efforts would afford institutions and important stakeholders in ODL to enhance learning experiences and promote programme completion among learners.

In summation, learning ergonomics is about providing sufficient support to promote a healthy and balance interactions between *learners-content-teachers-institutions*. It involves understanding the theoretical principles underlying the learning ergonomics concept, data and approaches to optimise learner well-being and overall learning performance. The need to improve learning ergonomics in ODL is pertinent. It exceeds the importance of other components and processes. All important stakeholders in Tourism and hospitality ODL programmes (Tutors, curriculum designers, instructional technologists, administrators, educational technologists and all relevant practitioners) must be sensitive to the demand of better learning ergonomics within this field. They must respond to ergonomic concerns to help learners learn better and complete their programmes successfully. With dynamic learning ergonomics, the students of tourism and hospitality can learn better and relate to the real-world issues in the field (Anuar, et al., 2012).

Good learning ergonomic must contribute to the planning, design and evaluation of the various tasks, jobs, products, organizations, environments and systems in order to provide the learners with educational products that are compatible with their needs, resources, abilities and interests. Important stakeholders (i.e. instructors, course designers, technologists, etc.) must have a wide-ranging of interpretation abd understanding of tourism and hospitality.

These also include taking into account students' physical, institutional, mindset, social, organizational, environmental and other relevant factors that can help increase motivation for learners to stay teach (Tung, 2012).

It is also worthy to note that those who are working within the domain that offers educational training, courses and services to students of tourism and hospitality, this domain is not exclusive as it evolves continuously. The world and for that matter, tourism and hospitality sector is a progressive sector and is constantly changing with array of issues and concerns. New skills and demands constantly introduced; old ones take on new perspectives. Today, with the advancement of technology in work place, tourism and hospitality professionals have to learn, re-learn, re-engineer and redesign the way they learn (Dzakiria, 2004) for future improvement.

FINDING '*BEST -IT*' FOR LIFELONG LEARNING

To a significant degree, the performance of students and educational systems are context dependent. This is true in traditional education and it is equally true for open distance learning. Students, tutors and institutions may be greatly similar or different one from the other. As such, finding the "best fit" or solution that would work with all students, institutions and systems may be difficult. There is no one "best fit" or perfect practice that can be implemented by any institution. These institutions can, however, learn from each other on various management or design issues while not adopting any one model for implementation. The UK Open University is said to be a very dynamic Open University model. Similar accreditation has been awarded to the Athabasca Model (Canada), the Indra Gandhi National Open University (IGNOU), the University of Phoenix (USA) and others. But due to geographical locations, learners' profiles and demographic data, cultural differences, etc., many institutions have to create their own best-fit that work for them and their students be it a 'blended approach' that would be effective for the respective institution. Today, the Open University Malaysia (OUM), Universiti Sains Malaysia (USM), Wawasan Open University (WOU) and Asia e-University (AeU) are examples of successful ODL providers in Malaysia. They are similar and different in many ways, and between these institutions there are also distinct approaches or model that is employed.

Enhancing learning ergonomics can significantly improve the students' learning performance and experience. Learning ergonomics is concerned with how and why the design characteristics of educational processes and systems influence the performance of students. The scope of learning ergonomics includes all modes (modalities) and levels of performance-design-interaction that may occur within a specific educational environment. The "design" of the learning process relates to the physical design of instructional materials, environments and technologies. These include information communication technology (ICT), classroom implements and equipment, textbooks, audiovisual materials and systems, work stations, computer hardware and software, school classrooms, buildings, etc. to institutional designs of various skills, tasks, classes of knowledge and curricula targeted for learning, to the social and interpersonal design of the interactions of participants in the system with one another and to the management and administration of jobs, supervisory relationships, organizations, policies and programmes of educational systems, as well as to the designs of communities in which the learning occurs.

It is a holistic approach to support learning that relates the entire learning communities (stakeholders). Harmonizing the communities with sufficient support would increase communities and enhance learning engagement.

In addition, it is also worthy to mention that variations in students' performance across fields, may be related to variable consistency, reliability or reproducibility in learning, as well as to errors, accidents, poor quality, inefficiencies, reduced productivity and/or lack of competitiveness in the performance of students and educational systems that may arise as a consequence of poor design of the institutional and physical ergonomics to support learning.

Learning ergonomics has scientific origins. This suggests that much of the variability in cognitive performance is not attributable neither to innate ability nor to learning ability, but to specific design features (physical ergonomics) of the respective learning environment the students belong to (Tung, 2012). These may comprise different logistical supports to serve the tourism and hospitality learners based on their profiles. Seemingly, a senior tour guide for example who had been working for 30 years and one who has left school for three decades. He or she may not be familiar with the advancement of technology and softwares used. Consequently, he or she will need some training or coaching on the use of technology to learn. In addition, and library skills would also become essential. The present learning landscape has transformed into what it was not 30 years ago, and for one who considers oneself as being traditional and conventional learner may certainly need support. It is in such cases that customizing and attending to such handicap might be able to ease and support learning.

ISSUES ON LIFELONG LEARNING

The literature seems to suggest that although we have greatly improved and championed the establishment of ODL as an enabler to education, ODL institutions and stakeholders have yet to take enough measures to improve and support students' learning in ODL (Dzakiria, 2006; Jenkins, 2012; Mannan, 2007; Serwatka, 2005; Sweet, 1986; Tung, 2012). It is timely to deliberate the human factors, conditions and all the processes affecting the students learning and improve the learning ergonomics. With better learning ergonomics in ODL, human interactions will be improved and overall system performance of delivery systems will be optimized. Improved learning support, students would be able to learn better and much more effective. It is therefore imperative that institutions and programme managers and all relevant stakeholders be more sensitive towards learners' needs and requirement. So often, learners' voice has been marginalised.

Ergonomic principles which focus oh human factors have achieved proven success in improved performance, competitiveness and learning in many organisations (Dzakiria, 2004; Dzakiria et al., 2006; Smith, 2007; Haslam, 2002; Korkmaz & Sommerich, 2009).Nevertheless, the alarming non completion rates in ODL seem to suggest that the advantages from the application of ergonomics vis-a-vis the performance of students in ODL have yet to be ascertained. Continuous efforts must be made by institutions to ensure students are learning and able to meet their learning/career objectives.

Logically if such support is good, the output would also be good. Of course there are also human factors that may determine learning success which may also be dependent on good support for learning. Therefore providing an enhanced or improved system, software, classroom facilities, library support, technology, etc. are essentials.

Evidently, the relevance of ergonomic principles to evaluating and upgrading ODL students' learning performance has received minute attention (Berliner & Biddle, 1995; Dzakiria et al., 2006; Jenkins, 2012; Yoder, 2005). The non completion rate issues among students of tourism and hospitality in ODL has not received much attention. Probable cause for such situation has been put forth by Smith and Smith (1966, p. 1). They proposed that "factors of human design long have been ignored in experimental psychology. It has been believed that learning could be studied as a general process". The above should be explained as different from other tangible physical ergonomics like the sofa we sit on at work, or the bed we sleep on, or the designs of car seats, etc. All these tangible objects require continuous ergonomics improvements to promote human performance and to improve our well beings.

While, literature regarding context specificity in performance and learning can be cited to contradict a generalized learning theory (Smith,1994; Smith et al., 1994) it is likely that the latter viewpoint still plays an influential role in educational policy development and decision making. The authors feel the former perspective is irrelevant.

Although learning may not be "tangible" in principle, it is fundamental to all facets of human life and activities and requires attention and continuous improvement. The landscape of the field of tourism and hospitality has changed significantly over the last two decades, making it more competitive and demanding to manage. There is so much that needs to be learned and re-learned. Tourism today is far different that it was twenty or thirty years ago. Therefore supporting the students not just with the relevant content, but the means to learn effectively of what is required for one to be a tour operatour, tour agent, etc. needs utmost attending Institution's inability to support student's needs in learning may increase the non-completion rates among the learners.

ERGONOMICS TYPES

Learning attributes contribute to educational human performance. Nonetheless, research on ergonomics seems to propose that design factors have important contribution to learning performance. Thus, it should be explored further for the benefits of ODL. Learning requires enhancement in teaching and learning approaches and deliverables. The integration of nine events of instructions (Gagne, 1967; Gagne et al., 2005; Smith & Ragan, 2006) in ODL delivery system can enhance satisfaction learners' satisfaction in acquiring knowledge. Such integration can help improve the instructors-learners interaction and enhance learning.

This is important element to consider. Open distance learning is becoming one of the fastest growing educational modalities in contemporary higher education. With improved learning ergonomiccs in ODL, students of tourism and hospitality for example would also be digitally literate and able to pursue their course effectively within the their ODL ICT-rich environment.

Smith's (1966) work remains one of the most distinctive efforts to apply a well-defined human factors/ergonomic perspective to education. Smith and his team evaluated a broad range of design factors such as *audiovisual techniques, textbook design, training programme design, programmed instruction methods, etc.,* that can be expected to influence learning and educational performance. Given that the publication of this work took place some three decades ago, it is timely to explore whether the educational process and educational systems today can benefit from the application of human factors/ergonomic principles as has been the case with many other human systems and areas of human performance. It is particularly important for the ODL segment to improve learning as it is becoming an important avenue and strategy to democratise education, making it much more accessible and flexible for learners everywhere in the world. The 24/7 modality certainly requires ODL systems to be effective and efficient with an increase in human performance where in the context of learners of tourism and hospitality- they are able to learn effectively through their programme, and with a combination of other factors may help them to complete their studies effectively. It is the improvement of various support to enhance learning that is closely assemble based on the learners profile that is hoped to ease and help the learners learn better. It is continuous progressive effort to offer better learning experiences. This is what learning ergonomics is and, its improvement logically can improve success rates of completion among learners.

This paper suggests learning ergonomics for the offering of ODL (online courses) for tourism and hospitality can be categorized into various categories that are important to learning performance. For the purpose of this chapter, the learning ergonomics is categorized to three types. These include the *physical, mindset* and *institutional ergonomics.* All three are pertinent to support learners within the ODL environment.

Category 1: Physical Ergonomics

***Physical ergonomics* is concerned with how the learning physical environment, learning centres and learning conditions affect students' performance. It also include the various approaches such as synchronous/asynchronous, group or individual, supported or unsupported etc. Institutions may vary in terms of services they provide. Some may be better than others. Some institutions are more contemporary and advanced in terms of technology adopted, while others may still be practice conventional approaches such as heavy reliance on modules, etc. "Physical" here relates to different the physical conditions and logistics that institutions provide to support learning. This may include the video conferencing facilities, the resource room; library facility; online resources; the learning space, the learning centers, the audio systems, lighting, heat, light, noise control, etc.**

Evidently, there are students who value and enjoy teleconferencing or video conferencing as part of their learning and interaction activities. But, there are also students who oppose such technology or teaching methodology. This provides an ongoing challenge to various OFL stakeholders because learners could be homogeneous or heterogeneous. Physical ergonomics can be summarized is about understanding the effects of these environmental factors to learners and consequently, institutions should maximize learning by improving ergonomics physically.

Category 2: Institutional Ergonomics

Institutional ergonomics relates to the optimization of institutional administrative and technical systems. These include: institutional structures, policies and processes. ODL programmes offerings and support at Universiti Utara Malaysia (UUM) for example may be similar or largely different with other ODL instititutions across Malaysia and within the region. ODL institutions may be similar or greatly different from one to the other.

The pertinent areas in institutional ergonomics include ODL structures, teaching approaches, learning models, policies, organizational cultures, communication, institutional support mechanisms, work designs, learning times, teamwork, community ergonomics, cooperative work, new work paradigms, virtual organizations, telework and quality management. Category 2 helps in the organization of learners and effective learning.

Tutors or course instructors have important role to play. Tutors could create learning processes and opportunities that match course tasks and demands that match with the learners' backgrounds and abilities. The aim here is to ensure that the learners are able to learn and perform effectively by fully adapting the institutional ergonomics. Perhaps approaches such as case studies and problem solving could be considered to be much more suitable for learners who belong to industry such as tourism and hospitality as they could relate to their years of working experiences with learning of new skills and knowledge.

Category 3: Mindset Ergonomics

Framing one's mind with the correct mindset or thinking is a prerequisite to success. It is equally trur for ODL learners when pursuing their studies (Eisner, 1988; Goodyear, 2000). Mindset e*rgonomics is about framing success.* It relates to the mental processes that are involved within the learners when embarking on their studies.

These processes include learning, thinking, analysing, perception, memory, reasoning, motor response, synthesizing and other processes as they affect the learning. Just as in conventional education, ODL requires students to think, share, comment, make decisions, interact, persuade, argue and take part in other cognitive activities as these may relate to the human-system design. Most important of all this ergonomic type relates to what institutions can offer to continuously instill positive thinking, a strong mind that encourages the students to complete what they started, and to finish their programmes successfully.

ODL students would normally be given learning tools at the beginning of the course registration or semester. These may include a list of courses, course synopses, the LMS system, course assignments, information on tutors, notes, etc. that provide the learners with information which has to be understood in order for them to commence learning.

Course writers and designers would normally be looking at this cognitive process, then try to design the course, courseware, the learning system and the learning environment around the learners to allow learning to take place effectively. Balancing the learners' backgrounds with the optimal learning tasks and requirements in a particular course is pertinent to students' performance.

Such ergonomic consideration also includes a reasonable length of time to enable learners to work on and finish a particular task or assignment.

What is crucial here is to understand that learners from tourism industry too may also be heterogeneous. The ability to learn varies among learners and recognising this is crucial to the design of the learning ergonomics. Different groups of learners may require different support systems and types of assistance. Younger tour operator personnel versus a senior staff who registered for an academic programme for example may bring different personal experiences to their class discussion. Ability to tap upon one's working experience for sharing and learning purpose is priceless for communities learning attainment. Similarly, a group of tour guides who have been working long years in tourist attractions located in east Malaysia but want to be re-located to West Malaysia may need to be supported with sufficient updates and information on west Malaysia attractions. These include all types of information that relates to the people-custom-traditions-culture. A framework of the learning ergonomics discussed in the preceding paragraphs is presented below in Figure 1.

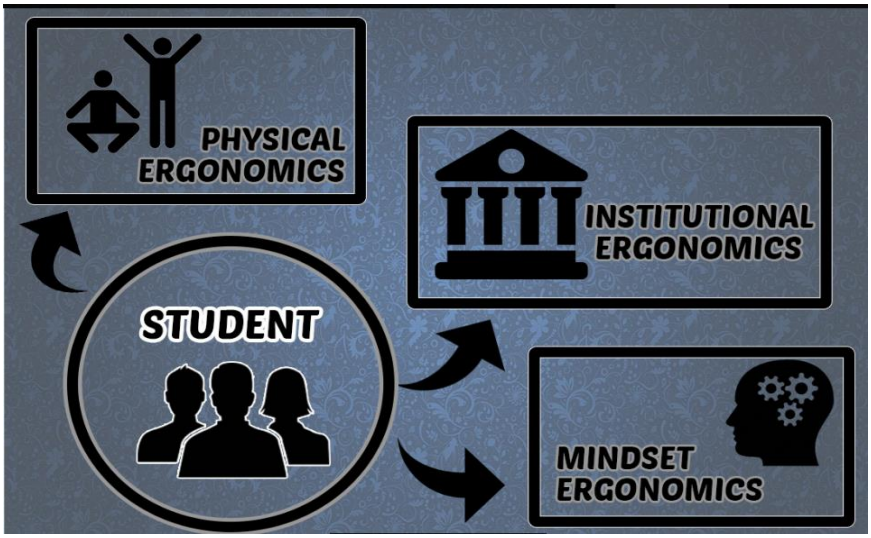

Figure 1.
The Three Components of Open Distance Learning Ergonomics

PROFILING LEARNERS

Many attempts have been taken to better understand the learners. Today, we know that ODL learners can be homogeneous and heterogeneous regardless of geographical locations, gender, age and other circumstances. The stakeholders in ODL (which include the learners, tutors, institutions, providers, programmes, supports, etc.) can also be very similar or different one from the other.

We also know that in the best interest of any group of learners and ODL institutions and providers, there is no "one-fit-for-all" solution or best practice that can be adopted to ensure ODL success. There is also a difficulty in suggesting improvements that would increase the learning support provided by the ODL institutions.

The authors propose that by understanding the learners' profiles, an ODL institution and its stakeholders (i.e., administrators, module writers, IT personnel, tutors and others) can effectively customise its programmes and deliverables to meet the learners' needs. Both the quantitative and qualitative data that are collected would yield certain attributes like ages and backgrounds while the qualitative information that is obtained from in-depth research and continuous reflection would yield a stronger student-centredness approach to ODL improvements. As iterated earlier on this chapter, profiling the learners through narratives potentially can help to improve the overall learning ergonomics where learners' aspects of learning will be considered to maximize learning of new skills and knowledge amongst students of tourism and hospitality.

The use of students' narrative or profile to develop case stories offer a meaningful and rich perspectives of the respective learners (Richmond, 2002; Bruner, 1987, 1990;1994; Connelly & Clandinin, 1990). Profiling the learners provide meaning to the learners' own lives. Each contextualized narrative unfolds the self-presentation of the learners. Murray (1986) refers to this as "life construction" (p. 277) where the story may not represent "truth" or reality but is an attempt at information reduction, in which the large variety of life events is reduced to a set of narratives based on the conventions of the learners' experience in ODL. Such an approach also uses the story map or profile to present a meaningful cross-case comparison. The "case story" approach provides descriptive knowledge which must be understood in context(Richmond, 2002).

This becomes a way for learners to critically reflect on earlier or current perspectives of their own learning and experiences in order to construct or reconstruct meaning in their life within an ODL environment. The learners' ways of interacting with other humans and providers could certainly improve learners' impression of the services as a support system.

As iterated earlier on, there isn't sufficient research and efforts to present learners' voice or perspectives on many issues on learning that must be taken into account in designing and supporting them to learn better.

The stories of the learners are not works of art; but are important as they represent key stakeholders in education. Learners' stories reflect life stories which enables us to study how they (the learners)make meaning of their personal experiences by endlessly telling and sharing stories about their pursue of education (Connelly & Clandinin, 1990, p.14 in Richmond, 2002). Such understanding is paramount to the continuous improvement of ODL and complements other efforts to strengthen ODL offerings, systems and deliverables.

It must be reflected and use to improve our educational offerings to learners in the future. Such profiling organizes the learners' recounting of past and present experiences and future intentions under the rubric of character, setting, events, conflicts, incidents, themes and resolutions (or outcomes). It gives a shape to individual stories and allows for a more penetrating analysis in relation to the objectives of the research. The profile according to Davey (1983) and Rumelhart (1980) in Richmond (2002) taps a metacognitive response in those who tell the story and those who hear it. Such narration provides a meaningful way of organising thinking.

It is certainly useful for creating and improving learners' ODL experiences. It can help to improve learning ergonomics for a particular group of learners within a given ODL programme. Through their stories, providers and stake holder could improve the learning conditions and boost students' performance in ODL. Thus, the success rate of completion of studies will improve as students feel that students' learning is always care for by course providers or stakeholders.

Profiling the learners' profile is pertinent to the improvement of the learning ergonomics for tourism and hospitality students. This may produce a holistic insight into each learner. In general, this type of a profiling analysis provides meaningful and critical insights into the learners' profiles and background.

Richmond (2002) for example claimed that such understanding allows one to ascertain the learners' self-identities, their background and culture over a certain period of the learner's life. ODL may have varying affects on learners' experiences which may be good or bad. Understanding the learners' 'make-up' or profile may in fact be able to assist ODL providers to help them learn better by providing areas which may be lacking.

Understanding the learners' profile would help ODL institutions to understand their clients better. This according to Richmond (2002) would allow one understand how learners are affected by the communities within which they interact. Each learner can be very similar or very different than one another, and ability to understand their predicament would allow ODL institutions and tutors to continuously improve their offerings and teaching. As iterated by Richmond, such profiling provides stories or narration that consists of rich experiences that stakeholders in ODL can leverage to provide better services to them.

In addition, cross analysis on the individual learner's profile would provide particular group profile analysis.

The latter offers value and insightful information to improve ODL ergonomics. It helps to make learning much more meaningful, manageable and effective. Instructors can prepare a much meaningful lesson for various groups based on the group profile. In addition, it also help to increase the students' motivation to successfully complete their programmes. In order to illustrate what this chapter intended to present, below is a caption from Dzakiria et.al (2013) research to show the importance of developing and improving learning ergonomics to enhance and harness better learning experiences:

DEVELOPING LEARNING ERGONOMICS:
A Case Study Of Universiti Utara Malaysia

The study sought knowledge to generate insights into *how, why, when* and *where* learners undertake their learning in particular ways. It was a single case study focussing on a small number of Malaysian distance learners in the northern state of Kedah and Perlis.

Eighteen learners were involved and selected on the basis of voluntary participation and their ability to share their distance learning experience and perspective with much openness. Different research techniques were used with the *interview* remains as the primary technique for data collection, supplemented by *students' journals* and *photographs*. The information needed for this study was *individual*, *detailed* and *contextual*. Finding out about the conducive circumstances under which the learners study, the practicalities of studying and getting into the mind frame of learners were important elements of this study. The research was based on the following three epistemological attitudes adopted from Segall (1990, 1998): 1.*metaphysical*:

What is the story?, exploring how the learners' address causality, intention, existence and truth about their distance learning; *historical: a* search to understand how learning barriers and challenges begin while embarking on their journey as open distance learners. How or what causes the learning barriers that learners face in their pursue of distance education?; and p*edagogical:* What can the institution do to improve the educational experience of distance learning and distance learners?

How can the institution make changes to the existing distance learning courses and programmes and assist learners in their endeavors based on feedback and knowledge generated from this study? The findings shared in this study can be seen as providing a holistic or conceptual framework for understanding student learning from the learners' perspective and how we can potentially increase their motivation and success.

The study elicits potential to improve learning ergonomics in open distance education. Its findings are applicable to learners in the field of tourism and hospitality. Vocational training in the field for example requires tourism professionals to continuously learn new skills and attain new knowledge. By understanding how institutions can improve the learning conditions of the learners, learning can be made more meaningful, and consequently could help the learners to complete their studies.

The challenge, however, is ensuring that ODL institutions are able to provide various learning ergonomics types to support students to learn better in a more conducive learning environment in the 21st century.

The interview data from the learners were thematically analysed and presented as multiple case stories offering meaningful perspectives on the learners' experiences of distance learning at the institution. Each contribution is then profiled in a unique way that represents a coherence story line based on the themes that had surfaced in the study.

This profile captured the learners' narration of their personal learning experiences in the most comprehensible, logical and systematic manner (Richmond, 2002). The profiling process began with a rearrangement of the data or discourse into sections with headings or themes. This helped to put the discourse in perspective and assisted in the construction of a particular story map of each and every learner who was involved in this study.

Various findings and conclusions can be drawn from this study as follows: Teaching and learning in ODL must be student-centered to increase students' success in ODL; transition is a challenge particularly when a learner moves from a face-to-face teaching environment (from mainstream education in primary and secondary) to an ODL environment (at tertiary level); learners can heterogeneous -they have various backgrounds and experiences, which may have been marginalized; learners value learning interactions and support in their learning process; learners come from a culturally induced passive learning environment. In the past, they went through an education system, which was largely teacher-centered, hence conditioning them to be "passive" in learning interaction, etc., and the northern states may be lacking in ICT infrastructure and support: availability of Wi-Fi services, internet-intranet, cyber-cafes, etc., compared to the facilities found in bigger cities in Peninsular Malaysia.

The above findings exemplify the learners' antecedent learning experiences and the relationship between these experiences, current experience as a learner in distance learning programmes and future intentions.

LEARNERS' PROFILE AND LEARNING ERGONOMICS

The study illustrated above suggests that profiling of students provides descriptive knowledge which must be understood in particular context and moment (i.e. where, when, who is involved in the learning, and the cultural background and system that one belongs play a fundamental role in how one learn). Such narrative provides great opportunities to attain sufficient information of students' demography that could be used to help improve the learning ergonomics. Such approach according to Richmond (2002) focuses on three dimensions. These include *time, personal* and *empirical*. *The time* refers to past, present and future; P*ersonal* refers to a continuum from confusion to organization and clarity, and the *empirical* focuses on self, family, community, schooling and work. With particular reference to the above research, four suggestions were made to improve the learning ergonomics at Universiti Utara Malaysia (Dzakiria et.al., 2013).

These include: *Having clear and achievable expectations.* This is particularly important especially in the case of students who are from countries where the mainstream education has always been teacher-centred. Students must be accustomed to the absence of the teacher most of the time and must have reasonably good library and research skill abilities to function and learn effectively such in an environment. Then, institutions must continuously *strengthen personal support.* Institutions must be prompt in understanding their students' needs and requirements. Such sensitivity must be sustained throughout the continuous offerings of tourism and hospitality programmes and courses.

For example, if there is a digital immigrant (new to ICT) group or cohort that is lacking in IT skills and knowledge due to the age and digital divide, the stakeholders must plan and execute fundamental training to help these students to reach the level that enables them to function effectively as learners. Information technology, information communication technology, e-learning, learning management system (LMS) are essential tools and enablers to learning. These are the physical ergonomics that are essential for learning. But ensuring that learners can maximize the use of such tools for learning would be of great value for the students.

The thirdly, too according to Dzakiria, et.al. (2013) institutions must help to *maintain students' motivation and enhancing their staying power.* Students for that matter, must in principle understand that today's learning experience is quite different from past conventional programmes and offers different educational experiences and expectations while maintaining similar quality standards and contents. Students of tourism and hospitality programmes must be able to take full responsibility for their learning.

They need to be more independent and be able to organize their learning within their busy life to undertake their study and other responsibilities. Students must be aware of the short-term and long-term learning objectives. Last but not least, institutions must also continuously *remove unnecessary hurdles.* Adult learners have more learning barriers compared to younger learners.

If we could support their learning by minimizing cost, time and specifically, time away from family due to traveling that would even be better as it helps to minimize unnecessary hurdles. For example, offering courses via face-to-face meetings (f2f) at the students' workplace with a minimum number of students enrolled in a particular programme would certainly provide support to them. Institutions must help their students by increasing the effectiveness and efficiency off today's teaching systems and help students to sustain their motivation throughout their programmes.

CONCLUSION

Tourism and hospitality students like any other students are an important stakeholder in higher education. Helping them to their pursue knowledge and completing their programmes successfully is part of institutional objectives.

Helping them is also helping the government's initiatives in democratising education for all to support lifelong learning. Improving the learning ergonomics in open distance education to support the students learning is pertinent and this chapter believes that with good support, completion rate among the students can also be improved. Profiling the students and using their narratives and experiences present potentially a powerful approach with a deep and multi-layered understanding of the learners. Such personal responses can be described as implicit and subtle.

There appears to be a relationship between the developments of an individual's voice as an essential component in the development of their sense of self (Brown, 2011; Jung, 2009; Yoder, 2006). The learners' narratives can reflect a process of self-discovery. Students' narrative promotes the the learners' voice and self through critical reflection on their life experiences and the circumstances of their life as learners

This in turn offers the institution and all the prominent stakeholders an opportunity to reflect and suggest improvements for better services for their learners. The information and knowledge provided from such research enables the institution, in particular, to customize and bring about changes to ODL that would promote student-centeredness. But most important of all, the learners' profile is apt to improve the learning experiences that would support study completion.

This is true for all fields of studies that include vocational training on tourism and hospitality. Improvements to the institutional, physical and mindset ergonomics will be the way forward for an improved, balanced and enriching ODL experience.

BIODATA and CONTACT ADDRESSES of the AUTHORS

Dr. Azilah KASIM is a Professor of Tourism at the Universiti Utara Malaysia, Malaysia. Presently she is the Director of Tourism and Hospitality Centre of Excellenceay UUM. She served as member of the editorial board for various international journals and is still active in reviewing manuscripts for a number of international journals including Annals of Tourism, ASEAN Tourism Journal, Journal of Sustainability in Tourism and Anatolia: An International Journal of Tourism and Hospitality Research. Azilah has researched and published a number of journal articles in the area of business social responsibility and tourism marketing. She has also written a number of books on tourism, recreation and qualitative research. Besides research and writing, she also participates actively in training and consultation projects. Her past training topics were Tourism Management, Destination Management, Tourism Marketing, English in Tourism, and Creative Management. Her past consultation projects include Product Marketing, Museum Marketing and Destination Marketing.

Prof. Dr. Azilah BINTI KASIM
Universiti Utara Malaysia, Sintok, MALAYSIA
Emails: azilah@uum.edu.my or azikasim@gmail.com

Dr. Hisham DZAKIRIA is an associate professor at School of Language, Civilisation and Philosophy at Universiti Utara Malaysia. He pursued a double degree in Applied Linguistics and Education from Brock University Canada and Masters of Arts degree in Linguistics (with a minor in Communications) from Michigan State University. Dr.Hisham obtained his doctoral degree (PhD) from the University of East Anglia specializing in professional development and life-long learning and training. During his postdoctoral, he work closely with Commonwealth of Learning (COL) and was based in Vancouver, Canada. He has completed many research, and published extensively in his research area. Dr.Hisham is also a Neuro Linguistic Programme (NLP) Certified Coach and consuced various NLP training. Over the years, he has also conducted UNHCR/UNAIDS & WHO evaluation projects with the Commonwealth of Learning (COL) based in Vancouver between 2002-2003 with a team of experts from University of East Anglia, United Kingdom.

Hisham DZAKIRIA
Universiti Utara Malaysia, Sintok, MALAYSIA
Emails: hisham@uum.edu.my or drhishamdzakiria@yahoo.com

REFERENCES

Anuar, A. N. A., Ahmad, H., Jusoh, H., & Hussain, M. Y. (2012). Understanding the factors influencing formation of tourist friendly destination concept. *Journal of Management and Sustainability, 2*(1), 106-114.http://dx.doi.org/10.5539/jms.v2n1p106

Berliner, D. C. & Biddle, B. J. (1995). *The manufactured crisis. Myth, fraud, and the Attack on America's Public Schools.* Reading, MA: Addison-Wesley.

Belenky, M. F, Clinchy, B., Goldberger, N. & Tarule, J. (1986). *Women's ways of knowing: The development of self, voice, and mind*. New York: Basic Books.
Bogdan, R. C., & Biklen, S. K. (1982). *Qualitative research for education: An introduction to theory and methods*. Toronto, ON: Allyn Bacon, Inc.

Brown, R. (2011). Community-college students perform worse online than face to face. *The Chronicle of Higher Education*. Retrieved from

Bruner, J. (1987). Life as narrative. *Social Research, 54*(1), 11-32.

Bruner, J. (1990). *Acts of meaning*. Cambridge, MA: Harvard University Press.

Bruner. J. (1994). From communicating to talking. In B. Stierer & J. Maybin (Eds.), *Language literacy and learning in educational practice* (pp.59-73). Bristol, PA: Multilingual Matters Ltd.

Cercone, K. (2008). Characteristics of adult learners with implications for online learning design. *AACE Journal, 16*(2), 137-159. Retrieved from Ed/ITLib Digital Library. (24286)

Connelly, F. M. & Clandinin, D. J. (2000). *Narrative inquiry*. San Francisco: Jossey-Bass Inc.

Davey, B. (1983). Think aloud -- Modeling the cognitive processes of reading comprehension. *Journal of Reading*, October, 45-47.

Dzakiria, H., Kasim, A., Mohamed, A.H. & Christopher, A. A. (2013), Effective Learning Interaction as a Prerequisite to Successful Open Distance Learning (ODL) Experience in Malaysia, *Turkish Online Journal of Distance Education (TOJDE*).

Dzakiria, H. & Idrus, R. (2003). Teacher-Learner Interactions in Distance Education: A case of Two Malaysia Universities, Turkish Online Journal of Distance Education, 4(3).

Dzakiria, H. (2004). "The Teacher is Always there, but isn't..."Distance Learners' Experiences & Perspectives on Distance Learning at Universiti Utara Malaysia. Unpublished thesis.

Dzakiria, H., Mustafa C.S. & Bakar, H.A. (2006), Moving Forward with Blended Learning (BL) as a Pedagogical Alternative to Traditional Classroom Learning, Malaysian Online Journal of Instructional Technology (MOJIT), Vol. 3, No.1, pp. 11-18.

Eisner, E. W. (1988). Aesthetic modes of knowing. In E. W. Eisner (Ed.), *Learning and teaching and the ways of knowing* (pp.23-36). 84th Yearbook of the National Society for the Study of Education. Chicago: University of Chicago Press.

Gagne, R. & Golas, K. (2005). Principles of instructional design. Belmont, CA: Wadsworth/Thomson learning.

Garaway, G. (1996). The case-study model: An organizational strategy for cross-cultural evaluation. *Evaluation, 2*(2), 201-211.

Goodyear, P. (2000). Environments for lifelong learning: ergonomics, architecture and educational design. *In Integrated and holistic perspectives on learning, instruction and technology: Understanding complexity*. ed. J. M. Spector ; T. M.Anderson. Dordrecht : Kluwer Academic Publishers, p. 1-18.
Golas, K. (2000). *Guidelines for designing online learning*. Proceedings of the Interservice Industry training and evaluation systems conference. Orlando, F1.

Harold, H. & Russum, J. (2000).Factors influencing attrition rates in corporate distance education program. *Education at a Distance Journal*, 14(11).

Hara, N., & Kling, R. (2001).Student distress in web-based distance education. *Educause Quarterly*, 3, 68-69.

Haslam, R. A. (2002). Targeting ergonomics interventions-learning from health promotion, *Applied Ergonomics*, 33(3), 241-249.

Hughes, J. A. (2004). Supporting the online learner. In T.Anderson and F.Elloumi (Eds.), *Theory and Practice of Online Learning* (pp.367-384), Athabasca Canada.

Jenkins, R. (2012). Online classes and college completion. *The Chronicle of Higher Education*. http://www.chronicle.com/article/article-content/131133/

Jung, I. (2009). Changing faces of open and distance learning in Asia [Editorial]. *The International Review of Research in Open and Distance Learning, 8*(1). Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/418/773

International Ergonomics Association (IEA). Ergonomics: Human-centered design Retrieved from http://www.iea.cc

Keller, J. & Burkman, E. (1993). Motivation principles. In M. Fleming & W. H. Levie (Eds.), *Instructional message design: principles from behavioural and cognitive sciences* (2nd ed). Englewood Cliffs, NJ: Educational Technology Publications.

Kember, D. (1989). An illustration with case studies of a linear-process model of drop-out from distance education, *Distance Education*, 10(2), 196-211.
Korkmaz, S. V & Sommerich, C.M (2009). Facilitating student learning about ergonomics and healthy computing skills via participatory ergonomics, *Work: A Journal of Prevention Assessment and Rehabilitation*, 34(4), 439-448.

Lai, C. T. (2012). Proactive Intervention Strategies for Improving Online Student Retention in a Malaysian Distance Education Institution. *MERLOT Journal of Online Learning and Teaching*, 8(4), 312-323.

MacKercher, D. (1996). *Making sense of adult learning*. Toronto: Culture Concepts Inc. Marshall, C., & Rossman, G. B. (1995). *Designing qualitative research* (2nd ed.). Thousand Oaks, CA: Sage Publications, Inc.

Mannan, M.A.(2007). Student attrition and academic, and social integration: Application of Tinto's Model at the University of Papua New Guinea, *Higher Education*, 53, 147-165.

Mohamed, N. H. & Zulkipli, N. Z (2014). Factors Influencing Attrition Among Learners: Faculty Of Applied Social Sciences In Oum, S*eminar Kebangsaan Pembelajaran Sepanjang Hayat 2014, 376-383.*
Merriam, S. B. (1988). *Case study research in education: a qualitative approach*. San Francisco: Jossey-Bass.

Mishler, E. (1986). The analysis of interview-narratives. In T. Sarbin (Ed.), *Narrative psychology: The storied nature of human conducts* (pp. 233-255). New York, NY: Praeger.

Nagel, D. (2009). Most college students to take classes online by 2014. *Campus Technology*.

http://www.campustechnology.com/articles/2009/10/28/most-college-students-to-take-classes-online-by-2014.aspx.

Richmond, H. J. (2002). Learners' Lives: A Narrative Analysis, *The Qualitative Report*, 7(3). Retrieved from http://nsuworks.nova.edu/tqr/vol7/iss3/4

Rumelhart, D. W. (1980). Schemata: *The building blocks of cognition*. In R. J. Spiro, B. C.

Serwatka, J. A. (2005). Improving retention in distance learning classes. International *Journal of Instructional Technology and Distance Learning*, 4(1), 1-9.

Siegel, M. A. & Kirkley, S. (1997) Moving toward the digital learning environment: The future of web-based instruction. In B.H. Khan (Ed.), *Web-based instruction*. Englewood Cliffs, NJ: Educational technology Publication.

Simpson, O. (2003). *Student retention in online, open and distance learning*. London, UK

Smith, K. U. & Smith, M.F. (1966). *Cybernetic principles of learning and educational design.* New York: Holt, Rinehart and Winston.

Smith, T. J. (2007). The ergonomics of learning: Educational design and learning performance. *Ergonomics,* 50(10), 530-46

Sweet, R. (1986). Student dropout in distance education: An application of Tinto's Model, *Distance Education*, 7(2), 201-213.

Taib, H. I. (2010). Human capital the will and commitment to upgrade. *Malaysian Business*.

Tung, L. C. (2012) Proactive Intervention Strategies for Improving Online Student Retention in a Malaysian Distance Education Institution, *MERLOT Journal of Online Learning and Teaching*, 8(4), 312-323.

Wickersham, L.E. and Dooley, K.E. (2001). Attrition rate in a Swine Continuing Education Course Delivered Asynchronously, *Journal of Southern Agricultural Education Research*, 51(1), 289-303.

Yoder, M. B. (2005). Supporting online students: Strategies for 100% retention. In *Proceedings of the 19th Annual Conference on Distance Teaching and Learning*. Madison, WI: The Board of Regents of the University of Wisconsin http://www.uwex.edu/disted/conference/Resource_library/proceedings/03_87.pdf

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"RM and RS": The First QOU MOOCs

Assistant Professor Dr. Randa Elsheik HNAJDI
Math Department, Al-Quds Open University,
PALESTINE

ABSTRACT

The recent proliferation of massive open online courses (MOOCs) demonstrates that technology continues to transform education in both the traditional and online settings. In May 2014, Queen Rania Foundation (QRF) for Education and Development of Jordan launched a non-profit massive open online course portal, in the Arabic language, called Edraak to promote knowledge in the Arab world. The course portal is hosted by EdX-platform.

In 2016 Al-Quds Open University (QOU) introduced its first MOOCs called *Remedial Math (RM) and Remedial Statistics (RS)* through Edraak platform; the courses were designed in a simplified manner to provide learners with the fundamental math and statistical information. For almost 14 months, the courses teams had spent over 8000 working hours in designing and planning the MOOCs in a way to integrate technology and pedagogy.

The courses were sent out on weekly basis where learners watched short-video lectures online and completed the assignments that were automatically graded. Learners were also able to get immediate feedback if questions arose. Over 18,000 nationwide learners, with a variety of qualifications such as PhDs, Mas, BS, middle school education, etc., enrolled in the course from 10 different Arab countries. An official certificate from Edraak and QOU was issued to any learner upon request. A high 89% of learners declaredthat they achieved their goals of joining both courses.

Keywords: Massive Open Online Courses (MOOCs)

INTRODUCTION

MOOCs are a giant expanding phenomenon; they appear to be significant force within higher education. MOOCs were not known until few years ago, since then, millions of learners from around the globe have enrolled, thousands of courses have been offered, and hundreds of universities have lined up to participate (Solomon, 2013,). MOOCs are educational models that bring online learning content to any person willing to participate (Hoi, 2014). They are typically videos, and textual instructional modules delivered via the internet (Naaj et al., M. A., 2012).

There are more than 480,000 MOOCcourses. 35 million participants from 196 countries, University of Leiden 2015. Harvard and MIT have already developed EdX as their MOOCs platform while Stanford developed Coursera; these are the largest online MOOCs. By 2014, EdX and Coursera together claimed almost 14 million enrollees and crossed 24 million enrollees in 2015, The main course languages currently offered are English, Spanish, and French. Educators believe ThatMOOCs introduction to the higher education landscape has expanded the space for possible blended or hybrid course designs (Dereki and et al., 2013. &Kaletaoutline, greatdesigned MOOCs will lead to a greater realization among instructors, further promoting open opportunities for collegiality and collaboration among instructors and across disciplines (Aycock, et al. , 2002).

In June 2014, Queen Rania Foundation (QRF) for Education and Development launched the first non-profit Arabic massive open online course (MOOC) platform, *Edraak*, which was built on the Harvard-MIT consortium, EdX,QRF was established in 2013,it aims to push the boundaries of education across the region within and beyond the classroom, and to promote positive change and counter the stagnation and decline of quality education and learning outcomes (Queen Rania Foundation, 2013). Edraak makes quality education in Arabic accessible to millions of Arab learner around the globeand promotes lifelong learning, it provides a platform for a diverse range of free online courses, offered by top universities and entities, it offers Arabic translation to select courses from other universities that launch EdX, customizing them to Arabize and localize the content, it also develops its own courses in Arabic with leading Arab faculty as well as world renowned Arab professionals in a variety of fields, now, Edraak exceeds one million enrollees (Edaa, 2014).

In this study we apply a descriptive lens to the first two MOOCs offered by Al Quds Open University *"Remedial Math (RM)"* and *"Remedial Statistics(RS)"* launched by Edraak platform. These courses aimed to fill the gap between high school math and university math, both courses targeting the college learners while remaining available to anyone. The objective is to provide insights into QOU developed MOOCs and the demographics diversity and characteristics of the 18,000 Arab learners enrolled.

GENERAL STRUCTURE OF BOTH MOOCs

The fundamental components of RM and RS MOOCs are:

- ✓ **Weeks (modules):**
  The two MOOCs were made up of weeks. A week is a collection of lectures, it comprises a larger unit of learning. Both MOOCs lasted for 4 weeks. The weeks (modules) were delivered sequentially and asynchronously week by week. The contents were accessible 24 hours a day, 7 days a week. Learners usually didn't need to purchase books for these courses since all readings are provided by the MOOCs.
- ✓ **Lectures:**
  A MOOC lecture was a cohesive unit of contents regarding a subject it was organized in "sequences" of 5-15 minute videos, usually

featuring a professor writing on PowerPoint slides and marking up graphs and diagrams. Each lecture was structured around 1 to 2 clear learning objectives displayed in Arabic language to learners. On average, an hour of MOOC lecture was concluded with at least one assignment each week

Exercises:

- ✓ **Lecture sequences were often sprinkled with short and simple comprehension questions that were usually not very time consuming if learners were paying attention to the videos. These questions were not intended to be challenging and did not count towards a grade.**

There were different types of questions, some asked forthe numerical answer to a computation, others were multiple-choice questions, and some were left open to allow room for simple answer research. Those exercises and their answers were often discussed in a special forum.

Activates:

- ✓ **In both courses, activity questions offered after each lecture (video) were multiple-choice type questions. Activities often asked learners to implement a learning concept covered in the lecture, generally for no credit.**

Exams:

- ✓ **Both courses required learners to take multiple-choice question exams after completing each Module and a final exam at the end of each course which together accounted for the bulk of the final grade.**

The tests had deadlines to complete and were automatically graded once the deadline was reached. Learners were allowed to retry review questions many times; however, exams could be submitted up to 3 times only.

Discussion Forums:

- ✓ **MOOC experts say the interactive discussion forums are a big part of the online learning experience (Ethan, 2013). This is where learners go if they need a question or don't understand a concept. Course staff of the two MOOCs replied to questions posted on the boards and sometimes help came from other learners and peers. Feedback allowed learners to gauge their understanding and make changes accordingly (Hoi, 2014).**

Educational Games:

- ✓ **RM MOOCs educational games were integrated to allow participants to learn by doing. This helps with getting solid and fundamental knowledge they would need to continue in more advanced Math courses, figure 1 shows a snapshot of a part of the RM MOOC.**

Certification:

- ✓ **The two MOOCs - including all Edraak MOOCs - offered certificates of completion immediately after finishing the courses if a 50% or higher score was achieved. The certificates, issued by Edraak and QOU, only mean that a person who enrolled under the name on the issued certificate took the course. No steps were taken to confirm the course taker's identity.**

DATA COLLECTION AND FINDINGS

Both MOOCs, the RM and the RS were in Arabic. The anticipated time spent on learning each course was one hour per week for the duration of 4 weeks per course. The table below summarizes the characteristics of both MOOCs.

Table 1.
The characteristics of RM and RS

	RM	RS
Start Date	19/07/2016	27/12/2016
End Date	16/08/2016	24/01/2017
Level	Remedial	Remedial
Length	4 Weeks	4 Weeks
Effort	1 hour/week	1 hour/week

The initial enrolment in the RM course was 10,090 learners with only 237 learner withdrawals. On the other hand, the initial RS course enrolment was 8,518 learners with only 100 learners' withdrawals.

The number of learners' enrolment is considered high compared to the enrolment on other scientific MOOCs.

The number of learning engagements, mainly through the discussion forums, in RM course was 1,084 (17%) while in RS course was 1,515 (18%).

These percentages are considerably high, even higher than some MOOCs offered by Stanford University where many courses have less than 10% of learning engagements, and in most courses the participation is less than 5%.

Table 2.
Number of learners enrolled in RM and RM

	RM	RS
Number of Learners Registered	10,090	8,518
Number of Withdrawals	237	100
Number of Engagements	1,084	1,515

We found that learners logged onto the site from nearly every country in the Arab world (see table below). The average enrollee age was 21.4 years. This is in line with educational research (Lori Breslow et al., 2013).

In addition, this achieves one major objective of the Queen Rania Foundation that was set when Edraak MOOC platform was launched, and that is to bring quality education to every Arab youth (Eraak: 2014).

Figure 1.
General Structure of a MOOC

The learners were asked to complete an entrance survey for each of the courses. The survey consisted of 14 questions relating to the respondent's demographic information. They also completed an exit survey that consisted of 11 questions.

Table 3.
Numbers of participating learners from Arab countries

Country	RM	RS
Egypt	1,703	2,548
Algeria	2,445	1,680
Jordan	901	862
Saudi Arabia	645	748
Palestine	1,062	698
Morocco	2,422	571
Syria	284	301
Yemen	130	226
Iraq	167	-
Tunisia	-	146
United Arab Emirates	-	285
Other	113	-
Sum	*9,479*	*8,065*

The number of learners who completed the surveys are given in the table below:

Table 4.
Number of learners completed the entrance and exit surveys

	RM	RS
Entrance Survey	988	790
Exit Survey	167	175

One of the entrance survey questions asked: "What is the highest degree you have completed?" Of the 10,743 RM survey responses and the 8,769 RS survey responses, 3,989 RM and 4,089 RS survey responses reported having a bachelor's degree. While 1,065 of RM learners and 2,111 of RS learners are reported having graduate degrees.

Table 5.
Number of respondents by educational attainment levels

Academic Levels:	RM	RS
Doctorate	78	231
Masters or Professional Degree	913	1,880
Associate Degree	212	193
Bachelor's Degree	3,989	4,089
Secondary/High School	2,991	1,785
Elementary/Primary School	92	36
Junior, Secondary/Junior, High/Middle School	1,296	288
Others	1,172	267
Sum	10,743	8,769

Even though, a statement on the courses sites recommended that learners should have prerequisite knowledge such as high school math, 128 of the surveyed learners of both MOOCs reported having only attained elementary/primary school. The table below shows the highest degree earned by all surveyed learners.

The number of learners who completed the MR course and got a certification of completion was 365 that's 5% of the enrolment number. On the other hand, only 544 RS learners (6%) asked for a certification after completing the course (see table below).

That's possibly due to 36.6% of the learners, as the entrance survey showed, registered for the MOOC to refresh their knowledgeThese percentages are considered competitive amongst other online courses, in fact it is higher than many other international MOOCs, such as The Terrorism and Counterterrorism MOOC offered by Leiden University in Netherlands in 2014 where only 410 out of 18,622 (2.2%) completed the course.

While 4% of Coursera users who watch at least one course lecture go on to complete the course and receive a credential (Zhenghao, el, at (2015).

Many Studies have pointed out that on average, the completion rate of any MOOC is below 13%, this might be due to the learner's specific interest in an element or topic of the course, or it could be due to the great variety in the learners' population and educational attainment levels.

Table 6.
Percentage of learners completed both MOOCs

	RM	RS
Percentage of Learners who Completed the Course	5%	6%
Certificates of Completion	365	544

The exit survey data indicated that almost 89% of learners achieved their goals of joining both courses. the survey also included the question: "To what extend did you benefit from the course?" the results indicated that about 58.7% of RM learners and 58.2% of RS learners benefited a great deal in both MOOCs, followed by some benefits to more than 30.9%, and no added knowledge to less than 3.6% of the learners, refer to the table below:

Table 7:
Proportion of respondents to the benefit of the courses

	RM		RS	
To what extend did you benefit from the course?	Response Percent	Response Count	Response Percent	Response Count
Responses				
Great deal	58.7%	97	58.2%	96
Some benefits	34.5%	57	30.9%	51
Little benefits	6.1%	10	7.3%	12
No benefits	0.6%	1	3.6%	6

More than 93% survey respondents of both MOOCs found the courses to be effective and indicated that they received a high quality of feedback when raising question through the discussion forums, they felt a great satisfaction with the MOOCs teams and lecturers.

The exit surveys indicated that the learners' overall satisfaction rates were 70.6%, and 72.0% for both RM and RS MOOCs respectively.

Learners' satisfaction in an online course is important because it can impact motivation and, therefore, learner success and completion rates.

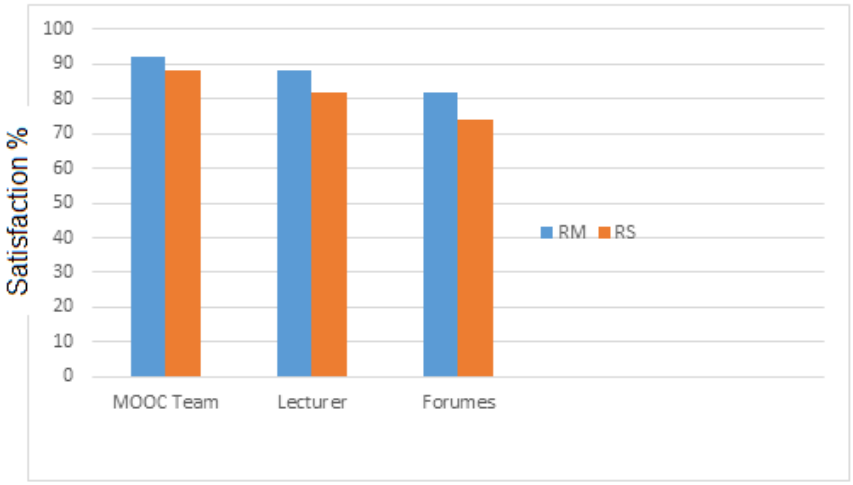

Figure 2:
Satisfaction of MOOCs team,lecturer and forumes.

In the quantitative feedback, learners indicated high satisfaction rates (see table 8) with the quality of animations, games and activities implemented in the RM course. The games provided many of the learners with great benefit in constructing knowledge. This type of feedback was not applicable to the RScourse as the course did not include similar games and activities to the RM course.

Table 8.
Benefits and satisfaction of animations and educational games of RM course

To what extend are you satisfied with Course? Answer	Animations Percentage	count	Educational games Percentage	count	Benefits of educational games Percentage	count
Excellent	53.8%	85	40.8%	64	45.8%	71
Very good	32.3%	51	35%	55	49.0%	76
Good	12.7%	20	21%	34		
Satisfactory	1.3%	2	2.5%	4	3,9	6
unsatisfactory	0%	0	0%	0	1.3%	2
Counts sum		158		157		155

Based on the qualitative testimonials given by the learners through the courses' forums, we can confirm that most learners were optimistic and satisfied with the learning process in general.

Many learners indicated happiness and satisfaction with the lectures, quality of animations, games, and activities provided by MOOCs.

Appendix 1 and Appendix 2 show some of these testimonials from both courses.

CONCLUSIONS AND RECOMMENDATIONS

MOOCs have created wide interest as a change agent in higher education (13), Palestine's official position on MOOCs is not reflected in any academic literature we have been able to identify.

In response, QOU has made its first attempts to tackle this issue. Consortium led by Edraak, RM and RS were the first MOOCs recently designed and implemented by QOU.

Over 18,000 learners registered for the two math and statistical courses, which were composed of video lectures, interactive problems, online laboratories, and discussion forums.

Demographic investigations revealed that most learners came from over 10 Arabic countries mainly from Egypt, Algeria, Morocco, Jordan, and Palestine. It is not surprising the majority of the learners appeared to be in their 20s and 30s while the motivation behind enrolling in the courses varied.

The study revealed that learners reported a high level of satisfaction in both MOOCs.

On the other hand, the early impacts of MOOCs on higher education are a sign that this transitionis difficult, but entirely possible (Zhenghao, el, at (2015). MOOCs deeplyimpact of Arab universities is yet to be studied.

As we are confident that our findings are broadly generalizable, we recommended, similar studies to be conducted in different contexts. Meanwhile, innovation and research needs to focus on issues such as the impacts of MOOCs on higher education, learners' support towards the completion of MOOCs in order to secure educational benefits, the facilitation of learners' motivation during a MOOC course, and whether MOOCs improve learner achievement retention growth.

Finally, learning is not just about pure academics alone. Interacting with others learners with diverse cultural backgrounds is a part of the academic life and that was done effectively through these MOOCs.

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BIODATA and CONTACT ADDRESSES of the AUTHOR

Dr. Randa El-Sheikh NAJDI Randa Elsheikh Najdi is an assistance professor of math education at Al-Quds Open University, West Bank. She has a PhD and a Masters in math education (2009) from IRS of Cairo, Egypt; a master's degree in pure math from UC Davis at California, USA. She has many certificates in e-learning, and won many awards in Teaching Excellence. She is an e-learning expert and has spent her entire career working in teaching mathematics and has trained a number of teachers in using technology and implementing 21st Century skills. She published a number of researches in local and international refereed Journals.

Assistant Professor Dr. Randa Elsheik HNAJDI
Math Department, Al-Quds Open University, PALESTINE.
Email: rnajdi@qou.edu

REFERENCES

Aycock, A., Garnham, C. &Kaleta, R. (2002). Lessons Learned from the Hybrid Course Project. Teaching with Technology Today, 8(6). Retrieved on February 28, 2013 and available from http://www.uwsa.edu/ttt/articles/garnham2.htm

Derek B., D., Fisher.; D., McEwen, K. & Smith, B. (2013). Wrapping a MOOC: Student perceptions of an experiment in blended learning. Vanderbilt University. *Journal of Online Learning and Teaching,* retrieved on February 28, 2013, from http://my.vanderbilt.edu/douglasfisher/files/2013/06/JOLTPaperFinal6-9-2013.pdf

Edaa K (2014). *Queen Rania of Jourdan Launches Arabic MOOC Platform Edraak Based on Open Edx.*

Ethan A. S. (2013, MOOCs: A review, Are edX and Coursera the future of university education? Staff Reporter.

Hoi K. Suen , (July 2014). Peer Assessment for Massive Open Online Courses (MOOCs), *The International Review of Research in Open and Distributive Learning IRRODL.* Vol 15. N0 13.

Naaj, M. A., Nachouki, M., & Ankit, A. (2012). Evaluating learner satisfaction with blended learning in a gender-segregated environment. *Journal of Information Technology Education*: Research, 11. retrieved on February 28, 2013 and available from http://www.jite.org/documents/Vol11/JITEv11p185-200AbouNaaj0979.pdfB

Queen Rania Foundation For Education And Development, retrieved on February 28, 2013 and available from http://www.qrf.org

Zhenghao, C. et. Al., (2015). Who's Benefiting From MOOCs, and Why*? Harvard Business review,* https://hbr.org/2015/09/whos-benefiting-from-moocs-and-why

Zhenghao, C. et, al. (2015). Salisbury,A. (2014): Impacts of MOOCs on Higher Education. A report from the UT Arlington symposium. *Inside Higher ED.*

Appendix 1

Remedial Math MOOC Testimonials:

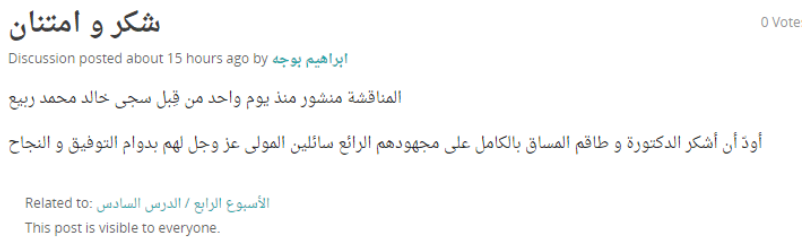

Figure 3.
Gratitude.

Figure 4.
The impact of content.

Figure 5.
Lecturers' satisfaction.

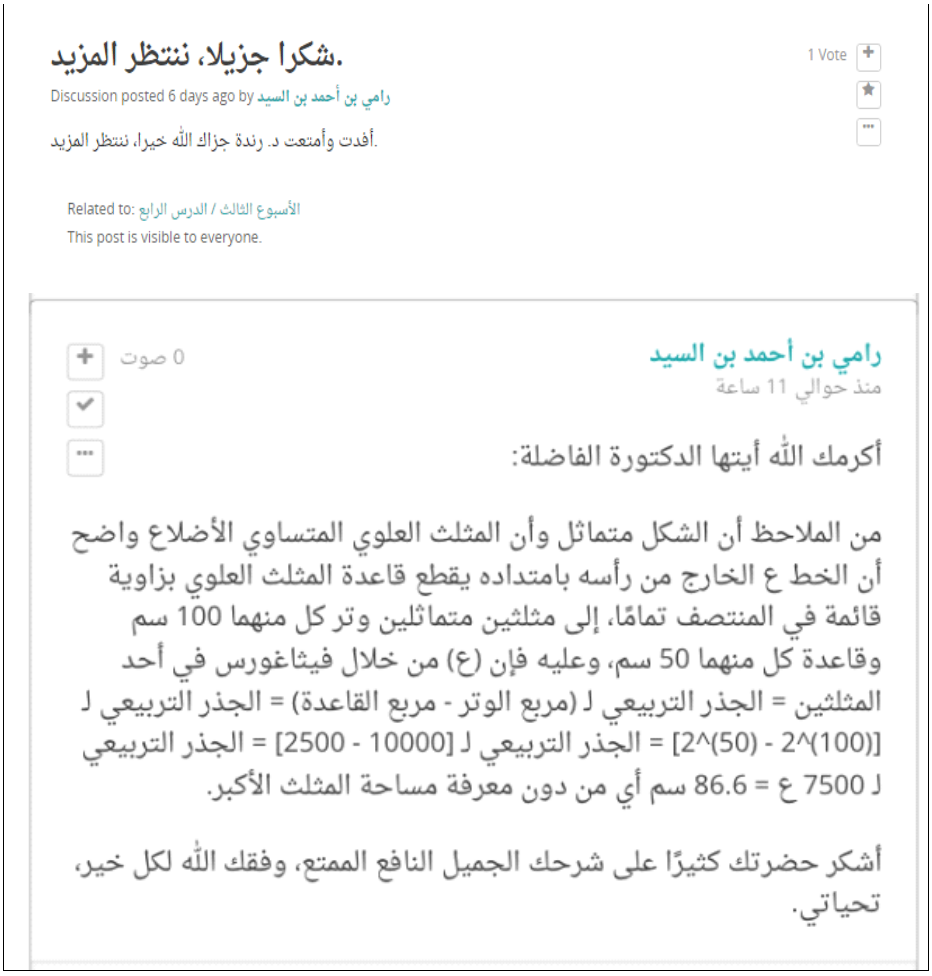

Figure 6.
Complement to the lecturer.

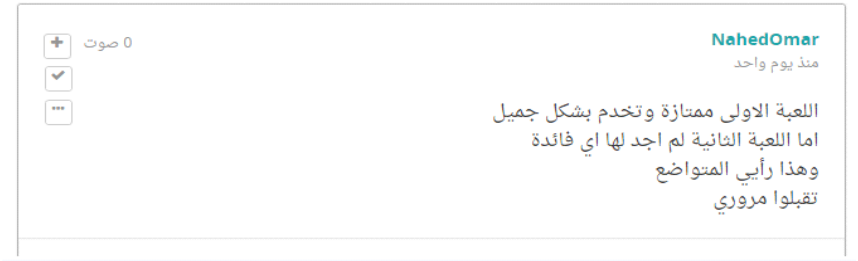

Figure 7.
Games' benefits and feedback.

Figure 8.
The impact of the course and course team.

Appendix 2

Remedial Statistics MOOC Testimonials:

Figure 9.
Lecturers' satisfaction.

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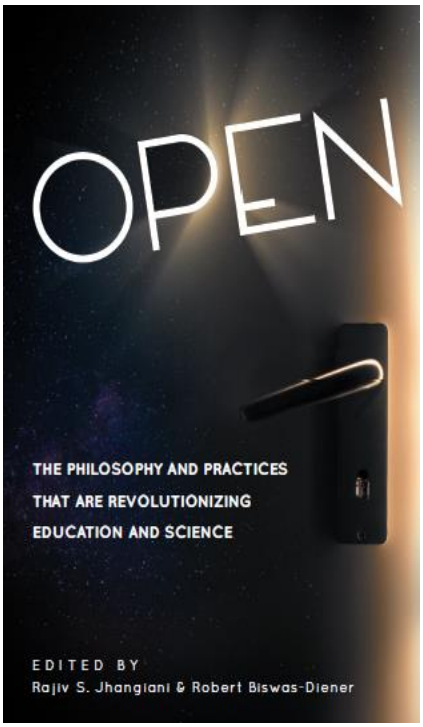

OPEN: The Philosophy and Practices that are Revolutionizing Education and Science

Edited by
Rajiv S. Jhangiani and Robert Biswas-Diener

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Educational inequalities are as much a reality in affluent and industrialized societies as they are in developing economies. In countries as diverse as New Zealand, Canada, and the United Kingdom, the histories of colonization and immigration have been associated with disparities in access to high quality education. Kozol (1992) points to racial segregation as a primary source of what he calls 'savage inequalities.' He traces systematic differences in per pupil expenditure, funding structure, and facilities between affluent and poor minority school districts in the United States.

This trend endures in the United States to the present: high schoolers taking advanced placement or international baccalaureate courses consistently outperform their less advanced counterparts on various measures of academic achievement and poor students are underrepresented among the educational elect.5 In just the first decade of this century, 2.4 million American students either did not attend, or could not complete, college because of the cost barrier.6

The open education movement offers one possible, partial remedy to educational inequality. The most obvious benefit of open education is in its low cost. The word 'open,' in this sense, means 'allowing access to' although it is also often equated with 'free of cost.'

In fact, most open education resources are freely available and even in cases where they are low cost, they still help to drive the market toward a lower price point. By removing or substantially reducing the expense normally associated with software, textbooks, and course fees, education becomes more accessible to more people.

The open education movement can also help raise the quality of education for all students because instructors are better able to share and build on one another's pedagogical innovations. It is here, in the second sense of 'open,' meaning customizable by and shareable among instructors, that we have the potential to design more engaging, locally relevant, interactive, and effective teaching resources.