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Research and innovation in teaching and learning are prime topics for the *Journal of Instructional Technology and Distance Learning* (ISSN 1550-6908). The Journal was initiated in January 2004 to facilitate communication and collaboration among researchers, innovators, practitioners, and administrators of education and training involving innovative technologies and/or distance learning.

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Editorial
Clusters of innovation
Donald G. Perrin

Innovations create new demands, and these demands in turn lead to more innovations. It is quite common for innovations occur in clusters related to whatever caused or led to earlier innovations. For example:

There was a long history of attempts to develop motion pictures. The camera obscura dates back to the 5th century. A lens to improve luminosity and sharpness was introduced around 1550. In 1646, Kircher described a primitive projection system with a focusing lens. Christiaan Huygens invented the magic lantern in 1659. He also explored motion concepts and simple animations by combining separate images (the beginnings of animation).

Photography using light sensitive materials began about 1800. Louis Daguerre, William Henry Fox Talbot, and others improved the technology and reduced exposures to a fraction of a second. Starting in 1880, George Eastman introduced roll film and the box camera so photography could be used by anybody. Eastman did not invent the motion picture, but in 1889 he introduced celluloid film and within a few months, entrepreneurs in several countries invented the motion picture as we knew it in the 20th century. Pathe in France introduced a 9.5 mm film with a sprocket hole between each image. Edison in the United States introduced 35mm with sprocket holes on both edges. This format became the worldwide standard for the film industry until the 1960s. Lumiere produced the technology for projection in 1894.

A mechanical scanner used to dissect images for electronic transmission was patented by Nipkow in 1884. Over the next 50 years the necessary components for electronic imaging and broadcast television were born. In 1894, Marconi transmitted and received broadcast radio signals over long distances, first for telegraph; later for voice. Broadcast television was launched prior to World War II, but commercial development was delayed until the end of the war. Color television became widespread in the 1960's, and by the end of the millennium, analog television was being replaced by digital imaging technologies.

Several observations can be made here. Innovations come at different times and places. It may be years before they are connected to other discoveries, and more time before they are commercially available products. Some inventions are not possible until all of the necessary components have been developed. The motion picture as we know it today was not possible until George Eastman produced photographic emulsions on flexible celluloid film. Over time, mechanical systems were replaced by electronic systems. Film-based photography and motion pictures were replaced by digital imaging and electronic transmission. This in turn changed and greatly reduced size and cost of systems used for recording, playback and distribution. They are widely accessible and virtually anybody can use them with excellent results.

Where does that lead us? For me, it is the book I am about to write. Until now, technology has made the teacher's job more complex. I believe there is a century of educational research and innovation waiting to be integrated into K-12 education. Ken Robinson and Lou Aronica's book, *Creative Schools, the grassroots revolution that's transforming education*, identified how to overcome flaws in the existing system. My 1996 paper, *University of the Future*, showed how to integrate existing technologies to benefit instructional communication technologies and distance learning. A decade later, transformation to that model is near complete on a global basis.

At the end of this year, I plan to put this journal into hiatus, or delegate it to a new team of editors and managers so I have time to research and write that book. My findings will be integrated into a prescription for future education in grades K-12 based on my projections and visions for the world from 2020 to 2025.

References:

Robinson, Ken and Aronica, Lou (2015). *Creative schools, the grassroots revolution that's transforming education*. New York: Penguin books.

Perrin, Donald (1996) University of the Future. [Journal of the United States Distance Learning Association](#).

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Editor' Note: A review of the literature may set a level of expectation for the outcome, but specific data is needed to confirm suitability for a different subject matter or a different population of students. It overrides optimistic or negative predictions with specific data, and assists in extension and fine tuning of a successful methodology.

The effect of using blended learning method on the achievement of students at Al-Balqa Applied University - Jordan

Tayseer Andrawes Saleem

Jordan

Abstract

This study aimed at identifying the effect of using a blended learning method on the achievement of the students' in the English course (101) at Irbid College-Al-Balqa Applied University, through administration of an objective achievement test which consisted of (50) items prepared for this purpose, after verifying its validity and reliability. It was applied as pre-test and a post-test on the subjects of both groups of the study, the experimental taught through blended learning and the control group taught by using the traditional method. Using ANCOVA, results of the study showed a statically significant difference between arithmetic means of the two groups' performance on the achievement test in the English course and the statically significant specialization of management, compared with the specializations of libraries and Arabic language. There was no statistically significant difference that could be attributed to the interaction between both variables: teaching method and specialization. The study concluded the necessity to reconsider university programs in order to integrate concepts of the electronic revolution and blend them with traditional (normal) teaching methods in a way that accomplishes individuals' requirements and the current stage of development.

Keywords: blended learning, traditional teaching, e-learning, Al-Balqa Electronic Academy, achievement, English Language courses.

Introduction

As a result of the enormous progress in the systems of communications and information networks, which have had their effects on the different aspects of life, perception of teaching started to move from its traditional frame, based on memorizing and learning by heart, toward self and participatory teaching and learning, based on the skills of scientific research and exploration, development and employment of knowledge. The consequences of science and technology have placed before the student and the teacher inevitable choices, namely, entering the world of knowledge, internet and the computer, with the aim of obtaining, processing and employment of information with the rise of new concepts such as electronic learning (Al-Faqeeh 2009).

University teaching is the complete link with school teaching with all its subjects and aims for serving society through its role in the preparation of highly trained human forces. The information age is restructuring research, instruction, training and the way of discovering knowledge in the fields of applied and humanitarian science. Modern educational trends emphasize the necessity for creating the best concerned ways of providing an appropriate interactive educational environment in order to attract the student's attention, meet their needs and reinforce their motivation. The process of blending the technologies of information, presented in the computer and the internet, with the instructional process relating programs and multimedia, is considered one of the most successful ways of creating rich educational environments with resources of learning, teaching and training (Al-Ali, 2004).

Universities, nowadays, have started to consider options for teaching and learning that are beyond automation of teaching and training models. They look for new trends to discover knowledge and develop performance by concentrating on specific aims of the educational sector and the manner of their achievement, instead of focusing on teaching technology itself. This requires designing and producing specialized academic and training programs to enhance learning in traditional classrooms, based on the application of electronic learning technology.

Many educational institutions have sought to advance education by creating new educational tools and methods like blending learning to enable learners to benefit from the speed and power of the computer and the human capability that depends on intelligence and creativity that combine a variety of methods or ways of learning. Properly used, these tools can set the teacher free for direct interaction between the teacher and the learner to serve the individual needs of learners on one hand, and the requirements of the syllabus and educational aims on the other. Al-Balqa Applied University, is the first of all public universities to adopt the idea of blended learning by opening Al-Balqa Electronic Academy to develop and teach blended electronic syllabuses on the basis of the curricula determined by Al-Balqa Applied University in the academy and some other colleges which belong to it (Zuhdi, 2011). It can be said that blended learning is an educational learning system which benefits from the potential of all available technology and media through the combination of more than one method or instrument of learning, whether it is electronic or traditional, to provide learning that is appropriate for the characteristics of learners on the one hand, and the nature of syllabus and educational aims, on the other (Abu-Khattwah, 2010).

It is the use of modern technique in teaching without neglecting the normal educational practice and presence in classroom, where concentration is on direct interaction between students and the teacher via the use of modern means of contact like the computer and internet entries (Al-Showmali, 2007).

Blended learning is that which combine the characteristics of both traditional classroom teaching and electronic learning in anew integrative model using all possible techniques of each (Mulheim, 2006).

The blending of teaching aids and materials in education is not a modern phenomenon, but an issue with historical roots connected to the development of man through ages. A scientific and educational experiment conducted by the first pioneers before and after the Renaissance is proof. Linking and blending teaching with reality, going out to nature to benefit from its resources, and by reinforcing individual sensuous realizations, was effective in satisfying educational needs. In spite of this ancient knowledge, blended learning has not entered the world of education in its modern technical way and its intended organized use until the first half of past century when a limited number of western schools, institutes and universities, especially in the USA, started to blend audio and visual teaching aids in the educational process. However, the actual recognition of the importance of aids in teaching and the necessity for blending them in teaching came after the Second World War, when they became a main part of the system of education in general. Perhaps the most supportive voices for blended learning are those which call for making teaching without restrictions or limits and respect the learner's character, experiences, capabilities, positive motivation and freedom to firmly establish the concepts of lifelong learning, coping with scientific and technical developments, concentrating on ways of discovering knowledge instead of transferring it, and employing all of these in educational situations (Al-Ghamidi, 2007)

The process of blending traditional education with electronic learning usually occurs as an organized scientific method, governed by several criteria relating to the requirements of the educational situation. Blended learning is not a new thing because its constituents were restricted, in the past, in traditional classrooms (lecture halls, laboratories, textbooks and abstracts), but

nowadays the blending process is conducted in several physical, human, electronic and technical dimensions as follows:

1. **Blending network teaching via the internet with traditional teaching in classrooms** where a program is presented under the teacher's control.
2. **Electronic and traditional cooperation:** learners and the teacher can electronically cooperate through internet conferences or directly with the teacher in educational institutes, in a way that supports the factor of communication during learning and achieves knowledge participation.
3. **Performance supporting materials:** blended learning provides many performance supporting materials which increase the teaching return such as electronic materials in the internet, published materials, electronic training programs and direct live training programs.
4. **The different forms and strategies of teaching:** through blended learning, various teaching forms and strategies are employed which include direct hypothetical teaching, indirect teaching classrooms for self-learning, learning methods based on distant electronic learning, direct teaching in traditional classrooms, active learning, collective teaching and teaching in small groups.
5. **Blending regular teaching with irregular teaching:** through this system, blending occurs between regular, teaching via the internet and direct traditional teaching, and irregular teaching by entering other teaching sites, through the internet supporting study subjects and also through direct effective interaction with the teacher and colleagues.
6. **Blending the traditional instructional textbook with electronic pages:** this system mixes the university textbook and electronic book or electronic internet pages, in a way that enables the learner to study the paper book and re-read it as well as checking the internet pages supported with sound, picture, motion shapes and colors for the sake of supporting teaching with all its aspects (Ali Sallamah, 2006, Hidayah, 2008).

The success indicators of a blended learning program start with a general session which directly combines the teacher and students, in which the program aims and plan are clarified, together with the manner of their implementation, strategies employed and the role of each one in the success of blended learning through effective objective contact and communication, guidance between the parties of the teaching process and independence of the learner in his learning according to his potentials and capabilities, concentration on knowledge, its discovery and employment in teaching situations, continuous and flexible tests, allowing students to receive the one message from different sources in several pictures, liability of measuring outputs, making sure of efficiency and appropriateness of this kind of learning for a large number of students and the extent of the availability of the infrastructure which supports its application by using instructional technology. Its outputs are said to promote the level of teaching (Al-Ghamidi, 2008). In addition, blended learning has many advantages that can be summarized in what was cited in the study of (Abu Khattwah, 2010) as follows:

- It links aims with results and provides objective means of communication, reinforces social and participatory relationships, increases interaction and group work between the parties of the teaching process (the teacher, the student, the syllabus, the trainer and the technician)
- Sufficient flexibility in providing all individuals 'needs and learners' teaching opportunities at all their levels going beyond the limits of time, place and classrooms.

- It enriches and employs human knowledge by using the methods of analysis, construction and design, as well as raising quality of the instructional process, product and teachers, competence.
- It integrates the systems of shaping and final assessment of students and teachers.

In spite of what has been written about the positive aspects of blended learning, its way is blocked by some problems and obstacles that restrict its application:

1. The low level of the experience of some students when dealing with the computer and networks. This represents the most important obstacle of electronic learning, especially in the self-learning type.
2. The non-existence of any guarantee that the devices available for learners in their houses or the places in which they study the course electronically, are of the same competence, ability, speed, equipment and appropriateness for the course syllabus.
3. The low efficiency level of the system of observation, evaluation, correction, presence and absence of students.
4. Shortage in qualified cadres for this type of learning and lack of examined scientific models for blending traditional teaching with electronic learning (Al-Koshba, 2012).

Traditional teaching is based on three main basics, namely, the teacher, the learner and the data. Regardless of the progress of science and technology, we cannot completely dispense with it, as it has advantages not available in any other teaching alternative. The most prominent, advantage is the face-to- face meeting of the teacher and the learner in the process of traditional teaching where the picture, voice, senses and feeling, are brought together. These affect the whole message and teaching situation, in a way that the message can be adjusted and so can the behavior in the desired way which leads to the benefit of growth and development. The methods of traditional teaching make it possible for the opportunities of developing the ways of conveying information by the teacher who may resort to drawing sketches or using physical teaching aids and sensuous embodiments, especially in the early stages of teaching. Traditional teaching depends on "traditional culture" which concentrates on the use of knowledge, in a way that the teacher is the basis of the teaching process, while the role of the student is passive, relying on receiving the data from the student is passive, relying on receiving the data from the teacher without and effort of investigation or search as he learns via the method of lecturing, speaking and listening. And that is known as the dictated teaching (Al Han Jouri, 2014).

There is no doubt that study achievement constitutes a basic element in the teaching process as it is important in determining what should be achieved in relation to general and specific teaching aims. In lissan Al-Arab "(the tongue of the Arabs). The word "occurred" was stated with the meaning what remained and became permanent, and achievement is a distinction of what occurred. It is identified by (Al-Najar and Shihatah, 2003) as the extent of the student learning in regard to certain experiences through the syllabi. It is measured by the grade that the student's comprehension of what have been presented to him in regards certain experiences through the syllabi. It is measured by the grade that the student has in the achievement tests prepared for what (Alam, 2010) stated that achievement is success grade or level achieved by the student in a general or specialized field of study. It represents the degree of the individual's acquisition of knowledge, skills, attitudes and the ability to use them in present of future situations. Achievement is considered as the final result of learning. The researcher thinks that study achievement is the degree or level of success achieved by the student in the field of studying the subject of English language. It is measured by the grade the female student got in the achievement test prepared for this subject. In this regard, Qassem (2016) conducted a study titled (the impact of the application of blended learning in the learning of Arabic by nonnative

speakers), the researcher used a sample of (127) male and female students studying at primary medium and advanced levels. All of them were studying Arabic language as specialization or as an elective course in the faculty of arts and education in Deakin University in Melbourne Australia, with (68) female students and (59) male students. The study results indicate that the student who learned Arabic completely through the method of blended learning enjoyed it and found the environment of teaching and learning comfortable and represented a complete part of their study system which helped the independent learners to develop themselves in regard to the time, place and the appropriate flexible environment they chose.

The study of AL Reemawi (2014) revealed the impact of the use of blended learning, in teaching English language, on the direct and delayed achievement of basic the sixth grade students in Amman Governorate. The researcher used the semi-experimental approach and an achievement test on a sample of (60) students. It was divided into two groups: control and experimental. After conducting the study, there were statistically significant differences between the student's arithmetic means in the immediate and delayed achievement to the advantage of the experimental group.

AL-Thiabat (2013) study investigated the efficiency of blended learning and traditional way in the achievement of Tafilah Technical university students in the course of instructional methods for the first grades and their attitudes toward them. The researcher used a semi-experimental approach. The study population consisted of all of the students specialized in child education and classroom teacher (295 male and female students) in the faculty of educational sciences in Tafilah University. The random sample of the study was divided into two groups: Control (20) and experimental (male and female students) used blended teaching material, traditional teaching material and an achievement test, and a scale as study instrument for measuring attitudes toward study. The results showed the existence of statistically significant differences to the advantage of the experimental group who studied according to the blended learning way in comparison with the traditional method in achievement and attitude toward blended learning.

Abu AL-Reesh (2013) conducted a study about the efficiency of a program based on blended teaching in the achievement of tenth grade students in syntax and attitude toward it in Gaza. To achieve the aims of the study, the researcher used the semi-experimental approach based on the design of two groups: experimental and control in the directorate of East Khan Yunis. The research instruments were designed in the form of an achievement test and questionnaire already prepared to measure the attitudes of the experimental group students toward the teaching program (syntax). After conducting the study and statistical processes, it appeared that there were statistically significant differences between the arithmetic means of the grades of the students attitude of the experimental group toward the subject of syntax to the advantage of post application of the attitude scale, and the existence of statistically significant differences in the mean in the grades of syntax achievement between the students of both experimental and control groups to the advantage of experimental group. There were also statistically significant differences in the mean of the grades of academic post achievement between the students of experimental and control groups to the advantage of the highly achieving students in the experimental group.

AL-Harithi (2012) built a suggested program to identify the efficiency of program in teaching technology based on blended teaching in the development of the skills of furthering the skills of the uses and attitudes toward it in the faculty of education. The researcher used the descriptive and experimental approach of the design of two groups: experimental and control, pre and post application, observation card and attitudes scale toward the use of technology.

The study sample of the experimental group was (27) and in the control group was (26) of the educational diploma students studying the course of teaching technology in the faculty of

education in Umm AL-Kura University. The study concluded the existence of statistically significant differences in all the skills of technology and attitudes to the advantage of the experimental group.

Abu Mossa (2009) investigated the impact of using the strategy of mixed learning on the achievement of the students of the faculty of Education in the open Arabic University, Jordan branch, in the course of teaching with the use of the computer and their attitudes toward it, on a sample of the students of the faculty of Education in the open Arabic University, Jordan branch, registered in the summer semester of the academic year 2006/2007.

The control and experimental groups were used. After conducting the experiment, the study results showed statistically significant differences between the achievements of students who studied using the strategy of mixed learning and those who studied through lecture, to the advantage of the experimental group.

Vaughan (2009), showed the benefits that can be achieved through the application of the system of blended learning from the views of students, teachers and administrators. They stated that this type of learning provided them with great flexibility of the time of learning and improved the expected products of learning; the teachers pointed out the role of this learning in reinforcing interaction between them and students, and that the blended courses made it possible for them to improve student performance and increase their commitment of learning. It also added flexibility and continuity in the environment of learning and teaching. Administrators stated that blended learning decreased the costs of management and operation.

Abraham (2007), in his study compared traditional learning and blended learning with the aim of evaluating the performance and participation of the students who were studying by the traditional method with those who were studying by the blended method. The sample of the study consisted of two groups of the graduates of the faculty of Engineering registered in the course of financial management for obtaining the master degree. The result was that learning by blended method was remarkably higher and that students had a higher responsibility of their learning and achieved higher results than the control group.

Jones (2007) conducted a study on the students of the master stage, business administration in a university in the north of the USA in order to compare the students' assessment of the efficiency of the syllabus and their general satisfaction of it, through two groups: one of them studied by the traditional method and other was experimental. The results showed that the group who studied by the method of blended learning had a strong feeling that the syllabus which they studied will be used in their practical life, and that they will attend other courses and study them in the same way. The result also showed significant differences to the advantage of the students of the traditional group in the fact that they were more secure. The results came to show that both ways were similar in regard to the final products of learning.

Godeo (2005), in his study, aimed at blending the traditional method and self-learning through the internet in teaching English language to the faculty of education students. The study was based on presenting models of self-study through the internet with the use of some electronic activities such as electronic mail, conversation, video conferences and the use of search sites. The sample of the study consisted of (820) male and female students in the faculty of education in Costilla-La Mancha university in Spain. The result of the study concluded that the mixed learning program contributed in the increase of students' achievement and promotion of positive attitudes toward the study of English language.

Through the presentation of the previous studies, we can perceive the following:

- Most of the previous studies applied the method of blended learning using the semi-experimental approach in order to measure the differences between the two experimental

and control groups. The results came to the advantage of the experimental groups who applied the method of blended learning.

- Some of the previous studies (Al-Reemawi, 2014, Abu- Al-Reesh, 2013, Qassem, 2016) applied the method of blended learning using the experimental and control groups in order to teach some subject (Arabic, English, Mathematics, etc.) The results came to the advantage of the experimental group.
- Some previous studies (Al-Thiabat, 2013, Al-Aarithi, 2012; Abu-Mossa, 2009; Godeo, 2005) applied the method of blended learning using the experimental and control groups in order to teach some university syllabuses study courses(instruction ways, teaching technology, the computer English language, etc.) The results came to the advantage of the experimental group.
- Some previous studies applied the method of blended learning using the experimental and control groups in order to teach the students of higher studies. The study results of Abraham (2007) came to the advantage of the experimental group, while the results of the study of Jones (2007) came to the advantage of the control group.
- Some previous studies Al-Remawi (2014) applied the post-achievement test on the experiment and control groups. The results were to the advantage of the experimental group.

The present study, to some extent, conforms to some previous studies in its aims and study subjects. However, it contradicts, in its result, application procedures and educational environments, with the other studies. It can be said that the researcher benefited from those previous studies in determining the approach, study instrument, statistical processes and discussion of results. The aim of this study was the identification of the effect of the use of blended learning on the achievement of the students of English language course (101) in Irbid University College.

Study problem

The information revolution and its technologies became the most important elements to cross the digital gap to enhance the basic structure of education. Consequently, the educational process is affected by this revolution. Traditional teaching, based on learning by heart (rote-learning) and dictation, is no longer important in the teaching process. Entering the world of electronics and information technology has started to blend the technologies of wire and wireless communication, multimedia, and smart devices for anew learning to appear, namely, blended learning in the traditional educational system, considering it as a type of electronic educational that relates current circumstance and innovations created by scientific revolution. There has been a need for this new entry which combines the advantage of each of the traditional teaching and electronic learning in order to overcome aspects of weakness in each one.

What is called blended learning has come to mean blending traditional teaching with its different forms and various types of electronic learning to increase the efficiency of the teaching situation, elevate achievement averages, and reinforce the principle of social interaction through the direct participation of students in order to present a new quality of teaching. This is appropriate for the characteristics of students and their syllabuses and in a way that enables the transferee the teaching process and its control inside and outside classrooms in a frame of time and place freedom (AL-Mahdi, 2008). Stemming from these facts and through the researchers extensive practical and theoretical teaching experience and his feeling of the importance of shedding light on the student's use of the blending learning and its effect on achievement in AL-Balqa applied university, the idea of this study, its questions, aims and methodology were formed.

Study question and hypotheses

This study was designed to answer the following main question: What is the impact of the use of blended learning on the achievement of the student in English language course in Al-Balqa Applied University? To achieve this, the following hypotheses had to be tested:

Study hypotheses

First null hypothesis: There is no statistically significant difference ($\alpha \leq 0.05$) between the arithmetic means of the subjects' performance in an achievement test in English language course that can be attributed to the variable of teaching method traditional and blended learning.

Second null hypothesis: There are no statistically significant difference ($\alpha \leq 0.05$) between the arithmetic means of the subjects' performance in the achievement test in English language course that can be attributed to the variable of specialization (Arabic language, Administration, libraries)

Third null hypothesis: There are no statistically significant difference ($\alpha \leq 0.05$) between the arithmetic mean, of the subjects' performance in the achievement test in English language course that can be attributed to the dual interaction between the variables of teaching method and specialization.

Study aims

The study sought to achieve the following aims:

- The identification of the impact of the use of blended learning the way in teaching on students' achievement compared with traditional way.
- Shedding light on the concept of blended learning and the factors of its success advantages and obstacles.
- The identification of the reality of traditional teaching and academic achievement.

Study importance

This study is important as it dealt with a new vital topic which interests people concerned with university teaching process, besides discovering a new learning method, namely, the impact of the use of blended learning in university teaching aims. It includes a group of procedures in regard to teaching aims, instruction methods, study content, infrastructure. Financial potentials and the role of the student and the instructor in the frame of an interactive attractive environment which tries to establish and blend modern techniques. In prevalent instructional types for the sake of presenting whatever new in blended learning. As a result of this importance, universities have to work continuously for developing their performance and teaching syllabuses, in an age in which computer technology has become the main test of the implementation of their procedures. This interest is manifested through entering the world of communications and information technology in order to grasp the concepts of knowledge and electronic revolution, and its presentation before university student with mixed and efficient instructional methods because the task of universities shouldn't be restricted to granting students university degrees which allow them to enter job market, but it should be a knowledge laboratory characterized by the safe education (environment which ensures the freedom of thinking, expression, knowledge discovery and reinforcement of the relationship between the individual and society, because the relationship between university and Society is an integrative one. University leads society as being storage of thought, science, research development and training. It belongs to society as being one of its working institution in its ideological, educational, economic and social structure (Al-Anssari, 2008).

Study Technical Terms

- **Blended Learning:** It is the re-structuring of the teaching process and formulating it in a way the blends traditional methods with several modern electronic media which makes it available for the teacher to have an active interactive environment, where he can move from the traditional classroom to a larger one not limited by time or place (Al-Deep, 2010). And it is procedurally identified as a teaching-learning method adopted by AL-Balqa Applied Academy and supervised through the blending between traditional methods (explanation, discussion and dialogue,...) and electronic one (the computer, the internet, e-mail, electronic syllabus,...), without abandoning the normal instructional real practice for teaching English courses in the Academy labs in Irbid University College.
- **Al-Balqa Applied Academy:** It is the first level of public university. It was established by the partnership of AL-Balqa Applied University and private sector, in order to develop and present electronic blended syllabi; (blended learning), based on the curricula of AL-Balqa Applied University for the basic courses of English language (E.99,E.101, E.102), and computer skills(IT-102, V.B,IT-102,C++). Teaching started in the academic year 2006/2007 through an academy located in the university and its branches in the faculties of technological engineering, Irbid University College and Al-Karak University College. The tasks of the Academy are concentrated on management of the teaching process inside the academy to develop accredited courses at the university, schedule instructors and students semester courses, exams and scores using the Chameleon learning management system, and coordinating with the director of the admission and registration department and the college deans.
- **Traditional Teaching:** It is a normal teaching-learning way, led by the teacher using some methods such as lecturing and dictating, etc., with the participation of students, being present, listening and learning by heart in order to achieve the course requirements, pass various achievement tests and reach the final result.
- **Academic achievement:** It is the outcome of teaching, or it is the extent at which the student, the teacher or the organization achieves their teaching aims: it is procedurally identified as the degree or level of success achieved by the student in his /her field of studying English language course. It is measured by the grade the student obtains in the achievement test prepared for this course.
- English (101): It is one of the courses (required course) taught by blended learning in Al-Balqa Applied Academy.

Study limits

In order to maintain the study safety and its application procedures, and to be within its right scientific frame, it was designed and implemented according to the following frames:

- The study was conducted only of the female students of Irbid University College which is part of Al-Balqa applied university, as it encompasses one of the branches of Al-Balqa Electronic Academy which applies the method of blended learning in teaching Computer and English language courses.
- The study was restricted to two equal groups, one experimental and other control, from the female students of Irbid University College, admitted in the beginning of the academic year 2015/2016, for the first semester.
- The researcher chose the course of (English 101), taught by one of the teaching staff in the department of English language and literature, using the method of

blended learning for the experimental group and by the method of traditional teaching for the control group.

- The research used pre-test and post-test as an instrument for measuring differences in achievement between the experimental group and the control group.

Statistical processes

The arithmetic means and standard deviations were calculated. The correlation coefficient of Spearman-Brown and Guttman were used for the split-half, T-Test, hypotheses testing, ANCOVA and Bonferroni test for post comparisons, and finally, the (Eta square) indicator to identify the effect size of the method of instruction.

Method and procedures

This study aimed at identifying the impact of blended learning method on the achievement of students in English language course. The following are the procedures followed by the researcher in order to conduct the study. They consist of the study methodology, development of the instrument, its validity and reliability, and the study population, its sample and statistical processing:

Study population: The population of the study consisted of the female student admitted and registered in English course in Irbid University College for the first semester for the academic year 2015/2016.

Study sample: (48) female students were selected as a random sample of the study population and they were divided in to two equal groups (experimental and control).

Study methodology: The researcher followed the semi-experimental approach (experimental group and control group) as it is considered as one of the most suitable in the research of human studies.

Study instrument (achievement test):

- Preparation of the achievement test questions: the questions of the test were prepared in accordance of both methods, the traditional and blended learning, based on objective questions, characterized by easy correction, besides covering a large amount of the course.
- The test consisted of multiple-choice items and completion questions with specific answers. In its preliminary shape, the test consisted of (60) items, in addition to the instructions showing the aim of the test and the manner of answering it.

Test manifest validity: The test in its preliminary form was presented to a group of judges to make sure of its instructions, correctness of its vocabulary and choice items their number, arrangement and consistency with the aim for which they were placed. Based on the judges views some test questions were revised, rearranged and modified in order to have (55) items.

Judges validity: the researchers presented the test to a group of judges specialized in computer and English language in AL-Balqa Applied University and Yarmouk university in order to give their opinions and suggested notes about the linguistic formation of some items, being inclusive representing behavioral aims, and connected to the course of English language. Therefore, some items were removed or modified and others were added to have final number of (50) items.

Test reliability

After making sure of the main requirements of the achievement test, and to give consistency with the results when applied several times, and to make sure of the reliability of instruction, one of the (split half) reliability test was used. The questionnaire was distributed in the exam form of a

test through an experimental sample, the number of which was (20) female students, selected from the study population and excluded from the range of the original study sample. They were asked to answer all the items of the questionnaire. After collecting all questionnaires the test scores were recorded and split into two halves, they were input in the computer in order to find out the correlation coefficient of Spearman Brown and Guttman for the split-half, which was (0, 083). This was considered sufficient to continue the procedures of applying the study.

Study application procedures

- Forty-eight students were chosen, using the simple random way as a sample of the study from the admitted and registered female student in the course of English language for the first semester 2015/2016 from the department of admission and registration.
- Equal distribution of the random sample into two groups: experimental and control.
- The pre-test was applied to make sure of the equality of the two groups in the achievement test.
- Student names of the experimental group were registered on the server and then inserted on the system.
- Students were guided and trained how to use blended learning by the help of the lab supervisors, specialized for that in Balqa Electronic Academy, and how to enter to the course of English language through the use of (Chamil learning management system).
- One member of the teaching staff from the Department of English language and literature included in the academic timetable was chosen for teaching both groups. To make sure of the course of the experiment, the researcher used (user: tayseer) and (pass:THm @99pec) and <http://elearning.bau.edu.jo/> to enter the system followed in AL-Balqa Electronic Academy in order to use the blending learning method.
- After conducting the experiment, at the end of the first academic semester, the post test for the two groups was administrated.

Results and discussion

First: Calculating the equality of the study groups on the achievements pre-test.

Table 1 shows that the value of statistical significance of method of instruction was (0.394), which is bigger than the level of statistical significance ($\alpha \leq 0.05$) which signifies the equality of the study groups on the achievement pre-test of the course of English language.

Table 1
T-test results of the subjects' performance
in the achievement pre-test in the course English Language,
based on two variables: methods of instruction and specialization

Group (method of instruction)	No.	Arithmetic mean	Standard deviation	T value	Statist. Signif.
Control (Traditional learning)	424	3.00	0.04	0.860	.394
Experiment (Blended Learning)	424	6.33	6.69		

* Degree of freedom was (46)

Second: Study question answer and testing three hypotheses: The arithmetic means and standard deviations were calculated for the subjects' performance on the achievement pre-test and post-test based on the two variables; methods of instruction and specialization. Table 2 shows the details.

Table 2
The arithmetic means and of the subjects' performance on the achievement pre-test and post-test in the course of English language based on two variables: method of instruction and specialization.

Post-test performance		Pre-test performance		No	Specialization	Method of instruction
Standard deviations	Arithmetic means	Standard deviations	Arithmetic means			
				7		
7,80	48.14	3.10	26.43	7	Arabic	Traditional learning
10.86	71.44	8.20	41.67	9	Management	
7.25	47.25	5.01	29.00	8	Library	
14.54	56.58	9.04	33.00	24	Total	
7.56	66.14	7.47	35.14	7	Arabic	Blended learning
10.24	82.44	15.30	51.22	9	Management	
12.10	47.25	5.63	20.63	8	Library	
18.00	65.96	16.69	36.67	24	Total	
11.90	57.14	7.12	30.79	14	Arabic	Total
11.70	76.94	12.89	46.44	18	Management	
9.64	47.25	6.73	24.81	16	Library	
16.86	61.27	13.39	34.67	48	Total	

* Maximum mark for the achievement test in English language course was (100)

Table 2 shows the existence of statistically significant difference between the most arithmetic means of the subjects' performance on the achievement that in the course of English language, based on the two variables of method of instruction and specialization and with the aim of isolating (omitting) the pre-difference of the subjects' performance on the achievement test, and identifying the statistical significance of that manifest difference, two-way ANCOVA was used as shown in Table3.

Based on the results of variance analysis (Table 3), we get the following:

The statistical significance value of the method of instruction variable of (0.001) is less than the level of statistical significance ($\alpha \leq 0.05$). There for, the null hypotheses is rejected and the alternative is accepted, which states (the existence of statistically significant differences at ($\alpha \leq 0.05$), between the arithmetic means of the subjects' performance on the achievement test of English language course. that could be attributed to the method of instruction variable (traditional and blended learning).

This signifies the existence of the efficiency of the method of blended learning in the achievement of English language students in Irbid University College.

Table3

An analysis of the two ways ANCOVA of the arithmetic means of the subjects' performance on the achievement post-test in the course of English language, based on the two variables of method of instruction and specialization

Source of variance	No. of squares	Freedom degrees	Squares mean	F. value	Statist. Signif.	Impact size
ANCOVA	1837.490	1	1837.490	36.828	0.000	0.473
Method of instruction	586.466	1	586.466	11.754*	0.001	0.223
Specialization	670.633	2	3330317	60721*	0.003	0.247
method of instruction	116.237	22	58.119	1.165	0.322	0.054
+Specialization Error	2045.669	41	49.894			
Total Average	13367.479	47				

* With statistical significant ($\alpha \leq 0.05$)

This is clearly shown in the arithmetic means Table 2. We can notice the degree of improvement in the whole levels of the achievement test and the result of using the method of blended learning. In order to determine the difference value (important estimate) – statistically significant between the two arithmetic means of the subjects performance on the achievement post-test in English language course according to the variable of method of instruction, and also to identify for whose advantage the statistical difference is, Bonferroni test was used for post comparison, where the modified arithmetic means were calculated after isolating the impact of the subjects' performance (control and experimental groups) in the pre-test on their performance in the post-test. The results were as shown in Table 4.

Table4

Bonferroni Test for post-comparisons between modified arithmetic means of subjects' performance on the achievement post-test in English language course according to the variable of method of instruction after isolating impact of performance on pre-test.

Method of instruction	Modified mean	Standard error	Difference value between arithmetic means (important estimate)
Traditional	57.36	1.48	7.16 *
Blended learning	64.52	1.45	

* Statistically significant ($\alpha \leq 0.05$)

The results shown in Table 4 reveal the existence of a statistically significant difference on the achievement test in English language course between the subjects' performance for those were taught by using the traditional way and those who were taught by using the method of blended learning and to the advantage of the students who studied according to the method of blended learning, where the difference value between the two arithmetic means (improvement degree) was statistically significant (7.16).

In order to find the effect size of the method of instruction (traditional and blended learning) on the achievement test in English language course, Eta square is found Table 3. It was equal to (0.223), which means that the method of instruction variable (traditional and blended learning)

explained about (22.3%) of the variance in the arithmetic mean of the subjects' performance on the achievement of English language course, which means that the method of instruction had its effective impact on the students' performance on the achievement test of English language course with a percentage of (22.3%). This result is consistent with the result of previous studies (AL-Reemawi, 2012) and (Qassem, 2016) which applied the methods of both the blended and the traditional. For explaining this, we can say that the use of the technology of blended learning in teaching is not a modern one, but it is historically rooted linked to human development in the course of time. Scientific and educational experiments conducted by early Arab and foreign scholars before and after renaissance is proof of connecting education with real facts, in order to benefit from its potentials in strengthening perceptions and social co-operative relationship, and increase interaction and group work between the parties of the educational process (the instructor, the student, syllabus and technical trainer). Blended learning implies a group of procedures that impact educational goals, methods of instruction, activities, content, syllabus, infrastructures, materials, potentials, and the role of the student and instructor within the framework of an effective and influential educational environment. Together this works for establishing and blending modern techniques with prevalent instructional patterns, at a time during which the products, knowledge and techniques of human mind move rapidly. Due to its importance, the university has to work continuously in order to develop performance and syllabi in an age where computer technology has become the main touchstone for implementing their procedures.

Second null hypotheses: There are no statistically significant differences at the level ($\alpha \leq 0.05$) between the arithmetic means of the subjects performance on the achievement test in English course that could be attributed to the variable of specialization (Arabic language, management, and libraries).

The hypothesis was tested and revealed that the value of statistical significance of the variable of specialization (0.003) was less than the level of statistical significance ($\alpha \leq 0.05$). Therefore, the second null hypothesis was rejected, but the alternative which stated the existence of statistically significant differences at the level ($\alpha \leq 0.05$) between the arithmetic means of the subjects' performance.

On the achievement test of English language course that could be attributed to the variable of specialization was accepted. This emphasizes the existence of an effect for specialization in the achievement of the students of English language at Irbid University College. This is reinforced when considering the arithmetic means Table 2, where we can notice the improvement degree at the levels of the achievement test together and the outcome resulting from the difference in specialization. For determining the value of difference (improvement degree) statistically significant- between the arithmetic means of the subjects' performance on the achievement post-test in the English language course according to the variable of specialization, as well as identifying to whose advantage the statistical difference is. Bonferroni Test for post comparisons was used, where the two adjusted arithmetic means were calculated after isolating the impact of the subject' performance of the two groups (control and experimental) in the pre-test, on their performance in the post-test. The results in Table 5 show the existence of statistically significant differences achievement test in the English language course between the subjects' performance if the specialization of (management) on one side, compared with the specialization of (Arabic and libraries), on the other side, to the advantage of the specialization of (management) The deference value between the two achievement means, (Improvement degree) was respectively statistically significant (13.30, 7.94). In order to find the effect size of the variable of specialization on the achievement test in the English language course, Eta Square was calculated in Table 3 to show (0.0247).

Table 5
Benferroni Test for post comparisons between the two adjusted arithmetic means of the subject' performance on the achievement post-test in the English language course according to the variable of specialization after isolating the performance impact on the pre-test.

Specialization	Adjusted mean	Standard error	Difference value between two arithmetic means (Improvement degree)	
			Management	Libraries
Arabic	60.008	1.95	7.94*	5.36
Management	68.02	2.22	13.30*	
Libraries	54.72	2.15		

*Statistically significant at ($\alpha = 0.05$)

This means that the variable of specialization explained about (24.7%) of the variance in the arithmetic mean of the subjects' performance on the achievement test in the English language course which means that the variable of specialization has an effective impact on the students' performance on the achievement test in the English language course with the percentage of (24.7%). This result is consistent with the Al-Reemawi (2014) study results in regard to the existence of statistically significant differences between the control and experimental group students, but it does not agree with Jones (2007) study for the students business management where study results indicated that the group who studied using blended learning had a strong feeling that the syllabus they studied would be used by their practical life, and that they would study other topics using same method. The results also. Showed significant differences to the advantage of the traditional group students in their being more secure. It is noticeable that the academic specialization of the student at the stage of academic education plays prominent role in his their university education life. For example, the students of management specialization (experimental group) in Irbid university college belong to the course of secondary education information management stream in a way that reinforce the students' abilities in the field of using the computer in educational settings, and that blending learning generates sufficient feelings and flexibility in providing all needs and learning opportunities at various specializations and levels exceeding the limit of time and place.

Third null hypothesis: There are no statistically significant differences at ($\alpha \leq 0.05$) between the arithmetic means of the subjects' performance on the achievement test in the English language course that could be attributed to the two-way (ANOVA) interaction between the two variables of method of instruction and specialization.

The null hypotheses were tested and the value of statistical significance of two-way (ANOVA) interaction between the two variables of method of instruction and specialization was (0.0322); it is bigger than the statistical significance ($\alpha \leq 0.05$). This means the acceptance of the null hypothesis which stated the non-existence of statistically significant differences at the level at ($\alpha \leq 0.05$) between the arithmetic means of the subjects' means on the achievement test in the English language course, that could be attributed to the two-way (ANOVA) interaction between the two variables of method of instruction and specialization and which emphasizes the non-existence of an efficiency of the two-way (ANOVA) interaction between the variables of method of instruction and specialization in the achievement of students in the English language courses. This response assures the integrative role of blended learning in the teaching and evaluation of different courses and educational specialization, except for courses that are difficult to teach electronically in a complete way, especially those with high and precise skills, a fact that requires

the use of the method of blended learning, taking in to account that the blending process or the mixing between the various educational methods uses a scientific, organized and homogeneous method, controlled by secular standards concerning the requirements of the educational situation.

Recommendations

Before this scientific progress information explosions and its present and future impact, especially in the educational and teaching domains, and in the light of the study literature and results, the researcher recommends the following:

- Emphasizing the importance of blended learning and its applicability in the educational process as it combines more than one method of instruction and meets the requirements of the teaching situation and satisfies the students need.
- Reconsidering the university programs and their implementation strategies in order to cope with the concept of electronic and technological and blending them with methods of instruction of high quality and presenting them before students in a way that meet the require meats of creativity and innovation in order to satisfy the needs of the individuals and society.
- Applying one model of blended learning or portable learning as a result of the high cost of electronic learning and its too many requirements, and complexity its of procedures which may be obstacles in the face of its complete application in the educational process

References:

- Abraham, Anne. (2007). "**Student centred teaching of accounting to engineering students: Comparing blended learning with traditional approaches**". University of Wollongong.
- Abu Khattwah, Al-sayyid Abdilmawla (2010). **Blended learning and suggested solutions for the problems of Electronic Learning**, Retrieved May 10, 2016 from <https://alexedutech.wordpress.com>
- Abu Al-Reesh, Ahlam Harb(2013). **The Efficiency of a program Based on Blended Learning on the Achievement of Tenth Grade students in syntax and Attitude toward it in Gaza** (Unpublished master thesis), Islamic University, Gaza, Palestine.
- Abu Mossa, mufeed (2009), **The Impact of the use of the strategy of mixed learning on the Achievement of education students in the open Arab University, Jordan in the syllabus if Instruction with the help of the computer and their Attitudes toward it**, Available on line at <https://www.et-ar.net/vb/showthread.php?t=16095>
- AL-Ali, Ahmed Abdullah (2004). **Distant Learning**, Egypt, Algahera, Modern Dar Al-Kitab.
- AL-Ansari, Eessa Bin Hussein (2008). The Globalization of University Education in the Arab countries, **Journal of Development and culture**, Faculty of Education, Sohaj University, 8(26), 354.
- AL Deeb, sally sayyid (2010). **The Efficiency of using mixed teaching in promoting cognitive achievement and visual imagination for the first secondary students in. Al-Dakahiyyah Governorate, Egypt**, Retrieve March 15, 2016, from <https://sites.google.com/site/salydeep1/home/alatar-alnzry-waldrasat-alsabqte>
- AL Faqeeh, Ayman (2009). **Mobile Education.... A new vision by using wireless techniques** Retriev 5 January, 2016, from ath-nablus.y007 com/search. Forum.
- AL Ghamidi, Khadeejah Ali (2007). Written Education **Cybrarian journal**, 17.
- ALl Ghamidi, Fatemah Ali (2008). **The efficiency of a suggested training program based on blended learning for training the teachers of technical education to discover and take care of talented skillful students**, Retrieve February 1. 2016 from www.jardan-center.com.

- AL-Haj,khaled (2015). **The Impact of using the computer and Affecting Factors on the Academic Achievement of chemistry subject in the secondary stage in mahaliyyat Karzi, AL Khartoom District** (Unpublished master thesis), AL Khartoom University, Sudan, Retrieve April 30, 2016 from URI: <http://khartoomstpce.uofk.edu/handle/123456789/12192>
- AL-Harithi, Eeman(2012). **The efficiency of a suggested Program in Education technology on Blended Teaching in the development of usage skills and attitudes towards them for the female students of the college of education** (Unpublished doctoral dissertation), Umm Al-Qura University Kingdom of Saudi Arabia.
- AL-Hassan, Issam Idress (2013) **The Efficiency of the use of Blended learning on the Academic Achievement in biology syllabus for the second Grade students in private secondary schools in Umm Durman District and their Attitudes to word it**, The annual conference for higher studies and scientific research, vol.2, Faculty of Education, Al-Khartoom University.
- AL-Hanjouri, Muhammad (2014). The roots of Traditional Education and the Potentials of Electronic learning. **Electronic journal for the center of Distinction and Electronic learning**, Islamic Learning, Gaza, 5.
- AL-Koshba, Hassan. (2012) **Blended learning**. Available at <http://alkoshba.blogspot.com/2012/12/blog-post.html>
- AL- Mahdi, Majdi Sallah (2008). **Hypothesized learning its philosophy, components and application opportunities**. Egypt Alescandria, New dar Al_jami'ah, 85.
- AL-Najjar, Zein, Shihah, Hassan. (2003) **Dictionary of educational and psychological terms**. Cairo,Egypt and Lebanese Dar.
- AL-Reemawi, firass (2014). **The Impact of the use of Blended learning on the Teaching of English language on the direct and postponed achievement of the Basic sixth grade students in Amman governorate**. (Unpublished master thesis), Middle East University, Jordan.
- AL-Showmali, Qustandi (2007). **Modern models in higher Education: multimedia Electronic Teaching". A research presented to the sixth conference of the deans of the faculties of arts at universities and members at the union of Arab universities** (A seminar for the guarantee of education excellence and academic crest). Al Jinan University, Lebanon.
- AL-Thiabat, Bilal (2013). The Efficiency of Programmed Teaching based on the use of both blended learning and traditional method on the Achievement of Al-Taffeelat Technical University students in the course of methods of instruction for the first Grades and their Attitudes toward it. **Al-Najah University journal for researches and human sciences**, 27 (1), pp 55-72
- Alaa, Rajaa Mahmoud (2010) **Research curricula in psycho educational sciences**. Cairo, Dar Al-Nasher for Universities.
- Godeo, G (2005). "**Blended learning as a resource for integrating self-access and traditional face-to-face tuition in EFL tertiary education**."3rd International conference on Multimedia and Information and communication Technologies in Education
- Hidayah, Rasha Mahmud.(2010). **Designing a program based on blended learning for providing maintenance skills**, Al-mansourah University, Faculty of Education. Egypt 42-45. Retrieve February 10, 2016 from <https://books.google.com>
- Jones. A, (2007). **Design of Blended e-learning Courses**. Technology Enhanced-Milheim, W.D, (2006). Strategies for the Design and Delivery of Blended Learning Courses. **Educational Technology**, 18(3), 99-105.
- Qassem, Abdulhakeem (2016). **The Impact of Applying Blended learning on teaching Arabic to non native speakers**. Deccan University as a model, the first international conference for Arabic language, Dubai.
- Sallamah, Hassan Ali (2006). Mixed learning is the Natural development of Electronic learning. **Faculty of Education Journal**, (22), 60.

Shattarat, Nayef Mahmoud (2010). **Mixed learning**. Retrieve March 15, 2016 Recall April 15, 2016 from:
<http://knol.google.com>

Vaughan, Toy (2009). **Multimedia marking it works**. U.S.A: Observe McGraw-Hill, Second Edition,

Zuhdi, Hallah Yasser (2011). **The impact of the use of Blended learning on the Achievement of home economics female students of the first Secondary Grade and their Attitude, toward it**, (Unpublished master thesis), Middle East University, Jordan.

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Editor's Note: This carefully crafted study provides key information to guide adoption of mobile learning in universities in Pakistan. The infrastructure is in place and the students are ready. The challenge is for educators to develop thought-provoking ways to utilize this tool to enhance learning.

Mobile phone usage and students' perception towards m-learning: a case of undergraduate students in Pakistan

Shakeel Iqbal, Muhammad Naeem, Imran Riaz Malik

Pakistan

Abstract

Mobile phones are increasingly becoming part of the daily life of today's youth. This widespread usage of mobile technology has attracted the attention of researchers and academicians to explore ways and means of using it in formal and informal education. This study investigates the mobile phones ownership pattern and usage among undergraduate university students in Pakistan. Moreover, students' choice of mobile service provider is explored. The objective of this study is to investigate m-learning potential among university students and their perceptions towards this emerging learning technology. Quantitative data is collected by a survey in which 320 undergraduate students enrolled in four academic disciplines (Business, Engineering, Arts and Medicine) participated. SPSS software is used for data analysis. Primarily descriptive statistics (frequencies, percentages, and pie and line charts) are used to describe different data attributes obtained from the questionnaire. To check the significance of difference between the students' perception towards m-learning, ANOVA is used, followed by a Post-Hoc Tucky test. The results indicate that overall, students have a very positive attitude towards m-learning; however, the perceptions of Arts and Engineering students were found significantly different from those of Medical and Business students. The results of this study have practical implications for policy-makers, educators and developers of m-learning programs, specifically in developing countries.

Keywords: m-learning, mobile phones ownership and usage, undergraduate students, perceptions towards m-learning, developing countries

Introduction

Widespread usage of mobile phones, specifically amongst the youth, is the main motivating factor for researchers to look into their utility in formal as well as informal education. Nowadays, a large number of students, can be witnessed carrying Smartphones (such as iPhone and Blackberry) on college campuses. The students not only use their mobile phones for making voice calls but for viewing course related material, finding location, checking weather forecasts, acquiring traffic updates and connecting to social networking platforms such as Facebook, Twitter and WhatsApp. Venkatesh et al. (2016) found a majority of students access the internet using mobile phones.

Competition in the mobile markets and compatibility with the user-specific needs (i.e., awareness, efficiency in performance of routine tasks, etc.) played an important role in the innovation surge in mobile technology. The rise in users' demand for innovative mobile phones is evident from the fact that the worldwide shipment of Smartphones is expected to exceed 1.7 billion by 2018 which is approximately ten fold increase in the shipments made in 2009 (Statistica, 2015a).

Furthermore, it is expected that 34% of world population will have a Smartphone by 2017, compared to only 10% in 2011. The top 10 Smartphone markets for 2015, in terms of growth by value, include India, China, Indonesia, South Africa, Brazil, Pakistan, Nigeria, Egypt, Vietnam and Bangladesh, whereas majority of the countries included in this list are from emerging markets which have overtaken developed markets where Smartphone market is approaching saturation (GFK, 2014).

Portability and wireless connectivity are the two main reasons for the popularity of mobile devices. These functionalities allow the users to communicate on the go. Intense competition among the manufacturers is forcing them to be extremely innovative and always looking for new features to gain competitive advantage (Rothaermel, 2016). Mobile devices include mobile phones/Smartphones, MP3 players, iPods and PDAs. Out of this list of mobile devices, it can be argued that Smartphones and MP3 players are more likely to be personally owned and hence, more thoroughly familiar to their users. Users' thorough familiarity with a mobile device reduces several usability related issues as indicated by Antoniou and Lepouras (2005). Currently mobile phones are cheaper than desktop computers or laptops and hence, can be a suitable candidate for being used as a low-cost teaching and learning tool (Haug & Tumbo 2016; Dawson, 2007).

In adult learning, mobile phones can be a suitable tool enabling autonomous or collaborative learning (Burden & Kearney 2016; Callum and Kinshuk, 2006). Mobile devices offer opportunity to carry knowledge and learning outside of the boundaries of classroom, since students can interact with fellow students and teachers outside the classroom as well as capture the learning material using audio and video options and bring the same into the classroom (Ekamayake & Wishart, 2010; Wishart, 2015). Students can capture any event or activity related to their courses, which can be very helpful in connecting their previous knowledge with reality and clarify different misconceptions about a particular topic. Main advantages of m-learning for tertiary education include fostering innovation in teaching and learning practices, enabling 'authentic learning' i.e., helping anytime, anywhere, student-centered learning, offering an opportunity to students to benefit from Web 2.0 technologies (social networking, mobility, podcasting, geo-location, connectivity, etc.), bridging the digital divide (since mobile devices are more affordable and widely owned by students), moving towards wireless computing paradigm from fixed, dedicated computing, enabling any space for potential learning (Cochrane and Bateman, 2010).

In recent times, mobile broadband (MBB) has emerged as a useful medium to extend the reach of internet. Rather, it has become the primary medium for accessing internet globally. By the end of 2010, the number of MBB subscribers surpassed the number of fixed medium broadband subscribers (ITU, 2010). According to an estimate there will be 5 billion global MBB connections by 2018 (Statistica, 2015b). Both, developed as well as developing nations, are experiencing a shift in desktop internet access to an "on-the-go" experience. A vast majority of mobile operators have offered 3G and many more are offering 4G services. Such improvements in the speed and ease of data transfer over the internet has made m-learning flexible and exciting for university students.

Although m-learning is not new, it is only recently that the governments, educators, and commercial enterprises have started taking serious interest in it. There are billions of users of mobile devices who use them for communication and other tasks, but only a minority of them use these devices on a regular basis for education (UNESCO, 2012). Educators view these devices as a distraction, rather antithetical, but primarily due to the excessive entertainment options compared to the educational options. A serious effort is required on part of the governments as well as educators to dispel this misconception. Ways and means need to be explored to encourage constructive use of mobile devices, specifically Smartphones, at the university level. Prensky (2005) wondered why we are fighting the trend toward using cell phones in education. He maintained that students can learn anything from a cell phone, if the educators design it right. People learn in many ways,

"...but among the most frequent, time-tested, and effective of these are listening, observing, imitating, questioning, reflecting, trying, estimating, predicting, speculating, and practicing. All of these learning processes can be supported through cell phones. In addition, cell phones complement the short-burst, casual, multitasking style of today's "Digital Native" learners". (Prensky 2005, para 7).

Governments are embarking on some national Information and Communication Technology (ICT) in education policy but most of these policies fail to address or accommodate the needs of m-learning, since these policies were formulated in a pre-mobile era (Unesdoc, 2011). The development and implementation of sustainable policies requires empirical substantiations (Svensson et al., 2016). This study is an attempt to provide a base for policy makers in policy assessment, development and implementation regarding mobile ownership patterns and its respective usages in the context of an emerging economy. Pakistan is the sixth largest populated country of the world with population exceeding 180 million. According to Pakistan Telecommunication Authority (PTA) the number of mobile subscribers (after biometric verification System-BVS) surpassed 114.6 million in 2014-2015 whereas the mobile penetration was approximately 60.7%. There are approximately 13.5 million MBB subscribers as of May 2015 (PTA, 2015). According to Pakistan Economic Survey 2014-15, the enrolment in higher education (universities) is expected to reach 1.8 million in 2014-15. There were 161 universities with over 83 thousand teachers in both private and public sectors by the end of year of 2015 (Pakistan Economic Survey, 2014-15).

Education for all is a serious concern in developing countries including Pakistan. The governments in these countries are spending a lot of money to promote use of ICTs to spread education. Despite of all the efforts the use and ownership of personal computers (PCs) in developing countries is still very low. On the contrary, many developing countries have experienced widespread adoption of mobile phones in recent years. The mobile phones with advanced features are becoming very popular. These have the capability of being used as small computing platforms, which make them a potential educational tool. The widespread adoption of mobile phones among university students is the main motivation behind this study. The students of both public and private universities in Pakistan were surveyed with an objective to find answers to the following research questions:

1. What is the current mobile ownership pattern among university students in Pakistan? What kind of mobile phones do they have and what is their average monthly expenditure for mobile services?
2. Who is the preferred mobile service provider for university students in Pakistan? What is the reason for this preference and what problems (if any) they are facing from their mobile service provider?
3. What is the current mobile phone usage pattern among university students as far as research, communication, generating contents / artifacts and organizing is concerned?
4. What are the students' perceptions towards mobile phone usage for educational purposes?
5. Is there significant difference in the perception of students, belonging to different degree programs, towards m-learning?

This study contributes to the literature of m-learning in several aspects. Firstly, for a developing country like Pakistan, with huge population and majority in the youth age group, m-learning has a very significant potential. However, there is a shortage of studies showing the current ownership and usage of mobile phones among youth in Pakistan, particularly among the university students. This study will be helpful in describing mobile phone ownership and usage as well as students perception towards using mobile phones in formal education. Further, it will be useful for different stakeholders in m-learning projects, which include the policy makers (e.g., PTA), academicians and developers of m-learning programs. The policy makers can devise policies that enhance productive use of mobile phones. Academicians can enhance their outreach and bridge communication gaps with students irrespective of time and space gaps. And, finally software developers can develop applications matching the needs of specific disciplines.

Following introduction in the first section, this study is organized as follows. Section 2 explains materials and methods employed. Section 3 presents results followed by discussion of results in section 4. Section 5 draws conclusions of the study.

Materials and methods

Previous studies with similar methodology employed

This study employs survey based approach, which has widely been used in the literature of MIS across the globe. Several studies have been conducted in different countries of the world to investigate mobile phone usage among students and their perception towards m-learning using a similar approach to that selected for this study. For example, Thornton and Houser (2004) conducted a survey on the mobile usage among university students in Japan. They also used experimental study approach to find out the students' response towards information communicated via mobile phones. One hundred word vocabulary lessons were emailed to 44 university students to promote regular study. By using similar methodology, Venkatesh et al. (2006) studied students' perceptions towards m-learning and concluded that more students would opt for m-learning if the device was right.

By using a survey based approach, another study conducted on youth in India by Jha (2008) provided a summary of usage of different functions of a mobile phone. The sample of the study consisted of 208 mobile phone users in the age group of 20-29 years. The study focused on how gender, years of ownership and monthly invoice voucher influenced the usage pattern of mobile devices.

In addition, Valk, Rashid & Elder (2010) conducted a study to explore the results of six m-learning pilot projects introduced in five Asian countries - India, Bangladesh, Philippines, Thailand and Malaysia. The focus of the researchers was to find out how mobile phones helped in improving access to education and how much they contributed in promoting new learning. In another study conducted in Panama on mobile phones usage and potential for m-learning, Valderrama Bahamóndez and Schmidt (2010) reported a low penetration of computers and increased trend of using mobile phones. A study conducted by Kukulska-Hulme et al. (2011) provides a cross-country account of usage of mobile devices with reference to learning entertainment, social interaction and work. Their study covered students enrolled in master's and doctoral programs in United Kingdom, Sweden, Hong Kong, Portugal and Australia and was particularly helpful in clarifying the misconception that mobile phones were not suitable for educational purposes. In the context of Pakistan, Ahmed and Qazi (2011) conducted a study on mobile phone usage among university students in Pakistan. Following the above mentioned studies, the current study employs this approach to describe the possession and usage of mobile phones and associated m-learning attributes in specific university students.

Population and sample

The target population of this study is university students who represent the end users of m-learning. A survey based on a structured questionnaire was conducted in the twin cities of Rawalpindi/Islamabad. Four universities, two universities each from the public and private sector, were selected for the survey and an equal number of responses from each of the four disciplines (i.e., Business, Engineering, Medical and Arts) were considered for data analysis. 350 questionnaires were distributed among students enrolled in these four degree programs. In order to ensure high response rate and accuracy of data, the questionnaires were distributed and retrieved in classroom environments. The faculty explained the purpose and contents of the questionnaire to the students. Out of the retrieved questionnaires 320 (80 from each of the four degree programs) were selected for further analysis.

Instrument and measures

The questionnaire used for collecting data was divided into four sections. Section one was designed to record information about the demographics (gender, age, degree program) as well as mobile phone ownership (number of mobile phones owned, preferred brand of mobile set, number of mobile phones changed during the last two years, monthly mobile expenditure and reason for purchasing the preferred mobile set). Section two gathers information regarding preferred mobile network of respondents (current mobile service provider, type of contract-prepaid or postpaid, reason for selecting the preferred network, problems being faced in selected network and the intention to switch to another mobile service provider). Section three gathers data related to current mobile usage for education/learning. Section four enquires into the perception of the students related to educational use of mobile phones.

Prior to data collection, a pilot study of the questionnaire was conducted with 50 participants. Reliability of the questionnaire was checked by means of Cronbach Alpha (Cronbach, 1951). The overall reliability of questionnaire was 0.80, well within the acceptable range (Nunnally, 1978). The analysis of the data was done using Statistical Package for Social Sciences (SPSS v. 20.0).

Primarily, descriptive statistics (frequencies, percentages, and pie and line charts) is used for describing the data on different attributes obtained from the questionnaire. Besides, to check the significant difference between the students' perception towards m-learning ANOVA followed by Post Hoc Tucky test is used.

Results

Table 1 shows the demographic profile and mobile phone ownership pattern of participants for this study: It shows that 58% of the respondents were male and remaining 42% were female. More than 71% of the respondents were in the age bracket of 18 years and above. The respondents were from four different degree programs: medical, engineering, arts and business – 25% each. 61% of the students owned only one mobile set and 39% owned more than one mobile set. Samsung was found to be the most popular brand of mobile set among the students since 33% of the students had a Samsung set. The other popular brands were Nokia, Apple and Q-mobile. More than 27% of the students changed three or more mobile sets within last two years. More than 51% of the participants of the study reported their monthly phone expenditure to be more than Rs. 500. Approximately 70% of the respondents owned a Smartphone.

Table 1
Demographic profile and mobile phone ownership pattern

		Frequency	Percent
Gender	Male	186	58.1
	Female	134	41.9
	Total	320	100
Age	Below 18 years	92	28.8
	18-20 years	120	37.5
	20-22 years	86	26.9
	Above 22 years	22	6.9
	Total	320	100
Majors	Medical	80	25.0
	Engineering	80	25.0
	Arts	80	25.0
	Business	80	25.0
	Total	320	100
Number of mobile phones owned	One	196	61.3
	Two	84	26.3
	Three	27	8.4
	more than 3	13	4.0
	Total	320	100
Brand(s) of mobile phone(s) under use	Apple	44	13.7
	Nokia	64	20.0
	Samsung	104	32.5
	Blackberry	6	1.9
	Q-Mobile	48	15.0
	HTC	23	7.2
	Sony Ericsson	18	5.6
	Other	13	4.1
Total	320	100	
Number of mobile phones changed during the last two years	One	104	32.5
	Two	123	38.4
	Three	52	16.3
	Four	16	5.0
	Five	14	4.4
	More than 5	5	1.6
	None	6	1.9
	Total	320	100
Monthly mobile phone expenditure/bill	Less than Rs. 300	58	18.1
	Rs. 300 to Rs. 500	96	30.0
	Rs. 500 to Rs. 700	94	29.4
	Rs. 700 to Rs. 1000	40	12.5
	More than Rs. 1000	32	10.0
Total	320	100	
Smartphone Ownership	Yes	221	69.1
	No	99	30.9
	Total	320	100

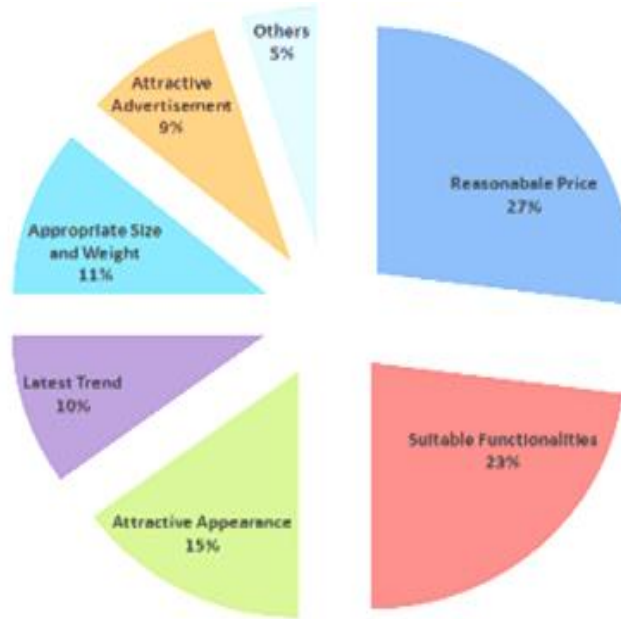


Figure 1: Reasons for purchasing a mobile phone

Figure 1 summarizes the responses of students with respect to the main reasons for buying their current mobile phone sets. Majority of the students (27%) stated reasonable price to be the main reason for selecting a mobile phone. 23% reported suitable functionality (what functions are available in a mobile phone), 15% stated attractive appearance, 11% stated appropriate size and weight, and 10% stated latest trend to be their reason for purchasing their mobile set.

Table 2
Mobile service providers' characteristics

		Frequency	Percent
Current service provider(s)	Mobilink	51	15.9
	Warid	45	14.1
	Ufone	84	26.3
	Zong	42	13.1
	Telenor	98	30.6
	Total	320	100
Customer Type	Prepaid	278	86.9
	Postpaid	42	13.1
	Total	320	100
Reasons for selecting your preferred mobile service provider	Lower rates	138	43.1
	Better coverage	79	24.7
	Better customer service	43	13.4
	Family and Friends	54	16.9
	Other	6	1.9
	Total	320	100
Problems in your preferred mobile connection	Frequent changes in rates	104	32.5
	Poor connectivity	86	26.875
	Poor customer service	36	11.25
	Noisy and frequent SMSs	46	14.375
	Other	48	15
	Total	320	100

As shown in Table 2, most popular mobile service provider among the participants of this survey was Telenor as approximately 31% of students were using it. The second popular mobile company was Ufone (26%) followed by Mobilink (16%) as the third popular mobile service provider. 87% of respondents were prepaid customers; the remaining 13% were postpaid customers. 43% reported lower rates as the main reason for selecting their preferred mobile service provider. Better coverage was the second most popular reason for selecting a mobile service provider. The top three problems being faced by students from their current mobile service provider were frequent changes in rates, poor connectivity and noisy and frequent SMSs.

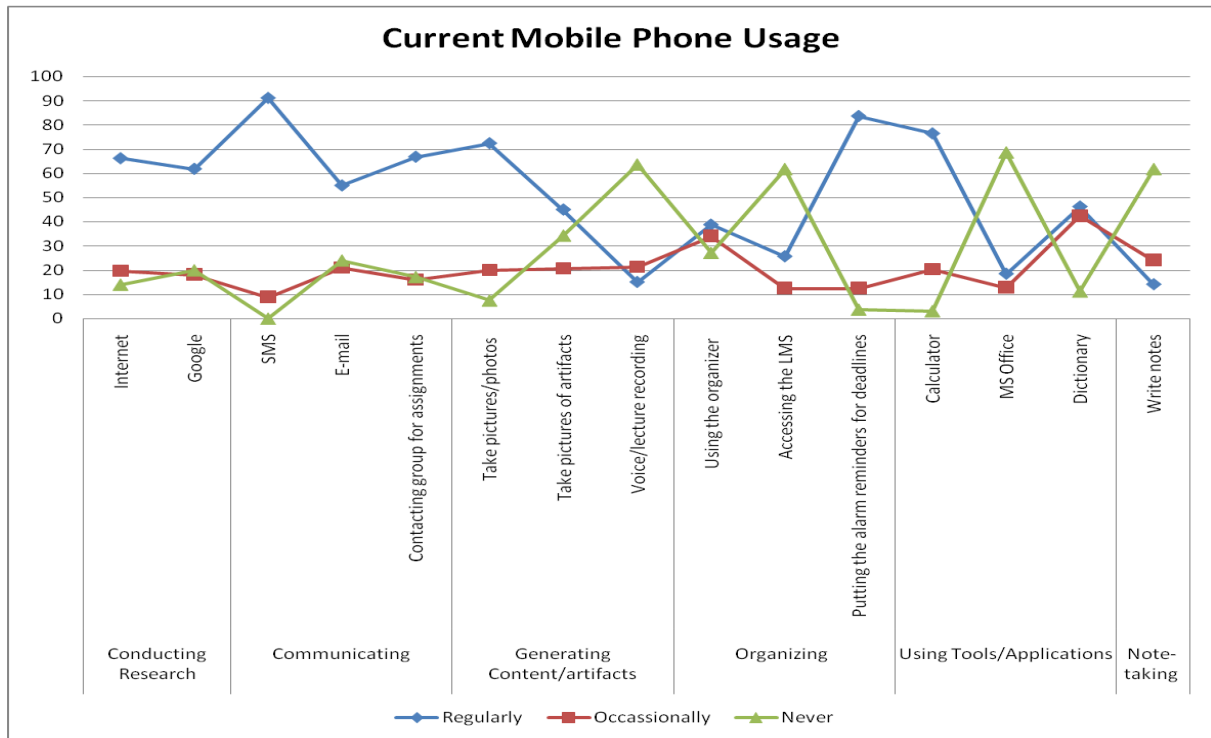


Figure 2: Current mobile phone usage for education / learning

Figure 2 summarizes the current usage of mobile phones by students for conducting research, communicating, generating contents, organizing, using MS office tools and applications and note-taking. More than 60% of the students have familiarity and are regularly conducting research using internet/Google on their mobile phones, communicating through SMS, generating contents by taking pictures, using alarm function and calculator. The functions never used by more than 60% students are voice/lecture recording, note-taking, accessing Learning Management Systems (LMS) and using MS office via mobile phone. The main reason for less usage of LMS could be that few universities are offering mobile compatible LMS whereas the reason for low usage of MS office and note-taking could be using mobile’s keyboard for data entry is not as convenient as using desktop or laptop’s keyboard.

As far as the students’ perception towards using mobile phones in education is concerned, majority of them had a positive attitude. Table 3 shows summary of those who agreed or strongly agreed with different statements related to mobile phone usage in educational context.

Table 3
Students' perceptions towards m-learning

	Frequency (Strongly Agree/Agree)	Percent
Mobile phones are a useful medium of imparting knowledge	268	84%
It is convenient to access information using mobile phones	258	81%
It is a good idea for university to contact students via mobile phones for educational purposes	266	83%
Mobile learning is more flexible method of learning as it can be done anytime, anywhere.	208	65%
Mobile phones can improve communication between students and teachers	218	68%
Mobile communication is a quicker method to get feedback in learning	204	64%

To find the difference in perception towards m-learning among students enrolled in different degree programs one-way ANOVA test was conducted. Results of the test are shown in Table 4:

Table 4
Results of one-way ANOVA test.

		Sum of Squares	df	Mean Square	F	Sig.
Mobile phones are a useful medium of imparting knowledge	Between Groups	43.750	3	14.583	16.470	.000
	Within Groups	279.800	316	.885		
	Total	323.550	319			
It is convenient to access information using mobile phones	Between Groups	7.337	3	2.446	4.077	.007
	Within Groups	189.550	316	.600		
	Total	196.888	319			
It is a good idea for university to contact students via mobile phones for educational purposes	Between Groups	9.100	3	3.033	3.510	.016
	Within Groups	273.100	316	.864		
	Total	282.200	319			
Mobile learning is more flexible method of learning as it can be done anytime, anywhere.	Between Groups	19.637	3	6.546	6.168	.000
	Within Groups	335.350	316	1.061		
	Total	354.987	319			
Mobile phones can improve communication between students and teachers	Between Groups	1.937	3	.646	.660	.577
	Within Groups	309.250	316	.979		
	Total	311.187	319			
Mobile communication is a quicker method to get feedback in learning	Between Groups	4.450	3	1.483	1.514	.211
	Within Groups	309.500	316	.979		
	Total	313.950	319			

The results of one-way ANOVA indicates that there is significant difference in the perception of students belonging to different degree program with respect to four questions: Mobile phones are a useful medium of imparting knowledge ($F = 16.470$, sig. value $= .000$), it is convenient to access information using mobile phones ($F = 4.077$, sig. value $= .007$), it is a good idea for university to contact students via mobile phones for educational purposes ($F = 3.510$, sig. value $= .016$), mobile learning is more flexible method of learning as it can be done anytime, anywhere ($F = 6.168$, sig. value $= .000$). To further probe into which group of students differs significantly with respect to these four questions a Post-hoc Tucky test was conducted. Results are shown in Table 5:

Table 5
Results of post hoc Tukey test

Tukey HSDa (Subset for alpha = 0.05)		Mobile phones are a useful medium of imparting knowledge.		It is convenient to access information using mobile phones.		It is a good idea for university to contact students via mobile phones for educational purposes.		Mobile learning is more flexible method of learning as it can be done anytime, anywhere.	
Majors	N	1	2	1	2	1	2	1	2
Medical	80	1.575		1.625		1.625		2	
Business	80	1.775		1.75		1.75		2	
Arts	80		2.375		1.95		1.95		2.425
Engineering	80		2.425		2		2		2.55
Sig.		0.535	0.987	0.737	0.175	0.737	0.175	1	0.869

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 80.000

The Tukey post-hoc test indicated that Arts and Engineering students' perceptions differed significantly from those of medical and business students with respect to all the four questions as shown in Table 5. The reason could be arts and engineering students require more practical and hands on type of problems/examples to understand a specific concept whereas business and medical students rely more on listening, observations and discussions to clarify their concepts.

Discussion

On the basis of results of this study it can be stated that mobile phones usage among university students is widespread. This finding is similar to the finding of Pollara and Broussard (2011) who carried out a review of studies conducted on students' perception towards m-learning and concluded that most pervasive form of m-learning is the mobile phones. A review of literature on m-learning provides a long list of candidate devices that can be used in m-learning context (Fetaji, 2008). However, PDAs and mobile phones stands out to be the choice of many researchers for conducting research related to m-learning (Garrett & Jackson, 2006; Venkatesh et al., 2006; Manair, 2007; Clarke, Keing, Lam & McNaught, 2008; Hsu, Wang & Comac, 2008; Cavus & Ibrahim, 2009; Wang, Shen, Novak & Pan, 2009). More than seventy percent of students in this study reported to own a mobile set suitable for m-learning having Wi-Fi connectivity, Bluetooth, camera, color display, audio/video recording capability. Both expensive as well as inexpensive mobile sets are owned by students, however, low cost android-based Smartphones are becoming popular in Pakistan as reported by Iqbal & Bhatti (2015) as well. The latest generation of Smartphones has powerful on-board computing capability, larger memories, bigger screens and open operating systems that encourage application development and due to these reasons they are increasingly viewed as handheld computers rather than as phones.

Owning mobile phones and using them on daily basis for several other purposes besides receiving and making calls show students are ready at least as the beginners, since mobile phones are not foreign to them. The new generation – Net-Generation as it is called – is born with the technology and has the capability to explore and adopt emerging technologies available in the market (Duffy, 2008). Students are technologically ready since they are already familiar with the technological advancements, economically ready since they are ready to use their own mobile devices for learning and psychologically ready as they have a positive attitude towards m-learning; a finding similar to several other studies which concluded that students demonstrated strong and positive reaction toward integrating m-learning into the classroom (Garrett & Jackson, 2006; Clarke et al., 2008; Cavus & Uzunboylu, 2009; Uzunboylu, Cavus & Ercag, 2009;). Moreover, students reported learning with mobile devices to be enjoyable (Clarke et al., 2008; Rogers et al., 2010; Shih, Chen, Chang & Kao, 2010; Iqbal & Bhatti, 2016).

The results of this study suggest that more than 51% of the students' monthly mobile bill exceeds Rs. 500. It means students generally have a monthly mobile budget suitable for subscribing internet/ SMS packages and thus are in a position to engage in m-learning. Majority of the students are prepaid customers, the reason could be that they want to have a better control over their mobile expenses. Lower call rates and better coverage are the two main reasons for selecting mobile service provider. Frequent changes in call rates, poor connectivity and noisy SMSs are the three main problems reported by the students related to mobile service provider. The mobile service providers need to focus on resolving these issues to retain their customers. More than 90% of the students were not using mobile phones for MS office, accessing LMS and audio/video recording of lectures. The reason for low usage of these functions/features could be the small size of screen which makes it difficult to read large documents, whereas the small sized keypad makes data entry cumbersome.

The findings of this study indicate that overall students have a positive attitude towards m-learning, but a significant difference is found among the perception of students belonging to different degree programs towards usage of mobile phones in educational context. It means educators and developers need to keep in mind these differences when designing any m-learning program. One-size fits all type of m-learning initiatives will not serve the purpose. M-learning programs need to be tailor-made. The requirements of engineering students can be different to a great extent from the requirements of medical or arts students. These differences should be kept in mind when introducing any mobile-based learning program. The difference in perception of students belonging to different degree programs is in line with the findings of Percival and Percival (2008) who concluded in their study that the m-learning programs should be tailored according to the type of program. They pointed out that the requirements of liberal arts and business programs are different from that of engineering and information technology (IT) programs and suggested a school-managed m-learning program for engineering because of the highly complex needs of engineering. Furthermore for liberal arts and business program they suggested more flexible program because of the less complex and somewhat routine requirements.

The findings of this study are extremely useful for the teachers who can use student friendly mobile devices to make learning fun and enjoyable. As pointed out by McAlister (2009) the teachers can blend their pedagogical knowledge with ICT in teaching to produce "well grounded, engaged students" who can go beyond the four walls of the class to explore the borderless world of information. Pierson (2001) emphasized that integration of ICT in education is an essential element of good teaching. Since the findings of this study suggest students' readiness and willingness to adopt m-learning, the teacher should grab this opportunity to make learning more enjoyable in order to promote lifelong learning. The policy makers should play an active role in charting out mobile conducive national education policy. According to Shuler (2009), "*A national*

'best practices' initiative to disseminate effective uses of mobile technology for education should be established with support from philanthropic and policy leaders" (p. 10). The educational institutions can lower costs of m-learning programs by moving away from school provided hardware towards students' owned mobile devices. Obviously, for any initiatives to be effective, professional development of teachers to enable them to introduce mobile devices and applications within a particular curriculum is essential. The educationists and software developers can support any m-learning initiative by providing content formatted for mobile devices and by educating students on its benefits (Iqbal & Qureshi, 2012).

Conclusion

From the findings of this study it can be concluded that majority of students (69%) owned a mobile phone suitable for usage in m-learning i.e., a Smartphone. Samsung (33%), Nokia (20%), Q-mobile (15%) and Apple (14%) were found to be the most popular brands of mobile phone sets. As far as the reason for selecting a mobile set is concerned, 27% indicated reasonable price, 23% indicated suitable functionalities and 15% indicated attractive appearance to be the main reason for selecting a mobile set. The Monthly expenditure pattern of students indicates that internet packages offered by mobile service providers are within reach of majority of them. The two main reasons indicated by the students for selecting their mobile service provider were lower rates and better coverage; whereas the two major problems faced by them from their current service provider were frequent changes in rates and poor connectivity. More than 60% of the students were familiar and were regularly conducting research using internet/Google on their mobile phones, communicating through SMS, generating contents by taking pictures, using alarm function and calculator. The functions never used by more than 60% students included voice/lecture recording, note-taking, accessing Learning Management Systems (LMS) and using MS office via mobile phone. More than 60% students surveyed indicated a positive perception towards m-learning. However, a significant difference was found in the perception of students belonging to different disciplines towards m-learning.

One of the limitations of this study is its limited sample size which primarily consists of students coming from urban class; hence the results cannot be generalized to all situations. Secondly, the results are based on self-reported responses from the undergraduate students belonging to only four disciplines. For future studies, it is recommended to consider students from other disciplines as well as to include graduate and post-graduate students in the sample. Longitudinal studies and cross-country comparisons are also recommended to improve the generalizability of the results.

References

- Ahmed, I., & Qazi, T. F. (2011). Mobile Phone Adoption and Consumption Patterns of University Students in Pakistan. *International Journal of Business and Social Science*, 2(9), 205-213.
- Antoniou, A., & Lepouras, G. (2005) Using bluetooth technology for personalised visitor information. Proceedings of the IADIS international Conference on Mobile Learning, June 28-30. Qawra, Malta.
- Burden, K., & Kearney, M. (2016). Future scenarios for mobile science learning. *Research in Science Education*, 46(2), 287-308.
- Callum, K.M. and Kinshuk, (2006), Mobile Technology in Facilitating Learning Goals. In mLearn 2006. Banff, Canada.
- Cavus, N., & Ibrahim, D. (2009). M-Learning: An experiment in using SMS to support learning new English language words. *British Journal of Educational Technology*, 40(1), 78-91.

- Cavus, N., & Uzunboylu, H. (2009) Improving critical thinking skills in mobile learning. *Procedia Social and Behavioral Sciences*, (1), 434-438.
- Clarke, P., Keing, C., Lam, P. & McNaught, C. (2008). Using SMSs to Engage Students in Language Learning, in Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2008, 6132-6141.
- Cochrane, T., & Bateman, R. (2010). Smartphones give you wings: Pedagogical affordances of mobile Web 2.0. *Australasian Journal of Educational Technology*, 26(1), 1-14.
- Cook, J., Pachler, N., & Bradley, C. (2008). Bridging the gap? Mobile phones at the interface between informal and formal learning. *Journal of the Research Center for Educational Technology*, 4(1), 3-18.
- Cronbach, L.J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297-333.
- Dawson, D. (2007), *Handheld Technology for mobile learning*. London: Latimer Trend.
- Dubendorf, V. A. (2003), *Wireless data technologies*. New York: John Wiley & Sons.
- Duffy, P. (2007). Engaging the YouTube Google-eyed generation: Strategies for using Web 2.0 in teaching and learning. In European Conference on ELearning, ECEL (pp. 173-182). Retrieved August 2015 from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.452.163&rep=rep1&type=pdf>
- Ekamayake, Y and Wishart, J.M. (2011), Investigating the possibility of using mobile phones for science Teaching and Learning: is it a viable option for Srilanka? *International Journal for Cross-Disciplinary Subjects in Education (IJCDSE)*, 2(2), 372-380.
- Fetaji, M. (2008, November). Literature review of m-learning issues, m-learning projects and technologies. In World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education, (1), 348-353.
- Garrett, B. M., & Jackson, C. (2006). A mobile clinical e-portfolio for nursing and medical students, using wireless personal digital assistants (PDAs). *Nurse Education Today*, 26(8), 647-654.
- GFK (2014). Tech devices in 2015: emerging markets dominate growth, increasing by 10 billion USD. Retrieved August 2015 from <http://www.gfk.com/news-and-events/press-room/press-releases/pages/tech-devices-in-2015-sales-forecast.aspx>
- Haug, R., & Tumbo, S. (2016). Mobile learning bridging the gap in agricultural extension service delivery: Experiences from Sokoine University of Agriculture, Tanzania Camilius Sanga and Malongo Mlozi Sokoine University of Agriculture, Tanzania. *International Journal of Education and Development using Information and Communication Technology*, 12(3), 108-127.
- Hsu, H., Wang, S., & Comac, L. (2008). Using audio blogs to assist English-language learning: an investigation into student perception, *Computer Assisted Language Learning*, 21(2), 181-198.
- Iqbal, S., & Qureshi, I. A. (2012). M-learning adoption: A perspective from a developing country. *The International Review of Research in Open and Distance Learning*, 13(3), 147-164.
- Iqbal, S., & Bhatti, Z. A. (2015). An Investigation of University Student Readiness towards M-learning using Technology Acceptance Model. *The International Review of Research in Open and Distributed Learning*, 16(4).
- Iqbal, S., & Bhatti, Z. A. (2016). What drives m-learning? An empirical investigation of university student perceptions in Pakistan. *Higher Education Research & Development*, 1-17.
- ITU (2010). ITU estimates two billion people online by end 2010, Press release Geneva, 19 October 2010. Retrieved August 2015 from http://www.itu.int/net/pressoffice/press_releases/2010/39.aspx#.VdagD_S5zCb
- Jha, S. (2008). Understanding Mobile Phone Usage Pattern Among College-Goers. *ICFAI Journal of Services Marketing*, 6(1).

- Kukulka-Hulme, A., Pettit, J., Bradley, L., Carvalho, A. A., Herrington, A., Kennedy, D. M., & Walker, A. (2011). Mature students using mobile devices in life and learning. *International Journal of Mobile and Blended Learning*, 3(1), 18-52.
- Malladi, R., & Agrawal, D. P. (2002). Current and future applications of mobile and wireless networks. *Communications of the ACM*, 45(10), 144-146.
- Maniar, N. (2007). M-learning to teach university students. In C. Montgomerie & J. Seale (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2007*, 881-887.
- McAlister, A. (2009). Teaching the millennial generation, *American Music Teacher*, 59(1), 13-15.
- Mort, G. S., & Drennan, J. (2005). Marketing m-services: Establishing a usage benefit typology related to mobile user characteristics. *The Journal of Database Marketing & Customer Strategy Management*, 12(4), 327-341.
- Nunnally, J. (1978). *Psychometric theory*. New York: McGraw-Hill.
- Pakistan Economic Survey (2014-15). Education. Retrieved August 2015 from http://www.finance.gov.pk/survey/chapters_15/10_Education.pdf
- Percival, J., & Percival, N. (2008). Engineering Students' Perceptions of Mobile Learning, In *World Congress on Engineering and Computer Science*, 465-470.
- Pierson, M.E. (2001). Technology integration practice as a function of pedagogical expertise, *Journal of Research on Computing and Education*, Summer, 3(4), 413-430.
- Pollara, P., & Kee Broussard, K. (2011, March). Student perceptions of mobile learning: A review of current Research. In *Society for Information Technology & Teacher Education International Conference*, 2011(1), 1643-1650.
- Prensky, M. (2005). What can you learn from a cell phone? Almost anything!. *Innovate Journal of Online Education*, 1(5). Retrieved August 2015 from http://rylish.usu.edu/courses/mobility/images/almost_anything.pdf
- Rismark, M., Sølvsberg, A. M., Strømme, A., & Hokstad, L. M. (2007). Using Mobile Phones to Prepare for University Lectures: Student's Experiences, *The Turkish Online Journal of Educational Technology*, 6(4), 86-91
- Rogers, Y., Connelly, K., Hazlewood, W., & Tedesco, L. (2010). Enhancing learning: a study of how mobile devices can facilitate sense making, *Personal & Ubiquitous Computing*, 14(2), 111-124.
- Rothaermel, F. T. (2016). Competitive Advantage in Technology Intensive Industries. In *Technological Innovation: Generating Economic Results* (pp. 233-256). Emerald Group Publishing Limited.
- Shih, K., Chen, H., Chang, C., & Kao, T. (2010). The Development and Implementation of Scaffolding-Based Self-Regulated Learning System for e/m-Learning, *Journal of Educational Technology & Society*, 13(1), 80-93.
- Shuler, C. (2009). *Pockets of potential: Using mobile learning technologies to promote children's learning*. New York: The Joan Ganz Cooney Center at Sesame Workshop. Retrieved August 2015 from http://www-tc.pbskids.org/read/files/pockets_of_potential.pdf
- Statistica (2015a). Global smartphone shipments forecast 2010-2019. Retrieved August 2015 from <http://www.statista.com/statistics/263441/global-smartphone-shipments-forecast/>
- Statistica (2015b). Global mobile broadband connections 2008-2020 Retrieved August 2015 from <http://www.statista.com/statistics/371872/global-mbb-connections/>
- Svensson, G., Høgevold, N., Ferro, C., Varela, J. C. S., Padin, C., & Wagner, B. (2016). A Triple Bottom Line Dominant Logic for Business Sustainability: Framework and Empirical Findings. *Journal of Business-to-Business Marketing*, 23(2), 153-188.

- Thornton, P., & Houser, C. (2004). Using mobile phones in education. In *Wireless and Mobile Technologies in Education, 2004. Proceedings. The 2nd IEEE International Workshop on* (pp. 3-10). IEEE.
- UNESCO (2012). *Mobile learning and Policies, Key issues to consider*. Retrieved August 2015 from <http://unesdoc.unesco.org/images/0021/002176/217638E.pdf>
- Uzunboylu, H., Cavus, N., & Ercag, E. (2009). Using mobile learning to increase environmental awareness. *Computers & Education, 52*(2), 381-389.
- Valderrama Bahamóndez, E. D. C., & Schmidt, A. (2010, April). A survey to assess the potential of mobile phones as a learning platform for panama. In *Proceedings of the 28th of the international conference extended abstracts on Human factors in computing systems* (pp. 3667-3672). ACM.
- Valk, J. H., Rashid, A. T., & Elder, L. (2010). Using mobile phones to improve educational outcomes: An analysis of evidence from Asia. *The International Review of Research in Open and Distance Learning, 11*(1), 117-140.
- Venkatesh, B., Nargundkar, R., Sayed, F. K., & Shahaida, P. (2006). Assessing Indian Students' perceptions towards m-learning-some initial conclusions. *International Journal of Mobile Marketing, 1*(2), 75-79.
- Venkatesh, S., Chandrasekaran, V., Dhandapany, G., Palanisamy, S., & Sadagopan, S. (2016). A survey on internet usage and online learning behaviour among medical undergraduates. *Postgraduate medical journal, postgradmedj-2016*.
- Wang, M., Shen, R., Novak, D., & Pan, X. (2009). The Impact of Mobile Learning on Students' Learning Behaviours and Performance: Report from a Large Blended Classroom. *British Journal of Educational Technology, 40*(4), 673-695.
- Wishart, J. (2015, October). Assimilate or Accommodate? The Need to Rethink Current Use of the Term 'Mobile Learning'. In *International Conference on Mobile and Contextual Learning* (pp. 229-238). Springer International Publishing.
- Wyatt, T. H., Krauskopf, P. B., Gaylord, N. M., Ward, A., Huffstutler-Hawkins, S., & Goodwin, L. (2010). Cooperative m-learning with nurse practitioner students. *Nursing Education Perspectives, 31*(2), 109-112.

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Editor's Note: Dr. Tibi compares student preferences, reactions and learning from structured and unstructured online discussion forums.

Attitudes of computer science students towards the use of structured and unstructured discussion forums in fully online courses

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Israel

Abstract

This study aimed at investigating and analyzing the attitudes and opinions of computer science students, at two academic colleges of Education, towards the use of structured and unstructured discussion forums in computer science courses that were entirely conducted online. Fifty two students participated in two online courses. The students in each course were divided into two groups: the experimental group, which participated in the structured discussion forum, and the control group, which participated in the unstructured discussion forum. The questionnaire, which was used for collecting the data, consisted of closed- and open-ended questions. The results revealed that the attitudes of students who participated in the structured discussion forum were positive compared to the attitudes of students who participated in the unstructured discussion forum. Based on the results of the study the researcher suggested some appropriate recommendations.

Keywords: online learning; structured discussion forum; attitudes of computer science students.

Introduction

The continuous development and growth of internet-based technology has resulted in many approaches to teaching and learning development, manifested in different forms of online learning. In a traditional face-to-face class, students have several opportunities to interact with their instructor and to collaborate with their fellow students. Creating similar opportunities for meaningful discussion and collaboration in an online course is one of the biggest challenges of teaching online (Kelly, 2010).

Several modern computer mediated communication (CMC) technologies can be utilized in online courses for the purpose of increasing collaborative interactions among the participants, while the use of the tool asynchronous discussion forum (DF) is increasing in asynchronous online learning (Fear & Brown, 2014; Zhou, 2015). Asynchronous DFs play a substantial role in humanizing online courses by replicating the classroom experience of information exchange and community building, not just between students and their instructor but also among the students themselves (Saadé & Huang, 2009). In addition, they can be used in order to support, encourage and facilitate learning. DFs can be unstructured or structured. An unstructured DF is primarily used for asking questions and obtaining answers and feedback from the participants rather than for posting planned discussion topics (Yang, Newby & Bill, 2008; Gao, 2014). In contrast, a structured DF provides well designed and planned discussion activities with specific topics and goals (Yang et al., 2008) and has clear interaction and collaboration rules (Biesenbach-Lucas, 2004; Brooks & Jeong, 2006).

One important factor which affects students' attitudes towards asynchronous online learning can be gaining of more positive attitudes towards the use of DFs used in online courses, since interaction and collaboration through DFs can be an important factor in student success. The aim of this study is to investigate and measure students' attitudes toward the use of structured and unstructured DFs in fully online computer science courses. Specifically, the present study sought

answers to the following questions: What are the students' attitudes towards the use of structured and unstructured DFs? What are the students' suggestions regarding the use and the structure of DFs in computer science online courses?

Literature review

Constructivism emphasizes social interaction as a basis for knowledge construction. Paloff and Pratt (2007) emphasize that, “key to the learning process are the interactions among students themselves, the interactions between faculty and students, and the collaboration in learning that results from these interactions” (p. 4). Many educators agree that interaction and discussion between students and their instructor and among the students themselves are critical in promoting and enhancing online learning (Anderson, 2003; Dalelio, 2013; Muirhead & Juwah, 2004; Palloff & Pratt, 2007; Saadé & Huang, 2009; Swan, 2002; Wegmann & McCauley, 2014). It is therefore essential to find ways of organizing online courses in order to improve interaction and collaboration among students.

Asynchronous DFs provide opportunities for collaborative learning and teaching transactions (Kelly, 2010; Saadé & Huang, 2009) in asynchronous online courses. Participation in a DF demands that students become actively engaged with the course content and learning activities and through the interaction with their peers, negotiate the meanings of the content (Fear & Brown, 2014; Serena, 2009). DFs also allow the creation of collaborative knowledge since learners can work together, exchange information, share resources and ideas and comment on each other's work (Gao, 2014; Preece, 2000; Serena, 2009). Markel (2001) maintained that students construct knowledge through the shared experiences that each participant brings to the collaborative discussions. However, studies show that simply asking students to participate in DFs is not likely to generate an effective collaborative learning environment (Ali & Salter, 2004; Andresen, 2009; Gilbert & Dabbagh, 2005).

Unstructured and structured discussion forums

A DF can be unstructured or structured. An unstructured DF does not include planned discussions, neither does it provide rules for interaction and collaboration among the participants. It is primarily used for asking questions and obtaining answers and feedback from the participants, therefore it requires students to create their own discussion (Yang et al., 2008; Salter & Conneely, 2015). Sometimes it is used by students for personal communication with their peers. In contrast, a structured DF provides well-designed, organized and planned discussions, usually set by the instructor with specific topics and goals (Yang et al., 2008). In addition, a structured DF has clear interaction, collaboration and etiquette rules (Biesenbach-Lucas, 2004; Brooks & Jeong, 2006). Researchers have argued that a major challenge facing the instructor in online courses is how to structure asynchronous discussions in order to engage students in meaningful discourse (Gilbert & Dabbagh, 2005; Tibi, 2016; Wallace, 2003; Wozniak & Silveira, 2004).

Previous research has shown that structured DFs are more effective for the acquisition of different kinds of knowledge, in particular know-how (refers to the ability to do something) and know-why (refers to knowledge about causality nature, in the human mind and in society) knowledge kinds than are unstructured DF (Tibi, 2013). It has been also shown that structured DFs are more effective for the improvement of critical thinking skills (Aviv, Erlich, Ravid & Geva, 2003; Gilbert & Dabbagh, 2005; Yang et al., 2008) and collaborative skills (Tibi, 2015) than are unstructured DFs. Salter and Conneely (2015) found that structured DFs were generally perceived by the students to be more engaging than unstructured DFs.

Purpose of the study

The purpose of this study was to investigate whether the introduction of structured DFs into computer science fully online courses was effective in terms of improving students' perceptions of the learning environment and their attitudes towards the use of DFs.

Research design

Research objectives

The purpose of the present study is twofold:

- To investigate and measure students' attitudes towards the use of structured and unstructured DFs in fully online computer science courses;
- To explore students' suggestions that might help in redesigning the DF for a better learning experience for the learners.

On the basis of these research objectives, the following study hypotheses will be examined:

Hypothesis 1: there will be major differences in how instructors' feedback will affect discussions in the two types of DFs (structured and unstructured).

Hypothesis 2: students of the structured DF will significantly share more knowledge among themselves than the students of the unstructured DF.

Hypothesis 3: there will be great differences in how students will perceive the overall DF.

Research participants

The participants in the survey were Arab students in computer science education at two academic Colleges of Education. Both colleges are located in the center of Israel and are heterogeneous in the following aspects: (1) students come from different villages and towns located in north, center and south of Israel; (2) students come from families with different socioeconomic and educational status. All of these students begin their higher education immediately after completing high school. In education colleges, students study computer science in order to teach it in elementary and junior high schools. Thus, in addition to computer science courses, students in education colleges also study courses in pedagogy and education.

In this study, two different computer science online courses with a total population of 52 students were examined. Both online courses, titled with "*Internet Programming using JavaScript*", had the same content and were given by the same instructor. The number of students enrolled in the first course was 28 students and in the second course 24 students. The students in each online computer science course were randomly divided into two equal groups. One group participated in an unstructured DF and was considered as the control group (N=26). The other group participated in a structured DF (i.e., the treatment) and was considered as the experimental group (N=26). The students of both online courses were taught in their mother language (Arabic) since the instructor and the students of both courses are Israeli Arabs.

Research instrument

The instrument of the survey was a questionnaire which was distributed to all participants in a face-to-face meeting at the end of the online course. The questionnaire consisted of close-ended questions that were answered on a five-point Likert scale, raked from 1-5 with 1 indicating "strong disagreement" and 5 indicating "strong agreement", and of open-ended questions asking students to provide their opinions and suggestions about the use of DFs in the online course.

Design of the structured discussion forum

The structured DFs, which were used in this study, consisted of the following three elements: (1) preparatory instructions about individual participation, (2) instructions about group collaboration, and (3) instructors' role in organizing the discussion. The following is a summary of steps that have been taken in designing the structured DF.

- In the first step, the instructor explained how students will be evaluated in the course, the purpose and the nature of the discussions in the DFs, and requested the students to fulfill the rules set for the participation in the DFs in order to keep the discussions organized.
- The instructor then constructed small groups of three or four students with mixed knowledge levels. Each group received a group name.
- In the next step, the instructor established a DF for each constructed small group.
- Students were then informed about the objective of establishing small group DFs, encouraging them to use these forums for the purpose of enhancing their interaction and collaboration around the learning materials and the group learning activities.
- Students were requested to participate actively in two levels of discussion groups. The first level was the central DF where students from all small groups were participants; the second level was the small group DF. Students were also told about the role of the instructor in each one of these two levels of the discussions.
- The instructor was actively involved in the central DF in order to create a learning environment that motivates students to construct knowledge through meaningful interaction with each other as well as with their instructor. The instructor regularly posted questions on different levels of knowledge and gave feedback to students' posts.
- The instructor posted lists of questions and problems to be solved and related each question to a different student. Students then answered the questions directed to them and were requested to give comments on other students' answers within a given period of time.
- In the middle of the semester, the instructor organized a group activity that asks each group of students to study a different subject and to prepare a learning unit about the subject, which they received, including three questions, each one related to a different kind of knowledge.
- Each group was then required to study and discuss a learning unit of a different group specified by the instructor. They were asked to post the answers to the questions as well as to comment on the learning unit within the specified deadline. Then, each group was requested to go over the feedback, which they received, and to comment on it.
- Besides the continuous feedback and support throughout the whole course, the instructor also sent a monthly personal positive feedback to the students about their level of participation, motivating students with low participation to be more active in the DFs.
- At the end of the semester, each small group of students was required to complete a final project which was clearly described by the instructor.

Design of the unstructured discussion forum

Students of the control group participated in the unstructured DF. At the beginning of the online course, the instructor explained how students will be evaluated in the course. The instructor emphasized the importance of using the DF for information exchange and feedback among the participants. The instructor also encouraged the students to use it whenever they have questions about unclear learning materials. The instructor responded to all the questions that were directed

to him. In addition, the instructor posted questions about the learned materials to the DF without directing these questions to individual students. The role of the instructor in the unstructured DF was more "guide on the side" jumping in when it was necessary rather than having an active role in designing, organizing and planning the discussions. Students of the unstructured DF were not requested to work in small groups or to carry any group activity. Each one of them submitted his work/project individually. On the other hand, they had the opportunity to organize and manage the discussions, as they like and to collaborate with each other.

Thirty percent of the final grade was given for active participation in the structured as well as in the unstructured DFs.

Result

The number of respondents who completed the survey was 52 where half of them participated in the structured DFs and the other half participated in the unstructured DF. In general, students had significantly more positive responses (quantitative and qualitative) about the participation in the structured DFs compared those who participated in the unstructured DFs. First, quantitative results will be shown and then qualitative comments of the open-ended questions will be described.

Quantitative results suggested that students responded more positively to the structured DF (M=4.20, SD=.55) than to the unstructured DF (M=3.38, SD=.81). The following paragraphs describe the results from both groups (structured and unstructured) according to the statements that were given to the students in order to examine the three hypotheses of the study (See Table 1 for quantitative analyses of the statements).

**Table 1:
Quantitative study questions**

	Statement	Structured DF		Unstructured DF	
		Mean	SD	Mean	SD
Q1	My participation in the DF contributed to the building of knowledge by other classmates	4.04	.60	3.12	.86
Q2	The instructor's role in organizing the discussion within the DF was clear	4.08	.48	3.38	.90
Q3	Getting feedback on the DF from the instructor helped me understand the course materials better	4.19	.49	3.85	.83
Q4	I think that my willingness to share knowledge with others has increased	4.15	.37	3.69	.47
Q5	I liked the way the DF was organized	4.23	.59	2.69	.84
Q6	I think that the forum content was not well organized	1.46	.51	1.96	.72
Q7	I think the participants of the DF shared a lot of knowledge with each other	4.04	.66	2.27	.87
Q8	Getting feedback on the DF from the instructor motivated me to participate more in the DF	4.38	.64	3.38	.85

Hypothesis 1: Instructor's feedback

The instructor's feedback and support during the participation in DFs is important for students. It also can help in promoting effective interaction and collaboration between group members. The students were asked if the instructor's feedback motivated them to participate more in the DF (Q8). Students of the structured DF agreed with this statement (M=4.38, SD=.64) more than the students of the unstructured DF (M=3.38, SD=.85). Students of the structured DF also agreed

with the statement that "the instructor's feedback helped them understand the course materials better" (M=4.23, SD=.51) more than students using the unstructured DF (M=3.81, SD=.85). See Table 1 for this and all other quantitative analyses. The category of statements (C1) for measuring hypothesis number 1 consisted of the three statements Q2, Q3 and Q8. The Cronbach's Alpha for this category was .746, which shows good reliability. Means and standard deviations for this and other categories are listed in Table 2.

Hypothesis 2: Knowledge sharing

Hypothesis 2 suggested that students of the structured DF would share more knowledge among themselves than the students of the unstructured DF would. The category of statements for measuring this hypothesis consisted of the three statements Q1, Q4 and Q7. The Cronbach's Alpha for this category was .673, which is almost good reliability. The results show that students of the structured DF actually reported sharing significantly more knowledge among themselves (M=4.34, SD=.46) than the students using the unstructured DF (M=3.28, SD=.53).

Table2
Means, Standard Deviations and T value of each category
for testing the hypotheses in both groups

Category	Group	N	Mean	Std. Deviation	T value (Df=50)
C1	structured	26	4.07	.41	8.45***
	unstructured	26	3.02	.48	
C2	structured	26	4.34	.46	7.63***
	unstructured	26	3.28	.53	
C3	structured	26	4.23	.41	4.54***
	unstructured	26	3.52	.67	

*** p<.001

Hypothesis 3: Overall structure and organization of the DF

Hypothesis 3 suggested that there would be differences in how students find the overall structure and organization of the DF (statements Q5 and Q6). Students using the structured DF agreed with the statements Q5 and Q6 (M=4.23, SD=.41) more than students using the unstructured DF (M=3.52, SD=.67). The result of the Pearson correlation was found positive (r=.27, P=.058).

In the three categories C1, C2 and C3 that measure the hypotheses H1, H2, and H3 respectively the results show that the students of the structured DF had significantly more positive responses than the students of the unstructured DF. Table 2 shows the result of the conducted t-test for independent sample.

Qualitative comments

The questionnaire also included open-ended questions. The students were asked to write about what they liked or did not like concerning the organization and structure of the DF. They also had the opportunity to write about their observations and suggestions. Following is a summary of the sentences written by the students concerning the points raised as answers to the open-ended questions.

Organization and management of the DF

Students were asked to write about what they liked and did not like in the organization and management of the DF. Almost all of the qualitative comments that were given by the students from both groups to this particular question were positive. This result is in agreement with the quantitative results obtained to the statement Q6. Table 3 shows the qualitative comments given by the students to this question.

Table 3
Qualitative responses to the organization and management of the DF

Group	Liked	Did not like
Structured	The organization was very good	Sometimes discussion topics were not closed
	The management was very good	At first it was stressful because of the tasks
	The comments of the instructor were clear	
	Precise timing	
Unstructured	The organization and management was good	Little monitoring of instructor
	Things were clearly organized	Sometimes the responses were late

Participation and interaction in the DF

Students were also asked to write about what they liked or did not like concerning the participation and interaction in the DF (Table 4). The qualitative responses from both groups were different. Students of the structured DF found the level of participation and interaction significantly higher than that found by the students of the unstructured DF. This difference can be supported by the quantitative results obtained for statement Q7. This lends support for the suggestion that students in the structured DF interacted and shared more together than did the students of the unstructured DF.

Table 4
Qualitative responses about the level of participation and interaction in the DF

Group	Liked	Did not like
Structured	I liked the participation and interaction; It encouraged the group members.	Not everyone participated in the same level.
	We cooperate for success.	Not everyone responded to my post.
	Good, but it took a lot of time.	Some students had little participation.
	The communication of the instructor with us was outstanding and helped us in many situations.	The participation in the DF required a lot of time.
Unstructured	Not high. After answering the questions, the debate almost ends.	Participation was not in a significant level.
	There was no high-level interaction, but we benefited from it.	The interaction between the students was weak. I did not like it. Everyone was working alone.

Questions and tasks given in the DF

Another question was dealing with the type of questions and tasks given by the instructor in the DF. Students were requested to write their comments on what they liked or did not like concerning the questions and tasks given in the DF. The responses of students participating in the structured DF are clearly more positive than the responses written by the students of the unstructured DF. Table 5 summarized the qualitative responses given by the students of both groups to this question.

Table 5
Qualitative responses about the questions and tasks given by instructor in the DF

Group	Liked	Did not like
Structured	<p>Questions were stimulating and gave birth to a competition between group members.</p> <p>Questions on different levels of knowledge were meaningful and helped me to understand the materials of the course.</p> <p>I liked the individual questions for each student.</p> <p>Tasks were gradual from easy to difficult.</p> <p>Group tasks were challenging.</p>	<p>There were many questions and tasks.</p> <p>Many questions. I did not have time to answer all of them.</p>
Unstructured	<p>The questions were clear.</p> <p>The course materials contributed to my understanding of the learned subjects.</p>	<p>Questions did not lead to a big debate.</p> <p>You did not need to participate on an ongoing basis, except in solving tasks.</p>

Suggestions and notes for next online course

In addition to the above mentioned qualitative responses, students were also asked to give their notes and suggestions. The suggestions and notes that were written by the students are listed in the Table below (Table 6).

Table 6
Suggestions and notes written by the students of structured and unstructured DF

Structured	<p>I was very pleased to learn this course.</p> <p>It is better to integrate f2f meetings in the course, since the materials of the course require that.</p> <p>I suggest more individual questions for each student.</p>
Unstructured	<p>I think there is a need for more communication with the instructor in the DF.</p> <p>A good and useful experience, but I prefer to learn programming in f2f meetings.</p> <p>Members of the DF where not connected together.</p>

Discussion

In the current study, two types of discussion forums were examined: the structured and the unstructured DF. Students' attitudes and opinions towards the two kinds of DF were extremely different. Students of the structured DF generally had more positive and strong attitudes and

reactions towards the use of DF than the students of the unstructured DF had. Students using the structured DF liked the organizations and structure of the DF more than the students of the unstructured DF. Specifically, students of the structured DF felt more motivated by the instructor's feedback to participate in the DF than the students of the unstructured DF. This result is also supported by the result obtained to the statement about the level of interaction between the participants in the DF. One possibility that might explain this finding is the instructor's role in the structured DF. At the beginning of the online course students in the structured DF (experimental group) received preparatory instructions and clear directions for the online discussions. This information included an assessment rubric, clear explanations about the purpose of the discussion forum, instructions about how to use it, and instructions about group collaboration. Clear and simple directions for online discussion and setting out expectations are important in making student to student interactivity more effective (Dalelio, 2013; Mokoena, 2013; Wozniak & Silveira, 2004) and in helping and motivating students to contribute to the discussions within the discussion forum (Al-Shalchi, 2009; Lall & Lumb, 2010; Roper, 2007). In addition, the regular and controlled instructor involvement in the discussion forum through feedback, support, and questioning helped in organizing the discourse and in creating effective and oriented discussion. As a result, students were motivated to contribute to the ongoing discussions and to construct meanings through interaction with each other, with the content, and with the instructor. This explanation is also supported by previous research on online discussions, which shows that instructor participation and support in the DF is often shown to encourage student interaction and participation (Bender, 2003; Dalelio, 2013; Kearsley, 2000; Mokoena, 2013) and to make the discussion more effective and successful (Al-Shalchi, 2009; Lall & Lumb, 2010; Prasad, 2009).

Similarly, students using the structured DF agreed with the statement "the instructor's feedback helped me understand the course materials better" more than students using the unstructured DF did. In addition, qualitative responses of the students supported this result. In this study, the instructor regularly posted a variety of questions and authentic problems on different types of knowledge (know-what, know-how, and know-why) in an attempt to make the discussion more effective and to promote a deep understanding of the subjects being learned. Several studies have shown that students favored a variety of questions asked in the discussion forum (Andresen, 2009; Akin & Neal, 2007; Gao, 2014; Roper, 2007). "The questions asked by the instructor should not be mundane or ask for recall of memorized facts, but instead should be challenging so that they attempt to deepen enquiry and improve the opportunities to actively acquire knowledge" (Bender, 2003; p. 178). During the online course, there was an activity where each question was directed to a different student. Students were asked to answer their questions and to comment on other students' answers within a given period of time. This way of activating the discussion forum helped students to better understand the learned materials and to be more involved in discussing, analyzing and constructing knowledge.

Interestingly, students of the structured DF collaborated and shared more knowledge than the students of the unstructured DF. Unlike the students of the unstructured DF, students of the structured DF, in each delivered online course in this study, participated in small group activities and carried out a final group project. They also received clear instructions about group collaboration and were directed and encouraged to work collaboratively. Working collaboratively on a group activity, such as a group project, promoted a situation in which group members realized the importance of each member's contribution for the group success and thus challenged each other's ideas and facilitated each other's efforts in order to reach the group's goals. In such a situation, students within the collaborative small group were linked together, were accountable for the group work, received help and assistance from each other, shared their resources and materials, and provided each other with feedback in order to successfully perform the group activity. This explanation is also consistent with the results of other studies (Benaya & Zur, 2007; Kalayci & Humiston, 2015; McKinney & Denton, 2006; Teague & Roe, 2007) which showed

that the integration of collaborative activities into online computer science courses benefit students' learning as well as the development of their sharing skills. Another explanation for the above finding may be that the students of the experimental group, unlike the students of the control group, participated in two levels of discussions: the small group DF and the central DF. Establishing a DF for each small group of students and asking them to work together on the group activities helped in keeping every member involved in the discussion (Felder & Brent, 1994; Rau & Heyl, 1990), enabled group members to create a sense of a community of learners with shared goals, and allowed them to manage the discussion according to their needs. This way of organizing the online discussion increased group interaction and interdependence (Hara, Bonk & Angeli, 2000).

Conclusions and implications

Results indicated that students who participated in the structured DF had significantly more positive responses and attitudes in both quantitative and qualitative nature compared to the students of the unstructured DF. Gaining more positive attitudes towards the use of DFs in online courses is an important factor that affects students' attitudes towards asynchronous online learning. From the findings of this study emerged a number of suggestions to instructors regarding how to structure and manage asynchronous DFs in educational settings. Online instructors in different disciplines not only in computer science education can consider the proposed structure for the DF in order to let students become more active and involved and thereby improve the quality of online learning.

In the structured DF, students mainly had worked together in small groups. Each small group delivered a final project separately at the end of the course. It would be of interest to plan for a class collaborative project where each small group would be responsible for completing a part of the project. Then all parts of the project could be set together in order to make the whole project complete. Adding this component to the structured DF might increase inter-group collaboration and contribute to student learning and understanding. Students who actively involved in projects can learn more and have more positive attitudes than they would if they were not. Another possible direction could be to compare the effects of different kinds of structured DFs (structured, semi-structured and unstructured) on students' attitudes and perceptions.

References

- Akin, L., & Neal, D. (2007). CREST+ Model: Writing effective online discussion questions. *Journal of Online Learning and Teaching*, 3(2). Retrieved September 18, 2014 from <http://jolt.merlot.org/vol3no2/akin.htm>
- Ali, S., & Salter, G. (2004). The use of templates to manage on-line discussion forums. *Electronic Journal on e-Learning* 2(1), 11-18. Retrieved Mai 15, 2012, from <http://digilib.unsri.ac.id/download/issue1-art6-ali-salter.pdf>
- Al-Shalchi, O. (2009). The effectiveness and development of online discussion. (Electronic version). *MERLOT Journal of Online Learning and Teaching*, 5(1), 104-108.
- Andresen, M. A. (2009). Asynchronous discussion forums: success factors, outcomes, assessments, and limitations. *Educational Technology & Society*, 12 (1), 249–257.
- Anderson, T. (2003). Getting the mix right again: An updated and theoretical rationale for interaction. *The International Review of Research in Open and Distance Learning*, 4(2). Retrieved March 02, 2009 from <http://www.irrodl.org/index.php/irrodl/article/view/149/230>
- Aviv, R., Erlich, Z., Ravid, G., & Geva, A. (2003). Network analysis of knowledge construction in asynchronous learning networks. *Journal of Asynchronous Learning Networks*, 7(3), 1-23.

- Benaya, T., & Zur, E. (2007). Collaborative programming projects in an advanced CS course. *Journal of Computing Sciences in Colleges*, 22(6), 126-135.
- Bender, T. (2003). *Discussion-based online teaching to enhance student learning: Theory, practice and assessment*. Sterling, Virginia: Stylus Publishing.
- Biesenbach-Lucas, S. (2004). Asynchronous web discussions in teacher training courses: Promoting collaborative learning - or not? *AACE Journal*, 12(2), 155-170.
- Brooks, C. D., & Jeong, A. (2006). Effects of pre-structuring discussion threads on group interaction and group performance in computer supported collaborative argumentation. *Distance Education*, 27(3), 371-390.
- Dalelio, C. (2013). Student Participation in Online Discussion Boards in a Higher Education Setting. *International Journal on E-Learning*, 12(3), 249-271.
- Fear, W. J., & Brown, A. E. (2014). Good quality discussion is necessary but not sufficient in asynchronous tuition: A brief narrative review of the literature. *Online Learning*, 18(2).
- Felder, R. M., Brent, R. (1994). Cooperative learning in technical courses: Procedures, pitfalls, and payoffs. *National Science Foundation Division of Undergraduate Education*. Retrieved March 10, 2009 from <http://www.eric.ed.gov/PDFS/ED377038.pdf>
- Gao, F. (2014). Exploring the Use of Discussion Strategies and Labels in Asynchronous Online Discussion. *Online Learning*, 18(3). Retrieved from <http://olj.onlinelearningconsortium.org/index.php/olj/article/view/460>
- Gilbert, P. K., & Dabbagh, N. (2005). How to structure online discussions for meaningful discourse: a case study. (Electronic version). *British Journal of Educational Technology*, 36(1), 5-18.
- Hara, N, Bonk, C. & Angeli C. (2000). Content analysis of online discussion in an applied educational psychology course. (Electronic version). *Instructional Science*, 28(2) 115-152.
- Kalayci, S., & Humiston, K. R. (2015). Students' Attitudes towards Collaborative Tools in a Virtual Learning Environment. *Educational Process: International Journal (EDUPIJ)*, 4(1-2), 71-86.
- Kearsley, G. (2000). *Online Education: Learning and teaching in cyberspace*. Belmont, CA: Wadsworth Publishing.
- Kelly, R. (2010). Synchronous and asynchronous learning tools: 15 strategies for engaging online students using real-time chat, threaded discussions and blogs. *Faculty Focus*.
- Lall, V., & Lumb, R. (2010). Successful design, development and delivery of online courses: Lessons from operations management and global leadership. *Indian Journal of Economics & Business*, 9(2), 377-384.
- Markel, S. L. (2001). Technology and education online discussion forums: It's in the response. *Online Journal of Distance Learning Administration*, 4(2). Retrieved May 15, 2008 from <http://www.westga.edu/~distance/ojdla/summer42/markel42.html>
- Mazzolini, M., & Maddison, S. (2007). When to jump in: The role of the instructor in online discussion forums. *Computers & Education*, 49(2), pp. 193–213.
- McKinney D., & Denton, L.F. (2006). Developing collaborative skills early in the CS curriculum in a laboratory environment. *Technical Symposium on Computer Science Education*. Reviewed June 13, 2010 from <http://www.cis.usouthal.edu/~mckinney/fp224-mckinney.pdf>
- Mokoena, S. (2013). Engagement with and participation in online discussion forums. *TOJET: The Turkish Online Journal of Educational Technology*, 12(2).
- Muirhead, B., & Juwah, C. (2004). Interactivity in computer-mediated college and university education: A recent review of the literature. (Electronic version). *Educational Technology & Society*, 7(1), 12-20.
- Palloff, R. & Pratt, K. (2007). *Building online learning communities*. San Francisco: Jossey-Bass.

- Prasad, D. (2009). Empirical Study of Teaching Presence and Critical Thinking in Asynchronous Discussion Forums. *International Journal of Instructional Technology & Distance Education*, 6(11). Retrieved February 11, 2011 from http://www.itdl.org/Journal/Nov_09/article01.htm
- Preece, J. (2000). *Online communities: Supporting sociability, designing usability*. Chichester, UK: Wiley.
- Rau, W. & Heyl, B. S. (1990). Humanizing the college classroom: Collaborative learning and social organization among students. *Teaching Sociology*, 18(2), 141-155.
- Roper, A. R. (2007). How students develop online learning skills. *Educause Quarterly*, 30(1), 62-65. Retrieved Mai 11, 2010 from <http://net.educause.edu/ir/library/pdf/EQM07110.pdf>
- Saade, G. R., & Huang, Q. (2009). Meaningful learning in discussion forums: Towards discourse analysis. *Issues in Informing Science and Information Technology*, 6(1), 87-99.
- Salter, N. P., & Conneely, M. R. (2015). Structured and unstructured discussion forums as tools for student engagement. *Computers in Human Behavior*, 46, 18-25.
- Serena, W. Y. (2009). The impact of online discussion on face-to-face discussion and academic achievement. *American Secondary Education*, 37(2), 4.
- Swan, K. (2002). Building learning communities in online courses: the importance of interaction (Electronic version). *Education, Communication & Information*, 2(1), 23-49.
- Teague, D., & Roe, P. (2007). Learning to program: Going pair-shaped. *ITALICS*, 6(4), 4-22.
- Tibi, M. H. (2013). The Impact of Structured Discussion Forums on Knowledge Acquisition of Different Kinds by Computer Science Students, *EDULEARN13*, 1st-3rd July 2013, Barcelona, Spain, 3676-3690, ISBN: 978-84-616-3822-2.
- Tibi, M. H. (2015). Improving Collaborative Skills by Computer Science Students through Structured Discussion Forums. *Journal of Technologies in Education*, 10 (3-4), 27-41.
- Tibi, M. H. (2016). Essential Components in Structuring Asynchronous Discussion Forums. *TOJDE-The Turkish Online Journal of Distance Education*, 17 (2), 88-97.
- Wallace, R. M. (2003). Online learning in higher education: A review of research on interactions among teachers and students. *Education, Communication, and Information*, 3(2), 241-280.
- Wegmann, S. J., & McCauley, J. K. (2014). Investigating Asynchronous Online Communication: A Connected Stance Revealed. *Journal of Asynchronous Learning Networks*, 18(1), n1.
- Wozniak, H., & Silveira, S. (2004). Online discussions: Promoting effective student to student interaction. In R. Atkinson, C. McBeath, D. Jonas-Dwyer & R. Phillips (Eds.), *Beyond the Comfort Zone: Proceedings of the 21st ASCILITE Conference*, (pp. 956-960) Retrieved Mai 15, 2011 from <http://www.ascilite.org.au/conferences/perth04/procs/pdf/wozniak.pdf>.
- Yang, Y.T., Newby, T., & Bill, R. (2008). Facilitating interactions through structured web-based bulletin boards: A quasi-experimental study on promoting learners' critical thinking skills. *Computers & Education* 50(4), 1572-1585. Retrieved May 15, 2013 from <http://conf.ncku.edu.tw/research/articles/e/20080314/6.pdf>
- Zhou, H. (2015). A Systematic Review of Empirical Studies on Participants' Interactions in Internet-Mediated Discussion Boards as a Course Component in Formal Higher Education Settings. *Online Learning*, 19(3). Retrieved from <http://olj.onlinelearningconsortium.org/index.php/olj/article/view/675>

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Editor's Note: Open Educational Resources may offer substantial cost savings for students and educators - definitely an option to be explored to make programs cost effective and work within existing budgets.

Faculty open educational practices at a regional university

Deepak Prasad; Javed Yusuf, Dhiraj Bhartu

Fiji

Abstract

Open educational resources (OER), which are cost-free, openly licensed educational materials available in a variety of languages and formats, have in recent years accumulated abundant evidence of disruptive potential to surmount barriers to learning. This is certainly good news to the world of education, especially higher education, which has experienced steady growth in its cost to students. Evidence also shows, however, a low uptake of this concept in higher education. A key reason for this is a lack of awareness, understanding, and acceptance of OER and their related practices amongst faculty. If one intent of a higher educational institution, such as is that of the University of the South Pacific (USP), is to provide greater affordability for students through OER, ushering faculty towards OER is thus paramount, for they are the ones who normally choose and assign educational resources. As an initial step toward moving the USP closer to its aspirations, a survey study was undertaken aiming to describe the current status of OER uptake and open educational practices (OEP) by faculty, with the purpose of gathering information for planning future activities in this area. This paper reports results from the survey examining USP faculty: teaching practices, OER awareness, OER use, participation in OEP staff development, awareness of student OER use, barriers to OER adoption, and impact of OER use. The paper concludes with a discussion of current status and expected future steps for propelling faculty towards integrating OER in USP courses.

Introduction

Higher education students are faced with many barriers, amongst which rising costs to students is consistently ranked as a top hurdle to student achievement. In face of this situation, many higher education institutions are moving from traditional copyrighted educational materials - essentially proprietary and published under an “all rights reserved” copyright model that restricts their free use - to “open” educational resources (OER) as a key cost-saving strategy for students. The “open” in OER denotes any copyrightable work that is either in the public domain or licensed in a manner (e.g., Creative Commons) that provides users with cost-free, perpetual, and irrevocable access and permission to exercise five rights (5Rs): retain, reuse, revise, remix, and redistribute the resource (Wiley, n.d., 2016a). Since their inception approximately two decades ago, OER have increasingly gained traction in higher education, with over 300 universities participating in the movement (Ischinger, 2007).

OER comes in a variety of different languages and formats and may be classified into three types: (1) learning content: full courses, courseware, content modules, learning objects, collections and journals; (2) tools: software to support learning content creation, distribution, use, management and improvement; and (3) implementation resources: intellectual property licenses to promote open publishing of materials, design principles of best practice, and localization of content (Ischinger, 2007). Their discharge within higher education context, like for example, replacing traditional textbooks in courses with open textbooks have led to notable cost-savings for students - up to 25 percent in some cases. With this type of cost-effectiveness, OER are breaking through the economic barrier and improving educational access, opportunity and affordability for thousands of students, especially those from poorer backgrounds. In economists' terms, OER are

both ‘non-rivalrous’ - or ‘non-excludable’ - because one user’s use of the resource does not decrease the benefit of the resource to other users; in that way, they are analogous to television programs and sunlight (Bergan, 2009; Casella & Frey, 1992; Stiglitz, 1999).

Beyond providing economic value, OER offer “multiple opportunities to innovate in the teaching and learning context” (Wiley & Green, 2012, p. 85), “giving faculty the ability to pick and choose the individual resources they want to use - and to modify those resources and “assemble” them in unique ways - promises greater diversity of learning environments”(EDUCAUSE, 2010, p. 2). For instance, faculty can repurpose OER to meet pedagogical needs, institutional requirements, student preferences, and assistive technology guidelines or make them relevant to a particular culture or region. Such types of OER consumption for teaching and learning purposes is called “open educational practices” (OEP), an umbrella term that “constitute the range of practices around the creation, use and management of Open Educational Resources which aim to improve quality and foster innovation in education” (Camilleri, Ehlers, & Pawlowski, 2014, p. 27). According to Wiley (2016b, para. 13), OEP “are only possible or practical in the context of the free access and 5R permissions characteristic of open educational resources”. Contrary to traditional copyrighted materials, OER offer more academic freedom which can contribute to more productive practice of students, educators, and institutions (Butcher, 2011; McAndrew, 2010; Wiley, 2015). On the whole, OEP are essential to realizing the true benefits of OER.

In the intervening years much has been done, and proposed to be done, to put OER into practice (see for example, Dhanarajan & Porter, 2013; Glennie, Harley, & Neil Butcher, 2012; Kawachi, 2014; McGreal, Kinutha, & Marshall, 2013; Miao, Mishra, & McGreal, 2016). One case worthy of special mention is that of the OER universitas (OERu), a not-for-profit global network of over 35 accredited post-secondary institutions and several educational agencies, working in collaboration to assemble university-level online courses ‘solely’ from OER. Most importantly, by combining the potential of OER with a mission of community service, the OERu has created a ‘parallel universe’ of post-secondary learning pathways for learners to achieve formal credible credentials, especially to those without access to traditional university entry (Mackintosh, 2016). With OERu, learners have free access to a range of full courses (equivalent to unit) and micro-courses (partial unit); payment (a fraction of the full tuition costs) is only required when learners want to be formally assessed towards academic credit from the partner institutions (OER Universitas, 2016).

In spite of its wide-ranging benefits, OER and OEP continue to face challenges in acceptance/invocation by faculty members. In response, a growing body of research has sought to disclose the factors impeding faculty members’ pedagogical integration of OER. A European report (OPAL - the Open Educational Quality Initiative) project identified lack of institutional support, lack of technological tools for sharing and adapting resources, lack of skills and time of users, lack of quality or fitness of OER, and personal issues such as lack of trust and time as the major barriers to using OER (Andrade et al., 2011). Lesko (2013), in a study conducted in South Africa with 48 faculty representing 17 public higher education institutions, identified the main barriers for using OER: lack of knowledge related to OER utilization, lack of awareness about copyright and intellectual property rights, institutional support and infrastructural challenges, and lack of knowledge about existence of OER and ability to find appropriate OER. Jhangiani, Pitt, Hendricks, Key, and Lalonde (2016), in a survey of faculty in British Columbia post-secondary institutions to assess their attitudes towards and experiences with OER, found that the top two barriers to using OER were finding relevant and high quality OER. Similarly, Belikov and Bodily's (2016, p. 235) recent qualitative analysis of 218 U.S faculty open-ended responses regarding OER perceptions showed that “faculty wanted more information before they would be willing to adopt OER”, “faculty wanted to be able to easily find repositories of OER”, and

“faculty were unaware of the difference between digital resources and OER” were the top-most barriers (for using OER) to the adoption of OER.

As highlighted by the above literature review, it is clear that faculty face an array of barriers that substantially affect their capacity to participate in the use and creation of OER. Naturally, if one intent of a higher educational institution, such as is that of the University of the South Pacific (USP), is to provide greater affordability for students through OER, ushering faculty towards OER is thus paramount, for they are the ones who normally choose and assign educational resources. Against this backdrop, the overall aim of this study was to establish OER familiarity and use amongst USP faculty, in order to develop strategies to support OER consumption by faculty. Our aim is divided into six objectives, which were to:

- Examine USP faculty members’ teaching practices on two dimensions: factors they consider when choosing educational resources; and whether they shared their teaching resources.
- Investigate USP faculty members’ awareness and utilization of OER.
- Determine the status of USP faculty members’ participation in OEP staff development.
- Assess USP faculty members’ awareness of student OER use.
- Identify barriers affecting USP faculty members’ OER utilization.
- Assess USP faculty members’ views on the impact of OER use.

The remainder of the paper is set out as follows. The next section provides the study context at the USP, one of the two regional universities in the world. The methodology section presents the process used during data collection and analysis. Results are presented according to the research objectives posed above, which is followed by discussion of the results. Lastly, some concluding remarks for future action are presented.

The USP context

The concept of OER is currently making a great splash, but it has yet to hit the shores of the USP, a regional university jointly owned by twelve PICs (Cook Islands, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu and Vanuatu) scattered across 33 million square kilometers of ocean, an area more than three times the size of Europe (Figure 1).

The academic schools at the USP are organized into three faculties: the Faculty of Arts, Law and Education (FALE); the Faculty of Business and Economics (FBE); and the Faculty of Science, Technology and Environment (FSTE). The University has almost 420 academic staff with an enrolment of over 26,000 students who study through a variety of modes throughout USP’s 14 campuses (University of the South Pacific, 2016).

While many universities and colleges have made notable progress in recent years towards embracing OER to help lower cost of their students, the USP has yet to put in place processes and procedures for mainstreaming OER within the University courses. And so, as expected, faculty use of non-OER such as traditional publisher textbooks continues to be a common practice in many USP courses, imposing an avoidable financial burden on students.



Figure 1. USP region

Methodology

A quantitative descriptive design, embedded in the positivist paradigm, was adopted in this study. Data were collected using a survey method, utilizing an online questionnaire administered through Google Forms, in the period from March to May 2016. The questionnaire was adapted from the OER Hub's (<http://oerhub.net>) researcher pack. Completion of the questionnaire was voluntary and anonymous. After receiving the ethical clearance from the ethical committee of the USP, an initial e-mail invitation to participate in the survey was sent to the target population of 332 faculty members of the university. There were 109 responders after two reminders, yielding a response rate of 33%. The data was analyzed using MS Excel. Descriptive analyses such as histograms and percentages were used to describe data. The section below presents the results of the study.

Results

Results are reported on the following headings: demographic characteristics, teaching practices, OER awareness, OER use, participation in OEP staff development, awareness of student OER use, barriers to OER adoption, and impact of OER use.

Demographics

Of 109 respondents, 60.5% were male ($n = 66$) and 39.5% were female ($n = 43$). The majority of the respondents, 80.7% ($n = 88$), were full-time faculty, with only 19.3% ($n = 21$) being part-time faculty. Participants were categorized according to the context in which they did most of their teaching: 60.5% teach face-to-face, 28.5% teach in blended mode, and the remaining 11% teach online. Respondents' teaching experience is presented in Table 1.

Table 1
Teaching experience

Years of teaching experience	Frequency	Percentage
Less than 1 year	13	11.9
2 to 5 years	42	38.5
6 to 10 years	27	24.8
11 to 15 years	16	14.7
16 to 20 years	4	3.7
Over 20 years	7	6.4

Teaching practices

Participants were asked two questions in regards to their teaching practices.

For the first question, “When selecting resources for your teaching, how important are the following factors?”. The participants were asked to indicate the level of importance they placed on a set of thirteen aspects of selecting resources for teaching (Figure 2).

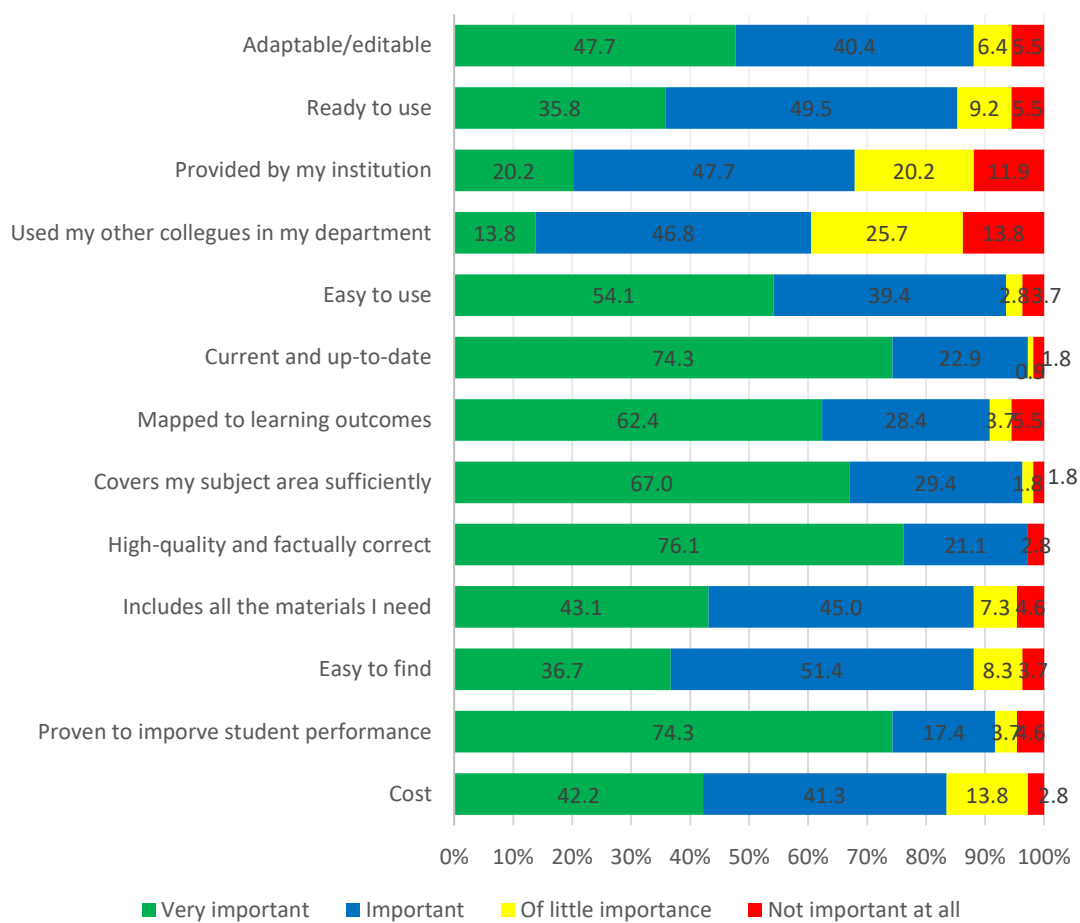


Figure 2. Importance of factors in selecting teaching resources

The need for materials to be “high-quality and factually correct” was reported as the greatest factor when judging educational resources; 76.1% of the respondents indicted this characteristic as “very important”, and an additional 21.1% reported it as “important”. The factor “current and up-to-date” was rated in second position (74.3% reported that it was “very important” and 22.9% as “important”). This was closely followed by a proven track record of the materials in improving student performance (74.3% reporting it as “very important” and 17.4% as “important”). In comparison to these three factors, as illustrated in Figure 2, the others were less significant

The second teaching practice related question asked the participants whether they shared their teaching resources. As given in Table 2, only 6 out of 109 respondents did not share their teaching materials. It is interesting to note that an overwhelming majority of the participants ($n = 103$) shared their materials, and the most preferred means of sharing was via the institution’s virtual learning environment.

Table 2
Sharing teaching resources.

Note that data are inclusive, respondents could choose more than one option.

Do you share your teaching resources?	Frequency	Percentage
No, I don't share	6	5.5
Yes, through my institution’s VLE	54	49.5
Yes, I normally share resources publicly online	18	16.5
Yes, in person	52	47.7
Yes, I’ll send them via email if anyone asks me	47	43.1
Other	8	7.3

OER awareness

As revealed in Table 3, 50% of the respondents confirmed that they were very aware of OER and knew how they can be used in the classroom. The other 50% said that they were generally unaware of OER (“I am not aware of OER” or “I have heard of OER, but don't know much about them”).

Table 3
Awareness of OER

How aware are you of OER?	Frequency	Percentage
I am not aware of OER.	10	9.2
I have heard of OER but don’t know much about them.	45	41.3
I’m aware of OER and how they can be used in the classroom.	54	49.5

OER use

To assess the use of OER, the respondents were asked whether they use OER in their teaching. It was found that 63.3% ($n = 69$) of the surveyed faculty use OER, while 36.7% ($n = 40$) don’t. Upon further investigation, it was revealed that 100% ($n = 54$) of respondents who had earlier reported knowledge on how to use OER were actually utilizing OER in their teaching, and a third ($n = 15$) from those 45 respondents who had earlier claimed that they “have heard of OER but don’t know much about them” also made use of OER.

Participation in OEP staff development

Figure 3 displays responses to the question: “Have you engaged with staff development opportunities that have helped you develop your knowledge and understanding of any of the following?” Participation rates of under 30% were generally reported except for training on the “use of already existing OER,” in which 57.8% of respondents took part. Low participation may be due to various reasons; more investigation is required in this area.

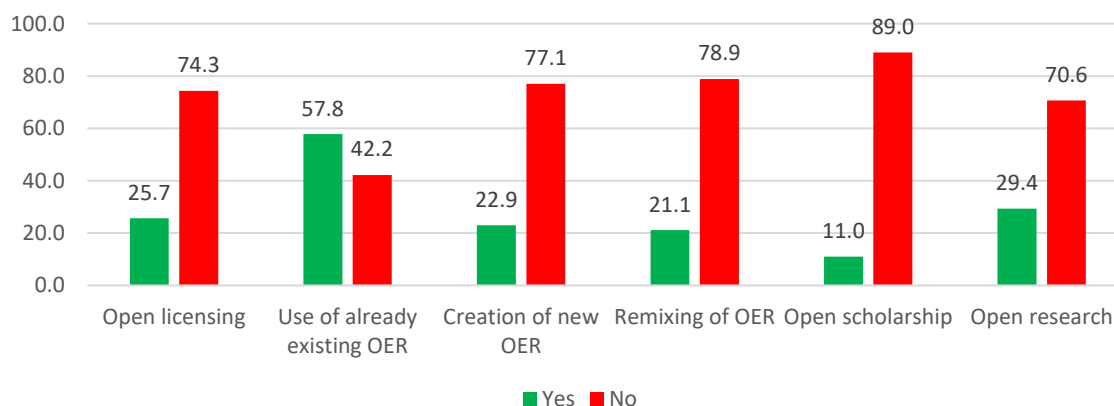


Figure 3. Staff development participation

Awareness of student OER use

In regards to student use of OER, participants were asked if they knew whether their students were using OER. 76.2% ($n = 83$) of the respondents were unaware, while 23.8% ($n = 26$) of the respondents indicated that their students are using OER. This shows encouraging signs that awareness of OER exists amongst USP students. Identifying and reaching out to these students may prove useful for future OER advocacy work at USP.

Barriers to OER adoption

Participants were provided with a list of barriers to OER adoption and instructed to indicate all those which applied to themselves. The list consisted of thirteen barriers. The top two barriers cited were “lack of awareness about OER in general” and “not sure how to use OER”.

Table 4
Barriers to using OER

Barriers	Frequency	Percentage
Lack of awareness about OER in general	93	85
Not sure how to use OER	75	69
Not enough subject coverage	57	52
Not relevant to one’s local context	54	50
Not knowing about permission to use or change	49	45
Too fragmented	46	42
Lack of support from institutions	42	39
Too hard to find	35	32
Not current/up-to-date	35	32
Too difficult to change or edit	35	32
Not used by colleagues in my Department/Faculty	34	31
Not high-quality	26	24
Not effective at improving student performance	24	22

Impact of OER use

To assess perceived impact of OER use, participants were asked to respond to a series of impact statements by indicating the extent to which they agreed on a 5-point Likert scale. As shown in Table 5, respondents considered all 7-impact statements as generally positive impact of OER use.

Table 5
Perceived impact of OER use

Based on responses where 1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree or Disagree, 4 = Agree and 5 = Strongly Agree.

Impact statements	Average
OER adoption at an institutional level leads to financial benefits for students and/or institutions.	3.94
Open educational models lead to more equitable access to education, serving the broader base of learners than traditional education.	3.94
Use of OER leads to improvement in student satisfaction.	3.91
Use of OER leads to improvement in student performance.	3.88
Use of OER leads to critical reflection by educators, with evidence of improvement in their practice.	3.83
The open aspect of OER creates different usage and adoption patterns than other online resources.	3.79
Use of OER is an effective method for improving retention for at-risk students.	3.72

Discussion

The findings from this study provide important insights into current teaching and OER practices amongst USP faculty. They have revealed that participants considered the factors “high-quality and factually correct”, “current and up-to-date”, and “proven to improve student performance” as the three most important in evaluating educational resources for their teaching purposes. These findings indicated that, when judging learning resources, faculty are more particular about quality and efficacy of learning, which is in consonance with other recent reports (Allen & Seaman, 2014; Arcos, Farrow, Pitt, Perryman, & Weller, 2015; Boston Consulting Group, 2013). In regards to faculty sharing teaching materials, it was found that 95% ($n = 103$) of the faculty were sharing their materials with others. This suggests these faculty members may be open to using others’ material as well, such as those released as OER. Further, it was found that close to 50% of the faculty used USP’s virtual learning environment to share their work, while only 16.5% ($n = 18$) shared publicly online. While this indicates that USP faculty are more comfortable sharing their work within the confines of the USP environment, further investigation is required to ascertain the reasons for not sharing publicly.

A large majority of faculty (90.8%; $n = 99$) said that they were aware of OER; however, of those, only 54 reported knowing how OER can be used in the classroom. Conversely, in terms of actual use of OER, all 54 who reported knowing how to use OER also reported that they had utilized OER, and 15 out of the 45 who indicated they knew of “OER but don’t know much about them” also reported to have used OER. This implies that varying levels of OER understanding and usage exist amongst USP faculty. Reasons for this situation seem to be embedded in the fact that the number of faculty were participating in open educational practices staff development sessions was low. 57.8% of the faculty members reported to have participated in a session on “use of

already existing OER”, while attendance in five other sessions (open licensing, creation of OER, remixing of OER, open scholarship, and open research) was reported to be below 30% (see Figure 3). Clearly, more training sessions need to be conducted in the future with appropriate consideration to faculty schedules and interest in order to encourage faculty participation. In addition to faculty member use of OER, results regarding student use of OER were also interesting. 23.8% ($n = 26$) of the respondents reported knowledge of OER use by their students.

Regarding barriers to OER use, “lack of awareness about OER in general”, “not sure how to use OER”, and “not enough subject coverage” were cited as the three top-most factors affecting faculty members’ use of OER. These findings have commonalities with the latest findings by the Babson Survey Research Group on the awareness of OER among U.S. higher education faculty (Allen & Seaman, 2016). Concerning impact of OER, generally positive OER impact was reported, with OER potential to decrease cost and increase accessibility to education rated as the two equally highly ranked impacts of OER. Such positive regard of OER is utilitarian for future OER initiatives at USP.

Conclusion and future directions

This baseline study represents the first attempt to investigate USP faculty members’ OER views and practices. As far as we know, this study is also the first to be conducted in any post-secondary institution based in small PICs. As such, the findings may be useful to other such institutions scattered in the PICs. Based on the current findings, the three following actions are recommended for USP. First, greater efforts towards OER advocacy and awareness need to be undertaken targeting both USP faculty and students; second, needs regarding faculty training should be analyzed in order to provide relevant OER-related professional development sessions to USP faculty; and finally, an institutional repository which maps OER to various disciplines and courses taught at the university should be implemented.

References

- Allen, I. E., & Seaman, J. (2014). *Opening the Curriculum: Open Education Resources in U.S. Higher Education, 2014*. Retrieved from <http://www.onlinelearningsurvey.com/reports/openingthecurriculum2014.pdf>
- Allen, I. E., & Seaman, J. (2016). *Opening the Textbook: Educational Resources in U.S. Higher Education, 2015-16*. Retrieved from <http://www.onlinelearningsurvey.com/reports/openingthetextbook2016.pdf>
- Andrade, A., Ehlers, U.-D., Caine, A., Carneiro, R., Conole, G., Kairamo, A.-K., ... Holmberg, C. (2011). *Beyond OER: Shifting focus to open educational practices*. Retrieved from <http://www.ucp.pt/site/resources/documents/CEPCEP/OPALReport2011-Beyond-OER.pdf>
- Arcos, B. de los, Farrow, R., Pitt, R., Perryman, L., & Weller, M. (2015). *OER Research Hub Data 2013-2015: Educators*. Retrieved from https://oerresearchhub.files.wordpress.com/2015/09/educators_final_oerrhdata.pdf
- Belikov, O. M., & Bodily, R. (2016). Incentives and barriers to OER adoption: A qualitative analysis of faculty perceptions. *Open Praxis*, 8(3), 235–246.
- Bergan, S. (2009). Higher education as a “public good and public responsibility”. What does it mean? In S. Bergan, R. Guarga, E. E. Polak, J. D. Sobrinho, R. Tandon, & J. B. G. Tilak (Eds.), *Public Responsibility for Higher Education* (pp. 43–61). Paris: UNESCO. Retrieved from http://www.ses.unam.mx/curso2009/materiales/m1/s1/M1_Sesion1_Began.pdf
- Boston Consulting Group. (2013). *The Open Education Resources Ecosystem*. Retrieved from <http://www.hewlett.org/library/consultant-publication/open-education-resources-ecosystem>

- Butcher, N. (2011). *A basic guide to open educational resources*. Vancouver & Paris: Commonwealth of Learning & UNESCO. Retrieved from <http://unesdoc.unesco.org/images/0021/002158/215804e.pdf>
- Camilleri, A. F., Ehlers, U. D., & Pawlowski, Ja. (2014). *State of the Art Review of Quality Issues related to Open Educational Resources (OER)*. Luxembourg. doi:10.2791/80171
- Casella, A., & Frey, B. (1992). Federalism and clubs. Towards an economic theory of overlapping jurisdictions. *European Economic Review*, 36, 639–646. Retrieved from <http://studylib.net/doc/12075954/federalism--and--clubs-jurisdictions-alessandra--casella->
- Dhanarajan, D., & Porter, D. (Eds.). (2013). *Open Educational Resources: An Asian perspective*. Vancouver & Penang: Commonwealth of Learning & OER Asia. Retrieved from <http://oasis.col.org/handle/11599/23>
- EDUCAUSE. (2010). *7 Things You Should Know About Open Educational Resources*. Retrieved August 2, 2016, from <http://net.educause.edu/ir/library/pdf/ELI7061.pdf>
- Glennie, J., Harley, K., & Neil Butcher. (2012). Introduction: Discourse in the development of OER practice and policy. In J. Glennie, K. Harley, N. Butcher, & T. v Wke (Eds.), *Open Educational Resources and change in Higher Education* (pp. 1–12). Vancouver & Paris: Commonwealth of Learning & UNESCO. Retrieved from http://oasis.col.org/bitstream/handle/11599/80/pub_PS_OER_web.pdf?sequence=1&isAllowed=y
- Ischinger, B. (2007). *Giving knowledge for free: The emergence of open educational resources*. Paris. Retrieved from <https://www.oecd.org/edu/ceeri/38654317.pdf>
- Jhangiani, R. S., Pitt, R., Hendricks, C., Key, J., & Lalonde, C. (2016). *Exploring faculty use of open educational resources at British Columbia post-secondary institutions*. Victoria, BC. Retrieved from https://bccampus.ca/files/2016/01/BCFacultyUseOfOER_final.pdf
- Kawachi, P. (2014). *Quality assurance guidelines for open educational resources: TIPS framework*. New Delhi: The Commonwealth Educational Media Centre for Asia (CEMCA). Retrieved from http://oasis.col.org/bitstream/handle/11599/562/TIPSFramework_Version_2%5b1%5d_Copy.pdf?sequence=1&isAllowed=y
- Lesko, I. (2013). The use and production of OER & OCW in teaching in South African higher education institutions. *Open Praxis*, 5(2), 103–121.
- Mackintosh, W. (2016). OERu: Realising Sustainable Education Futures. In F. Miao, S. Mishra, & R. McGreal (Eds.), *Open Educational Resources: Policy, Costs and Transformation* (pp. 129–146). Paris & Vancouver: UNESCO & Commonwealth of Learning. Retrieved from http://oasis.col.org/bitstream/handle/11599/561/CaseStudies_OER-based_eLearning.pdf
- McAndrew, P. (2010). Fostering open educational practices. In *ICT in teacher education: Policy, open educational resources, and partnerships* (pp. 124–129). Moscow: UNESCO Institute for Information Technologies in Education. Retrieved from <http://unesdoc.unesco.org/images/0019/001936/193658e.pdf>
- McGreal, R., Kinutha, W., & Marshall, S. (Eds.). (2013). *Open Educational Resources: Innovation research and practice*. Vancouver: Commonwealth of Learning & Athabasca University. Retrieved from http://oasis.col.org/bitstream/handle/11599/486/pub_PS_OER-IRP_web.pdf?sequence=1&isAllowed=y
- Miao, F., Mishra, S., & McGreal, R. (Eds.). (2016). *Open Educational Resources: Policy, Costs and Transformation*. Paris & Vancouver: UNESCO & Commonwealth of Learning. Retrieved from <http://oasis.col.org/handle/11599/2306>
- OER Universitas. (2016). *OER Universitas*. Retrieved August 12, 2016, from <https://oeru.org>
- Stiglitz, J. E. (1999). Knowledge as a Global Public Good. In I. Kaul, I. Grunberg, & M. Stern (Eds.), *Global Public Goods: International Cooperation in the 21st Century* (pp. 308–325). New York: Oxford. doi:10.1093/0195130529.001.0001

- University of the South Pacific. (2016). *2015 USP Annual Report*. Suva. Retrieved from <http://www.usp.ac.fj/annualreport2015>
- Wiley, D. (n.d.). *Defining the “Open” in Open Content and Open Educational Resources*. Retrieved August 4, 2016, from <http://www.opencontent.org/definition/>
- Wiley, D. (2015). *Open Pedagogy: The Importance of Getting In the Air*. [Web Log Post] Retrieved August 4, 2016, from <http://opencontent.org/blog/archives/3761>
- Wiley, D. (2016a). *Iterating toward openness*. [Web Log Post] Retrieved August 4, 2016, from <https://opencontent.org/blog/page/4>
- Wiley, D. (2016b). *Open Educational Resources vs Open Pedagogy: Why Means Matter*. [Web Log Post] Retrieved August 4, 2016, from <http://opencontent.org/blog/archives/4496>
- Wiley, D., & Green, C. (2012). Why openness in education? In D. G. Oblinger (Ed.), *Game changers: Education and information technologies* (pp. 81–89). Retrieved from <http://www.educause.edu/research-publications/books/game-changers-education-and-information-technologies>

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Editor's Note: Some advantages of the flipped classroom are not immediately apparent. This study contributes substantial evidence to support this this method of instruction.

The effect of flipped classroom strategy on acquisition of grammar concepts among primary 6th grade students in Jordan

Eman Abdelfattah Ababneh, Kawther Fawzy Alhudrob
Jordan

Abstract

This study aimed at identifying the effect of flipped classroom strategy on acquisition of the grammar concepts among sixth grade students in Jordan. A purposeful random sample (n=56) consisting of male and female students was selected. Participants were recruited from the University of Jordan Model School. To ensure student exposure to same instructional conditions, participants were assigned to an experimental (n=28) taught using the flipped classroom strategy and control group (n=28) taught traditionally. To achieve the study objectives, participants completed a pretest-posttest, and results revealed statistically significant differences at ($\alpha=0.05$) between the mean scores of the experimental and control groups attributed to the strategy used in favor of the experimental group. The study revealed no statistically significant differences in the mean scores at ($\alpha=0.05$) of both groups attributed to gender or interaction between strategy and gender. The study, therefore, recommends application of the flipped classroom strategy in teaching basic grammar concepts to sixth grade students.

Keywords: flipped classroom strategy, grammar concepts, sixth grade students, Jordan.

Introduction

Concepts are important for grammar because realization of their meanings and interrelationship between them creates concrete structure, coherence, and clearer meanings. Using grammatical concepts correctly is therefore important for all language users (Al-Khalifa, 2004).

Grammar is a central part of language arts, in that language mastery is unlikely without mastery of language rules and concepts by which to discern errors in language, and to maintain language free from deviation. Grammar is a fundamental attribute of language, and impairment will reflect on the whole language (Al-Dulaimi & Al-Waeli, 2005).

Grammatical structures are concrete structures connected together to form a whole language structure with basic blocks being the grammatical concepts. The grammatical concepts are typically defined as the "mental image of the function served by a word relying on its lexical or semantic denotation in a sentence morphologically or structurally. The grammatical concept refers to the functional meaning of words, and from within the definition there are cues or controls that should apply for a term to serve as a concept (Asr, 2000:300),

Grammar lessons, therefore, do not confine to inflection as some may believe. Rather, they also include structures, phrases and concepts that need for everyone to interact in the different day-to-day situations. So, the goal from learning grammatical concepts and its various structures is the practical usage, which requires realization of the rules of concepts, so that learner can make connections between them, and reach generalization that have applicability in the daily life (Ashour & Al-Hawamdeh, 2007). Learning grammatical concepts is based on analysis of the word, sentence, and styles and understanding the structures and meanings for purpose of concluding their common properties, and rules. Learning concepts fosters the interpretation,

analysis, classification, conclusion, and discerning interrelationships between elements of a concept which is needed for a successful language communication process (Madkour, 20017).

Despite the importance of grammatical concepts, poor achievement in Arabic and lack of the grammatical concepts acquired by students are increasing (Al-Jalidi, 2000, Al-Khateeb, 2005). As a result, there has been a need to use new teaching strategies and methods for primary sixth grade students to learn grammatical concepts. The flipped classroom strategy is among the most prominent to remedy that aspect.

As a teaching strategy, flipped classroom is relatively recent technique that employs technology in the teaching-learning process. With the flipped classroom strategy, the teacher may display to learners the concept to be learned in a short video. They do this as homework using technology applications like Whatsapp, Facebook, twitter, etc. The teacher provides students with the concept to be learn at home. Next day, the teacher conducts a classroom discussion with students regarding the video content they viewed at home. This methods implies exposition of the lesson to student before coming to classroom, and all the lesson time is given to discussion and dialogue. This enables accomplishing the highest cognitive levels of Bloom's taxonomy such as Applying, Analyzing, Synthesizing and Evaluating in the classroom since the lowest level – knowledge and concepts – have been learned at home before coming to classroom (Brame, 2013).

The flipped classroom strategy is a teaching strategy that employs asynchronous learning. It allows learners to view video clips from videotaped lessons and lectures as homework assignments that can be watched at home. The classroom time is therefore devoted to active participation in problem solving methods and group work (Bishop & Verleger, 2013). Bergmann & Sams (2012) described the flipped classroom strategy as being learner-centered teaching, where learners watch video clips to stimulate questions about the topic to be learned. The teacher's role, then, is to provide students with feedback about the content and help learners find solutions to the activities related to the new concept.

As clearly shown, the flipped classroom strategy relies on asynchronous learning where the teacher provide students with the learning content through technology applications such as video files or shared content via the social media that can be viewed at home many times, and for any length of time, until the learner comprehends the new concepts ready for the classroom discussion.

This teaching strategy is responsive to the technology that invades every corner of our life by employing the modern technology to support self-learning by learners themselves since the modern teaching approaches are learner-centered. On the other hand, the technology platforms with their audio-video capabilities add attractive features that motivate learners to learn new concepts and also consider the individual differences among learners by allowing every learner to view the videotaped lessons several times in advance to classroom time (Al-Khalifa & Motawe, 2015; Goodwin & Miller, 2013).

The perceived features of flipped classroom strategy make it preferable for employment in learning grammatical concepts (Matar & Msafer, 2009). The learning of concepts includes a number of elements:-

Concept Naming: A word, term or symbol denoting a specific concept.

Concept Definition: A statement describing attributes of a concept, characteristics that distinguish it from other concepts, and how such characteristics associate together.

Concept Attribute: distinctive qualities based on which to discriminate concept examples from others, and the inherent relations.

Positive/Negative Example: positive examples are that representing a concept; and negative examples are that resemble a concept but not subsumed under it.

Concept formation requires learning concept name, definition, qualities and distinctive rules so that a learner can sort examples into positive or negative. This, of course, requires modern teaching methods that basically are built on the constructivist theory of learning that emphasizes self-learning of a concept; the flipped classroom strategy is one of such approaches.

Statement of the problem and questions

Grammatical concepts have significance in language communication among people. Perceivably, students lack grammatical concepts which research attribute to deficiency in teaching methods (Khalifa, 2004; Madkour, 2000; Al-Hashemi, 1996). The present study attempts to identify the effect of flipped classroom strategy on acquisition of grammatical concepts among sixth grade students in Jordan.

Primarily, this study seeks to answer the following questions:-

1. Are there statistically significant differences at ($\alpha=0.05$) between means scores of sixth grade students regarding acquisition of the grammatical concepts attributed to the teaching strategy (flipped classroom/traditional)?
2. Are there statistically significant differences at ($\alpha=0.05$) between means scores of sixth grade students regarding acquisition of the grammatical concepts attributed to gender (male/female)?
3. Are there statistically significant differences at ($\alpha=0.05$) between means scores of sixth grade students regarding acquisition of the grammatical concepts attributed to interaction between teaching strategy and gender?

Significance of the study

The significance of this study arises from the fact that, to the knowledge of authors, this is the first study addressing the effect of flipped classroom on the acquisition of grammatical concepts among students in Jordan. So, results from the current study are expected to be of value for researchers interested in conducting similar studies on various language arts, or addressing different school levels .

Hopefully, teachers will benefit from this study by introducing them to the flipped classroom strategy, and how to employ it in teaching, taking into account that the flipped classroom strategy designs the teaching process so that the lesson time becomes assigned for discussion and dialogue rather than presenting information, lessons and lectures as in traditional teaching.

Scope of the study and limitations

This study is subject to the following limitations:

This study addresses the grammatical concept (sound masculine Plural) surveyed in chapter one of the primary 6th grade Arabic Textbook (Loghatuna Al-Arabiya) approved in Jordan for teaching primary sixth graders

Participants were the sixth grade students attending the Model School supervised by the University of Jordan enrolled for the academic year 2016/2017.

The scope of this study was limited to measure the effect of the flipped classroom strategy on the acquisition of grammatical concepts among sixth grade students. Generalizability of results from the current study cannot extend to other language arts or school levels .

Generalizability of results is limited by 1) instruments used to ensure validity and reliability, and 2) cooperation of the experimental group teacher with the authors.

Methodology

This study adopted the quasi experimental design, with two independent variables: teaching strategy (flipped classroom/traditional) and gender (males/females) and a dependent variable "acquire the grammatical concepts". The study was applied to an experimental group taught using the flipped classroom strategy and control group taught using the traditional method.

Participants

Participants were (56) male and female sixth grade students attending the Mixed Model School supervised by the University of Jordan in Amman. Two groups were selected using the purposeful random sampling method to ensure male and female students exposing to the same instructional conditions; one experimental (n=28) and the other control group (n=28).

Instrumentation

The concept of Sound Masculine Plural was chosen from a set of plural cases screened at the Arabic Textbook taught for Primary Sixth Grade in the H. K. of Jordan during the school year (2016/2017) for purpose of applying the study instrument as pretest/posttest. The test designed by the authors consisted of (6) questions: the first was multiple-choice; the second, the fourth, fifth, and sixth were "fill-in-the-blank", and the third question was adding a suitable vowel sign to a given sentence. The test was designed based on the expected learning outcomes related to this concepts and assigned (30) marks.

Validation

To validate the instrument used, the questionnaire was sent to a number of specialists, teachers, and faculty members at some universities to elicit their opinions. The original questionnaire included five main questions with 30 items. The authors decided addition/deletion an item based on 80 per cent of agreement between judges. In light of their comments some items were deleted or added and the final version of the questionnaire inserted into analysis included six questions for a total of 28-items.

Reliability test

To verify reliability, the test was applied to a pilot study within the population but without the original sample consisted of (30) male and female primary sixth graders attending both Al-Mostaneda and Ar-Arqam bin Abi Al-Araqam mixed schools. Two weeks later, the test was reapplied on the same pilot sample. Using Pearson Correlation, the reliability coefficient was (0.90) which is appropriate for the current study purpose.

Procedures of the study

Planning: During this stage, the *Sound Masculine Plural* as a concept was defined depending on the Arabic Textbook "*Loghatuna Al-Arabiya*" and the technology applications (YouTube and Whatsapp) most suitable to communicate the concept to students were identified. The pretest and posttest were designed and tested for validity and reliability.

Application: The pretest was administered on November 06, 2016, and the experiment was conducted over five afternoon classes. The experimental group shared the concept via YouTube and Whatsapp applications outside-school-time until November 09, 2016, then the posttest was reapplied on November 10, 2016.

Analysis: During this stage, data were collected and analyzed using 2-way analysis of Covariance, and then results were discussed and interpreted.

Prior studies

Related studies were reviewed the most recent first and divided into studies related to grammatical concepts and studies concerned with the flipped classroom strategy:

First: Studies related to grammar concepts

Al-Jalidi (2000) conducted for purpose of measuring performance level of primary sixth graders in the writing skills and grammatical topics in Saudi Arabia. Using the descriptive approach, the study was conducted with a sample of (69) sixth grade students within Al-Ganfada District. Two tests were applied: one measuring the writing skills and the other for grammatical concepts. The study found poor performance among students on the grammatical concepts: adjective, conjunctions, pronouns, 2nd participle of the construction, and relative pronoun. The study recommended educators to make a shift in dealing with the grammatical topics as abstract mental information, particularly with the elementary stage students.

Al-Khateeb (2005) sought to identify the retention extent by eighth graders of grammatical and morphological concepts learned as 5th and 6th graders. Population consisted of 8th grade students within Zarqa Governorate, Jordan during the academic year 2003/2004. The study used a grammatical concept achievement test that was administered to a sample of (467) male and female students. Results demonstrated that the grammatical concept retention was as poor as (63.6%) which is below the accepted retention level of (70%) as defined by the judges. Results revealed a difference in female retention rate compared with males, in favor of female students. The study emphasized employment of modern strategies in teaching the grammatical concepts.

Hawas (2007) was conducted on a sample of (136) primary sixth graders for purpose of identifying the effect of “using advance organizers and instructional games on teaching grammar, achievement, and attitudes and retention of learning”. Content analysis of the grammatical concepts instrument was constructed, grammatical concept achievement test, and attitudes to grammatical concepts course. Results indicated effectiveness of the two strategies used in increasing student achievement of the grammatical concepts. The study recommended employment of modern teaching strategies in teaching the grammatical concepts.

Second: Arabic studies on using the flipped classroom strategy in language teaching

Al-Bloushieh (2015) entitled “Effectiveness of Flipped Classroom Strategy on Arabic Teaching and Investment in Sultanate of Oman” was applied on primary tenth grade students. The sample consisted of (24) female students assigned to experimental group (n=12 and taught with the flipped classroom strategy. The control group (n=12) was taught traditionally. The study employed two instruments: Attitudes to Flipped Classroom Strategy Scale and Grammar Achievement Test. Results supported the effectiveness of the flipped classroom strategy in teaching Arabic grammar to female students, and showed positive attitudes to the flipped classroom strategy among tenth grade students.

Ahmad (2016) attempted to identify the effect of flipped classroom on English as a foreign language writing skills, and to identify attitudes to the flipped classroom. The sample consisted of (60) students recruited from Al-Qasim University and were assigned to an experimental group (n=30) taught using the flipped classroom strategy and control group (n=30) taught with the traditional method. The instrument used included English Writing Test, and Attitudes to Flipped Classroom Questionnaire. Results showed that the experimental group students achieved higher than the control students on the writing posttest, and students held positive attitudes towards the flipped classroom strategy.

AalFahid (2013) conducted a study on the "Effectiveness of Flipped Classroom Strategy using Mobile Devices on Fostering Attitudes to Classroom Environment and Achievement in English grammar course by Preparation Programs at Imam Mohammad bin Saud Islamic University".

The sample consisted of (42) female students in the second level of Linguistics and Translation Stream taught using the flipped classroom strategy for six weeks. The researcher used English grammar achievement test to measure student attitudes to the classroom environment in the university. The study found statistically significant differences in achievement in favor of the experimental group, and revealed that student attitudes to the classroom environment improved favorably.

Comments on prior studies

Perceivably, there is a dearth of studies that address the effect of the flipped classroom strategy on acquisition of the grammatical concepts or language rules. The authors were unable to review two studies in this field: Al-Bloshieh (2015) that was concerned with Arabic rules and conducted with primary tenth grade students in Sultanate of Oman; and AalFahid (2013) that investigated the English rules and conducted with undergraduate English students in Saudi Arabia. Both studies used female populations and excluded male students. The current study will differ by involving the variable of gender and its interaction with the strategy investigated. Further, the present study differs in terms of population and sample and the school level on which the study was conducted. To the knowledge of authors, this study is the first in Jordan to measure the effect of flipped classroom strategy on acquisition of Arabic grammatical concepts.

Ahmad (2016) addressed writing skills, one of the basic language arts where the writer employs language rules and concepts in various situations. The final result from learning grammatical concepts is application in writing and orally. This study disregarded gender as a variable because it was limited to males .

The first part of studies reviewed confirmed poor acquisition of grammatical concepts among primary graders. The current study benefited from studies that stated the study problem, procedures and responded to its recommendations that called for employment of modern teaching strategies that commensurate with the technology age and student interests.

Results

Results from the current study revealed an effect of the flipped classroom as a teaching strategy in favor of the experimental group that taught using the flipped classroom strategy. Means and standard deviations of primary sixth grader scores on the pretest and posttest shows that the overall mean score of the experimental group was ($M=21.16$, $SD=4.04$, and adjusted $M=21.73$) compared to the control group ($M=19.70$, $SD=5.42$, and adjusted $M=18.95$). These results reveal superficial differences. To determine whether such differences were statistically significant, the ANCOVA test was used. It showed that group squared mean (97.70), $F=15.51$, a statistically significant at ($\alpha=0.05$) effect of the flipped classroom strategy on acquisition of the grammatical concepts among students .

Results also indicated no effect of gender on acquisition of the grammatical concepts among students, where the experimental group female members had mean score ($M=21.670$ compared to ($M=20.92$) for the males in the same group. To identify the significance of such results, the ANCOVA test was applied. It showed no statistically significant differences in acquisition of the grammatical concepts attributed to gender, where $F=1.04$ which is not significant at ($\alpha=0.05$).

Another results was that no statistically significant differences at ($\alpha=0.05$) were attributed to interaction between the strategy and gender, as the ANCOVA test applied revealed that $F=0.06$ indicating no effect of the interaction between gender and the strategy.

Discussion of results

Results from the present study indicate a statistically significant effect on the acquisition of the grammatical concepts by sixth grade students attributed to the teaching strategy in favor of the

experimental group that was taught using the flipped classroom strategy. This supports the appropriateness of this teaching strategy to the interests, needs and tendencies of students in the technology age. Students in the 21st century who are most familiar the technology applications require teaching approaches that integrate technology in the education process like this strategy. The result supported Ahmad (2016) that showed positive attitudes towards the flipped classroom strategy because it fits with their needs and tendencies, and called for employment of that strategy in education .

The flipped classroom strategy is based on asynchronous learning that allows learners access to online content at any place or time beforehand of class time. In addition, there is the possibility of repeating the instructional material more than once at one's own pace of learning, which makes learning grammatical concepts easier. This strategy suits high achievers and other less achieving students. For high achieving students, this strategy helps comprehend the content using the technology facilities faster; whereas lows achieving students will find it possible to repeat the content more than once at any time and place .

The characteristics of this strategy will assist students to accomplish the lower cognitive levels of Bloom's taxonomy associated with grammatical concepts before class time, which can then achieve the higher cognitive levels like analysis, application, synthesis, and evaluation. Students are a result become more interactive in classroom than before, when they were primarily concerned with comprehending basics of the grammatical concepts related to lower cognitive levels. In turn, due to limited lesson time, the teacher who was previously preoccupied with exposition of the grammatical rules can focus on application, analysis and synthesis and assist students who need additional help. This strategy allows students to practice what they learned implying effectiveness in learning grammar concepts among primary sixth graders. This result is consistent with Al-Bloshieh (2015), AalFahid (2013) that confirmed effectiveness of the strategy on acquisition of the grammar concepts with differing school levels .

Results also found no statistical significant differences at ($\alpha=0.05$) in acquisition of the grammar concepts by primary sixth graders attributed to gender and interaction between the teaching strategy and gender .

This result would be accounted for by the fact that male and female students were exposed to similar educational conditions that depended on using YouTube ad whatsapp applications to learn the grammar concepts. Participants in the present study were recruited from on mixed school to make sure they expose to similar educational environment, that there was no difference attributed to gender, especially they are in the same developmental level with similar characteristics.

In this context, the flipped classroom strategy considers the individual differences among students in that each student has the opportunity to expose to the learning content online and retrieve the material many times as appropriate at any time or place, even if student was absent from school. This implies that the flopped classroom fits both sexes to learn the grammar concepts; especially it responds to student interests (males and females) and gratifies their keenness to use technology in education .

The last but not the least, results from the current study are inconsistent with Al-Khateeb (2005) that showed that female students were higher than males in retention of the grammatical concepts. However, the employment of a suitable teaching strategy and exposing students (both males and females) to the same instructional environment, the student retention of the grammar concepts would be somewhat equal. This result is in agreement with Hawas (2007) that called for employment of the modern teaching strategies in learning grammar concept .

This study calls for employment of the flipped classroom strategy for male and female sixth graders to remedy their poor achievement in learning grammar concepts.

Conclusions

The flipped classroom strategy representing a trend in the modern teaching methods that emphasizes on moving the activities typically performed inside classroom to home or out-of-school. The class time is exploited to practice analysis, application, critical thinking and innovation which foster the higher cognitive skills .

The results from the current study document that flipped classroom strategy improves performance of learners, and sharpens their various skills, and effectively achieves higher levels of learning compared to traditional teaching strategies. This strategy has been employed in different educational disciplines and environments. Arab educators are encouraged to employ this strategy in teaching Arabic grammatical concepts to improve learner performance and increase their achievement, especially in the basic stages.

The authors recommend experimenting with the flipped classroom strategy with other populations, different teaching environments, and with other variables such as motivation, self-learning, and thinking skills among students at various educational levels.

References

- AalFahid, M. (2013). Effectiveness of Flipped Classroom Strategy Using Mobile Devices on Fostering Attitudes Toward Classroom Climate and Achievement in English Grammar Course for Introductory Program Students at Imam Mohammad bin Saud Islamic University, (Unpublished MA Thesis, Imam Mohammad bin Saud Islamic University, KSA).
- Ahmed, M. (2016). The Effect of Flipping of Classroom on Writing Skills in English as a Foreign Language & Attitudes towards Flipping. *US-China Foreign Language*, 14(2), 98-114
- Al Bloschieh, N. (2015). Effectiveness of Flipped Classroom in Arabic Teaching and Viability in Sultanate of Oman. International Conference on Arabic Language, May 01-04, 2017, Dubai: UAE
- Al Dlaini, T. & Al Waeli, S. (2005). Modern Trends in Arabic Teaching. Modern Book World for Publishing & Distribution, Jordan.
- Al Hashemi, A. (1996). Practical Guide for Arabic Teachers, Al Resala Institution, Beirut.
- Al-Jalidi, H. (2000). Performance Measurement of Elementary 6th Graders within Ganfada District in Dictation Skills and Grammar Topics. (Unpublished MA Thesis, Um AL Qura University: Makka Mukarama).
- Al-Khalifa, H. & Motawe, D. (2015). Effective Teaching Strategies. Al Mutanabi Library, Egypt.
- Al-Khalifa, H. ((2004). Lesson on Arabic Teaching (Elementary, Middle, and Secondary). Riyadh, Al-Rahed Library
- Al-Khateeb, M. (2005). Eighth Grader's Retention Extent of Grammatical and Morphological Concepts Learned in the Primary 5th & 6th Grades in Jordan. *Educational & Psychological Sciences Journal*, 6(1), 36-103.
- Ashour, R. & Al Hwamdeh, M. (2007). Arabic Teaching Methods: Theory & Practice, Dar Al Masira for Printing, Publishing & Distribution, Jordan.
- Asr, H. (2000). Modern Trends in Teaching Arabic for the Preparatory and Secondary School Levels, Alexandria Book Center, Alexandria.
- Bergman, J. & Sams, A. (2012). Flip Your Classroom: Reach Every Student in Every Class Everyday: Washington DC: ISTE, and Alexandria, VA: ASCD
- Bishop, J. & Averlegar, M. (2013). The Flipped Classroom: A Survey of the Research. ASEE Annual Conference & Exposition, American Society for Engineering Education.

- Brame, C.J. (2013). Flipping the Classroom. Center for Teaching, Vanderbilt University, Retrieved 22 December 2016 from: <http://cftvanderbilt.edu/guides-sub-pages/Flipping-the-Classroom>.
- Goodwin, B. & Miller, K. (2013). Evidence on Flipped Classrooms is Still Coming in. Educational Leadership, March 2013, 70(6), 78-80.
- Hawas, N. (2007). Using Advance Organizers and Instructional Games on Arabic Grammar Teaching, and Effect on the Achievement, Inclination, and Retention of Learning among Elementary 6th Graders.(Unpublished PhD Dissertation, Ein Shams University, Egypt).
- Madkour, A. (2000). Teaching Arabic Arts, Arabic Thought House, Cairo
- Madkour, A. (2002). Fundamentals and Applications of the Islamic Education Curriculum, Al Falah for Publishing & Distribution, Sultan Qabus University.
- Matar, A. & Msafer, A. (2009) Development of Language Concepts & Skills among Children, International Publishing House, Riyadh

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Editor's Note: Carefully coordinated policies are necessary to drive programs for economic growth. To be successful they need current data, collaboration between different branches of government, business, industry, and education. This is an important study that shows how changes over time can reduce relevance and why data must be gathered continuously to optimize effectiveness. Sometimes incentives are necessary to stimulate and accelerate specific changes and growth.

Policies on technical education and availability of technical workforce to the private sector in Fiji

Suwastika Naidu and Yashnita Naicker

Fiji

Abstract

The main aim of this policy paper is to critically examine the Technical, Vocational, Enterprise Education and Training (TVET) policies in Fiji and the impact of these policies on the availability of skilled workforce to the private sector in Fiji. This policy paper found that TVET policies need to be reviewed in order to streamline it to the needs of the industry. Currently, the implementation of this policy is poorly done with the Ministry of Education being the centre point of attention and the employer needs are on the peripheries of this policy design. It is recommended that employer needs should be given paramount importance in the design and implementation of TVET policies in Fiji.

Keywords: TVET, employers, technical workforce, subsidy.

Introduction

Micro, Small and Medium Enterprises (MSME's) are considered as an engine of economic growth in the small island developing countries and Fiji is not an exception to this. The government of Fiji is providing financial initiatives to help nurture the growth of small businesses. Some of these initiatives include exempting stamp duties to MSME's that have a gross turnover less than FJ\$500,000 and exemption of fee payments to the National Fire Authority and to the Occupational Health and Safety departments (Government of Fiji, 2016). However, these initiatives are of little help if the government of Fiji is not able to supply the MSME's in Fiji with technically skilled workers. This is one of the most important factors that is currently hindering the growth of MSME's in Fiji. This is a common problem faced by both the MSME's and large businesses in Fiji; however, this policy paper is only on the MSME's because small businesses have different business characteristics compared to large businesses¹. In 2014, the MSME's contributed only 12% to the GDP of Fiji as compared to other economies, such as Mauritius, where the contribution by the small businesses to the GDP was approximately 40% (Smith, 2014; Ministry of Business, Enterprise and Cooperatives, 2014). The main aim of this policy paper is to critically examine the (TVET) policies that affect availability of skilled workforce to the MSME's in Fiji, identify the skill gap faced by the MSME's in Fiji and propose policy prescriptions that will help to solve this problem.

Problem statement

The problem statement of this policy paper is that there is lack of availability of technical workforce to the MSME's in Fiji. Out of the 176 registered secondary schools in Fiji, only 51 secondary schools are offering vocational training to students. Out of the 51 secondary schools in

¹ As a result of this, the problem statement of this policy paper is designed to suit the context of the MSME's in Fiji.

Fiji offering vocational education, 4 were government schools, 46 were non-government schools and 1 was private school (Ministry of Education, 2014), see Table 1.

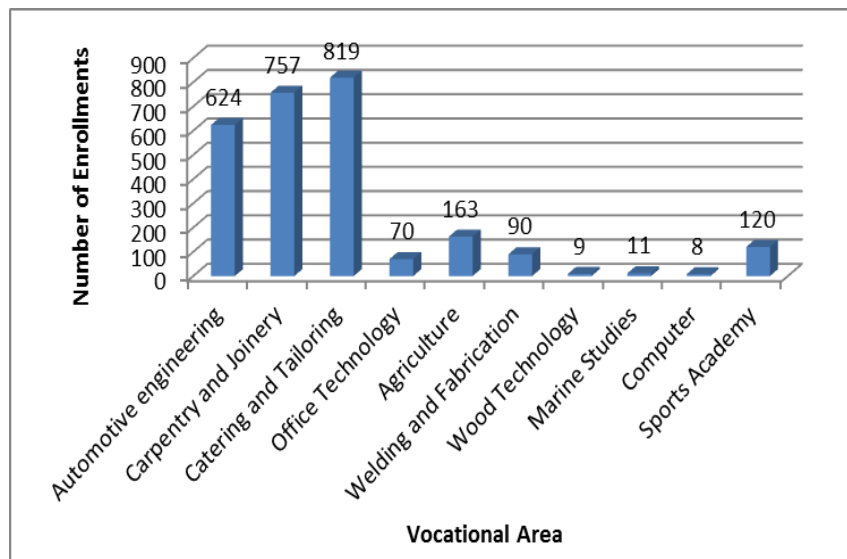
Table 1
Schools offering Vocational Education in Fiji

School Type	Government School	Non-government School	Private	Total
Secondary and vocational	4	46	1	51
Technical and Vocational	0	6	3	9

Source: Ministry of Education (2014)

Additionally, there are a limited numbers of students who are enrolled in vocational centres. Figure 1 shows that as of the year 2015, the number of vocational students enrolled in vocational centres was 2,671. Out of this, automotive and engineering, carpentry and joinery, catering and tailoring topped the list while the number of enrolments were low in office technology, welding and fabrication, wood technology, marine studies and computer studies (Ministry of Education, 2014).

Figure 1
Enrolment of students in Vocational Centres



Source: Ministry of Education, (2014)

Due to the lack of supply of technical workers, small businesses are struggling to hire these workers, even at a higher wage rate. The National Minimum Wage rate stipulated under the Employment Relations Promulgation 2007 is as follows:

Building, Civil and Electrical Engineering: The National Minimum Wage Rates for the Foreman under this category is \$5.10 followed by the Leading Hand \$4.37, Tradesman Class 1 to 3 is in the range of \$4.20-\$3.89, General Tradesman is \$3.72, Heavy Plant Operator is \$4.41 and Light Plant Operator is \$4.25. Small businesses in building, civil and electrical engineering are struggling to pay this minimum wage rate (Government of Fiji, 2015).

Printing Trades (per hour): The National Minimum Wage for Skilled Binding, Pre Press, Printer Assistant and Printer is \$3.28. Small businesses in the printing industry are struggling to pay this wage rate (Government of Fiji, 2015).

Wholesale and Retail Trades: The National Minimum Wage rate for sewing machinist is \$3.04 and Fork Lift Operator is \$3.23 (Government of Fiji, 2015).

Sawmilling and Logging Industry: The National Minimum Wage rate for Mobile Plant Operators, Sawyers, Saw Blade Grinder and Kiln Operator is \$4.11 followed by wage rates for Logging crew Hands and Saw Shop Hand is \$3.73 and Timber Yard Hands is \$3.66 (Government of Fiji, 2015).

Theory, literature review and problem statement

According to the Romer's endogenous growth theory, human capital development and innovation are two important drivers of economic growth. This theory recognises that human capital development and innovation are two internal factors that are important drivers of economic growth; therefore, economic growth is endogenously driven rather than exogenously driven. Investment in firm level skills either by the government or businesses will help to improve human capital development that drives the level of innovation at the firm level and helps to achieve economic growth (Romer, 1994). Technical progress is driven by investment in technical education and this proposition has been proven by the Solow's Growth Models (Solow, 1956). There are a number of studies conducted on the TVET education and the benefits of providing a high quality TVET education to small businesses. Union (2007) found that by integrating traditional apprenticeship training with TVET education, it is easier to eliminate poverty at the household, business and national level. Atchoaréna *et al.* (2008) found that distance education in the small island developing countries, particularly Cape Verde, will help to provide high quality TVET education to the small business owners. Crossley and Sprague (2014) emphasized that collaboration between businesses, governments, donor agencies and citizens will help to improve the delivery of distance education in the small island developing countries. Mow *et al.* (2017) highlighted that information computer technology use in the provision of distance education will help to enhance the delivery of distance education in Fiji.

Research methodology

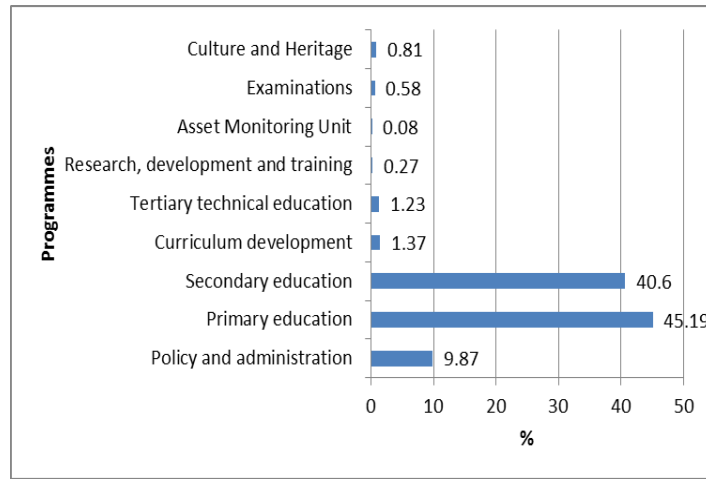
The research strategy used to collect data for this paper was mainly surveys, reports and databases. We had distributed around 80 questionnaires to small businesses in Fiji and managed to collect around 65 completed questionnaires. The data collected was analysed by using the Statistical Package for Social Sciences (SPSS) software.

Data analysis

Reasons on the lack of availability of technically skilled workers in Fiji

Limited Government Expenditure on TVET Programmes: A close examination of the Fiji government budget expenditure for the year 2014 shows that only 1.23% of the total Ministry of Education's total budget goes towards Tertiary Technical Education (Ministry of Education, 2014) as shown in Figure 2. With this tiny allocation of government expenditure towards Tertiary Technical Education, it is difficult for the tertiary technical education system to grow.

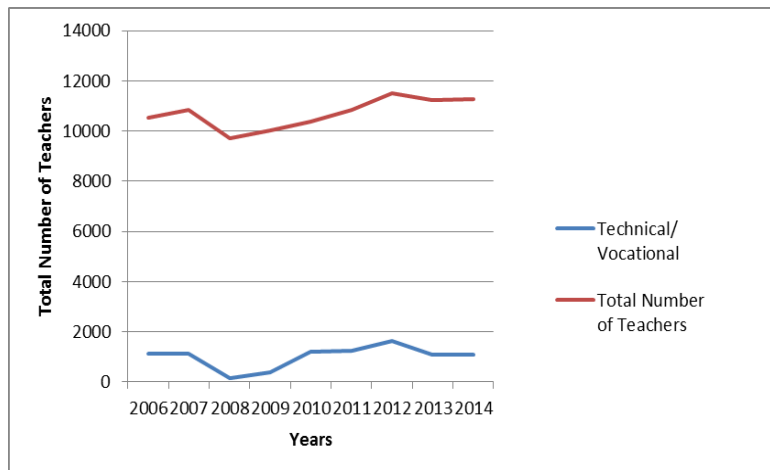
Figure 2
Ministry of Education’s budgeted expenditure on different areas for the year 2014



Source: Ministry of Education (2014)

Lack of Qualified Teachers to Teach TVET Programmes: One of the serious problems that are affecting the quality of technical workers is the lack of availability of TVET teachers to teach TVET programmes. Out of the 11,291 teachers teaching in primary, secondary, technical/vocational, teacher training and special education in Fiji, only 1,094 were vocational teachers. This represents only 9.68% of the total teachers teaching in Fiji (see Figure 3). TVET teachers are mainly leaving their low paid teaching profession and joining the highly paid private sector that provides greater recognition of their skills (UNESCO, 2015).

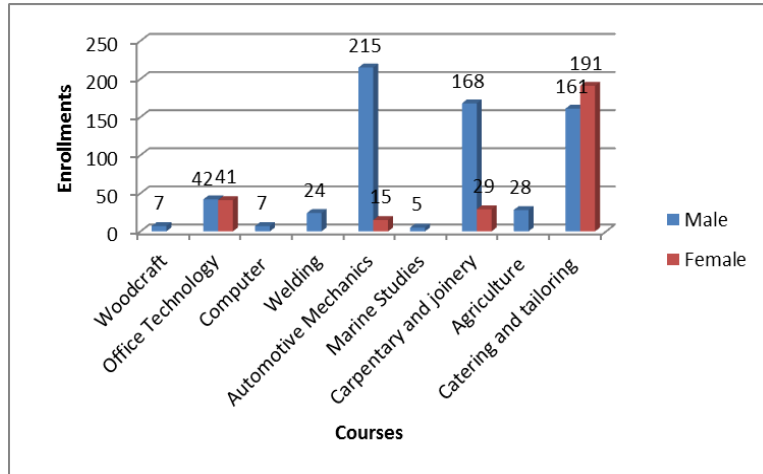
Figure 3
Total number of teachers and total number of TVET teacher’s in Fiji



Source: Bureau of Statistics, (2016).

Low levels of female participation in TVET courses: Female participation in the TVET courses is significantly low compared to male participation. According to Maglen *et al.* (2015), out of the 933 students graduating from the vocational schools in Fiji, 276 students were females while 657 students were males. Females represented 29.58% of the total graduates in the year 2012 from vocational school courses in Fiji. There are some of the areas of TVET studies where the female participation is 0% and these include woodcraft, marine studies, welding and agriculture (Maglen *et al.*, 2015) as shown in Figure 4.

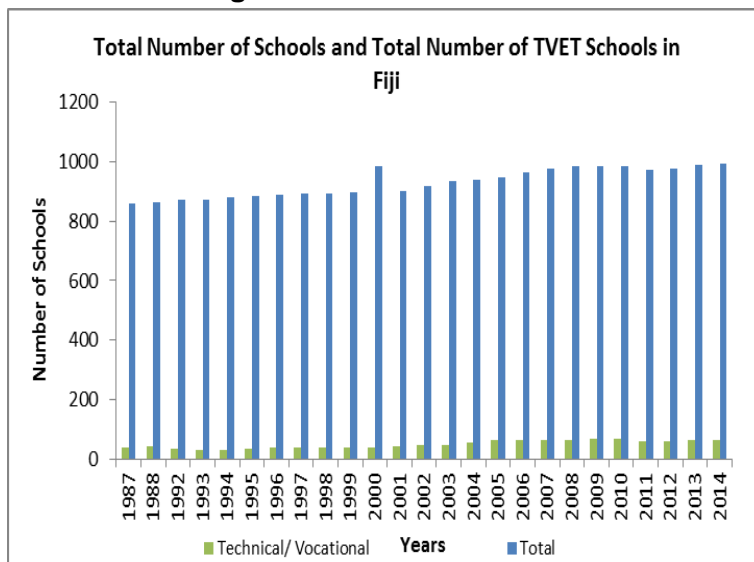
Figure 4
Government Schools Vocational Studies
graduation numbers for the year 2012



Source: Maglen et al., (2015).

Limited Number of Training Institutions in TVET Courses: There is limited number of training institutions providing TVET courses in Fiji. At the tertiary level, University of the South Pacific via its Pacific TAFE branch and the Fiji National University are providing vocational courses to the students. In addition to this, Technical College of Fiji, Centre for Appropriate Technology and Development, Monfort Boys Town, Sangam Institute of Technology, Vevekananda Technical Center, Training and Productivity Authority of Fiji and Pacific Institute of Technology also provide TVET courses. As far as the schools are concerned, out of the 988 schools registered in Fiji, only 62 were vocational or technical schools (Bureau of Statistics, 2016) as shown in Figure 5

Figure 5
Number of schools offering vocational and technical education (1987-2014)

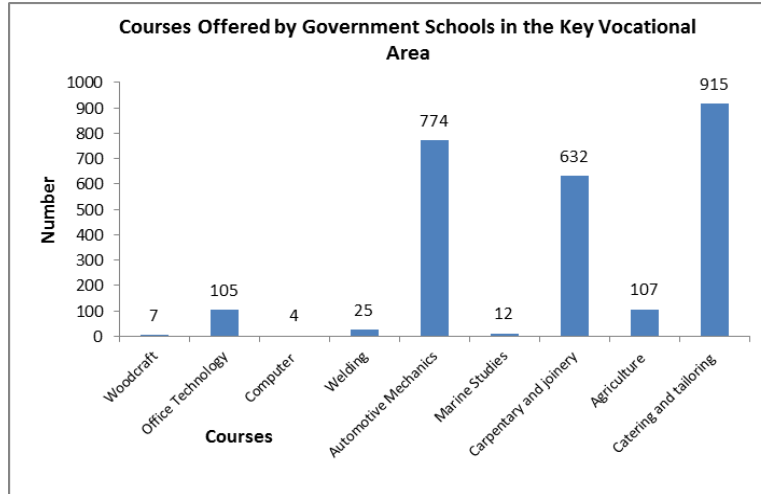


Source: Bureau of Statistics, (2016).

Student Enrolment Numbers in TVET Courses are Low: The enrolment of the students in the TVET courses are generally low. For instance, the student enrolment numbers in the government

vocational schools was 2,581 students. This is significantly low as compared to the demand of the technical skills from the private sector of Fiji. The total number of students graduating from government vocational schools is also low (Bureau of Statistics, 2016). For instance, in 2012, the total number of students graduating from the government vocational schools was 933. Additionally, out of the 138 courses offered in the government vocational schools, only 1 was for woodcraft, 2 for welding, 2 for marine studies and 8 for agriculture (Maglen *et al.*, 2015). The number of courses offered in these significant areas are quite low as compared to the wide range of vocational skills needed in these areas (see Figure 6).

Figure 6
Courses offered by government schools in key vocational areas



Maglen *et al.* (2015)

Technical skill deficiency in small business

Skill Sufficiency in MSME's: Out of the data collected from 65 MSME's in Fiji, 18.5% stated that they have sufficient technically skilled workers to run their business while 81.5% stated that they do not have sufficient technically skilled workers to run their business (see Table 2).

Table 2
MSME's response on sufficiency of technical skills to Business

Reponses	Number	%
Yes	12	18.5
No	53	81.5

Source: From author's surveys

Areas of Technical skill deficiency in MSME's: Out of the 65 survey questionnaires received from MSME's, some of the major areas of skill deficiency identified by small business owners are in the areas of woodcraft (13.85%), welding (24.62%), automotive mechanics (15.38%), carpentry and joinery (23.08%) and agriculture (10.77%) (Note: in this question we asked the MSME's to select one skill that was most deficient) (see Table 3).

Table 3
Areas of technical skill deficiency in small business

Areas	No.	%
Woodcraft	9	13.85
Office Technology	3	4.62
Computer	2	3.08
Welding	16	24.62
Automotive mechanics	10	15.38
Marine studies	1	1.54
Carpentry and joinery	15	23.08
Agriculture	7	10.77
Catering and Tailoring	2	3.08

Source: From author's surveys

MSME's owners Reponses: Governments Awareness on Lack of Technical Skills:

Out of the 65 MSME's in our sample, 26.15% stated that the policy makers were aware of the lack of technical skills available to MSME's whereas 73.25% stated that policy makers were not aware of the lack of technical skills available to MSME's (see Table 4).

Table 4
Government awareness on lack of technical skills available to MSME's

Reponses	No	%
Yes	17	26.15
NO	48	73.25

Source: From author's surveys

Cost of Hiring Skilled Workers: Out of the 65 MSME's owners in our sample, 31 (47.69%) stated that the cost of hiring technically skilled workers was very high, 16 (24.62%) stated that it was high, 8 (12.31%) stated it was neutral and 10 (15.38%) state that it was low (see Table 5).

Table 5
Cost of hiring skilled workers

Response	No.	%
Very High	31	47.69
High	16	24.62
Neutral	8	12.31
Low	10	15.38
Very Low	0	0.00

Source: From author's surveys

Criticisms of existing TVET policies in Fiji

The current TVET policy of Fiji was implemented in the year 2005. Its aim was to develop quality technical workers that can meet the demands from industry (Government of Fiji, 2005). Criticisms of the existing TVET policies are as follows:

Policy Area 1: The role of the TVET training providers is to develop lifelong learners that can contribute to the needs of the business. The centre point of contact for TVET is the Ministry of Education (Government of Fiji, 2005).

Weaknesses in Policy Area 1: Some of the weaknesses in the policy area one are as follows:

Most of the training programs in the government vocational schools are Ministry of Education driven with lack of emphasis on the skill deficiency at the industry level. For instance, there is dire need for vocational graduates in the areas of woodcraft, welding, and agriculture. However, there is very limited number of courses provided in these areas. Out of the 138 courses offered in the government vocational schools, only 1 was for woodcraft, 2 for welding, 2 for marine studies and 8 for agriculture.

Policy on TVET education does not emphasise that the objective of TVET education is to develop lifelong learners who can deliver affordable technical skills to the different sectors of Fiji's economy.

There is a lack of coordination between Ministry of Education, Small Businesses and TVET Education Providers

Policy Area 2: TVET programs should be offered as compulsory programs in schools. The curriculum should be such that with the use of the necessary resources, the returns from the programs could be maximised for the student (Government of Fiji, 2005).

Weaknesses in Policy Area 2: Some of the weaknesses in the policy area two are as follows:

There is lack of machines, equipment's and general resources available in the schools to meet the objectives stipulated in the policy area two.

Government has not been able to realise its on-going objective of increasing the number of TVET teachers teaching in vocational schools. The demand for the TVET teachers is high but pay for TVET teachers provided by the ministry is uncompetitive as compared to the high financial returns they would get if they worked for the private sector.

Policy Area 3: Enterprise education should be offered both in primary and secondary schools so that students are able to effectively transition to their post school life period (Government of Fiji, 2005).

Weaknesses in Policy Area 3: Some of the weaknesses in the policy area two are as follows:

There is no clarity on what enterprise education is and how the objectives of providing enterprise education will be realised.

Enterprise education deals with developing the ability of the students to become skillful entrepreneurs. The government needs to rethink on how these objectives could be realised in the primary school and then at the secondary school level.

Policy Area 4: Mandates that the Ministry and Tertiary institutions that are going to provide TVET courses design their curriculum based on training needs analysis, monitor and evaluate the success of their curriculum, provide apprenticeship training, and ensure that enough resources are available to effectively deliver the courses (Government of Fiji, 2005).

Weaknesses in Policy Area 4: Some of the weaknesses in the policy area four are as follows:

The courses offered by the vocational institutions are not based on training needs analysis. There is deficiency in the areas of woodcraft, welding, automotive mechanics, carpentry, joinery and agriculture. There are only a few courses provided in these areas.

Small businesses receive few graduates every year for apprenticeship trainings. Policy is not clear and does not stipulate how many students need to go for apprenticeship trainings in small businesses and how many in large businesses.

The current government expenditure is very low and it would be difficult to realise the objectives set out in policy area 4.

Policy Area 5: Improvement of curriculum and requirements of tertiary and vocational institutions so that it conforms to international standards (Government of Fiji, 2005).

Weaknesses in Policy Area 5: Some of the weakness in the policy area five are as follows:

Realising this policy objective would be difficult because Fiji does not have the expertise, resources, infrastructure or budget to achieve international standards in TVET education.

Policy makes reference to comply with certain standards; however, the faculty and teachers produced in Fiji do not have the necessary qualifications and expertise to deliver high quality of TVET education.

Policy Area 6: Assisting in enhancing capabilities and technical skills for Fiji's workforce, through constant capacity building in order to equip those in training with appropriate skills and knowledge to assist them to secure employment abroad (Morris, 2015).

Weaknesses in Policy Area 6: Some of the weakness of policy area six are as follows:

This strategy for the policy purposely encourages brain drain when technical expertise is significantly lacking in Fiji.

The idea of supporting capacity building and training in technical areas exist; however, the strategy to put the policy to action is missing.

Policy prescriptions and success of these policies in Fiji's context

Policy Recommendation 1: Double the number of existing scholarships given for TVET education in the areas of woodcraft, welding, and agriculture

Policy Strategy I: Remove the new policy on the reduction of marks for the University of the South Pacific's First Year Enrolments. Direct these students with scholarships to Pacific Technical College, FNU, Pacific TAFE, Centre for Appropriate Technology and Development, Monfort Boys Town, Sangam Institute of Technology, Vevekananda Technical Center, Training and Productivity Authority of Fiji and Pacific Institute of Technology.

Policy Strategy Outcome II: Students underperforming in their academic studies will get a chance to be part of technical workforce.

Success Stories III: In Nicaragua, the government provided scholarships under the Technical and Vocational Education Program to women who were categorised as 'at risk youths'. It was noticed that by targeting specific groups of people in Nicaragua with technical college scholarships, the government was able to meet the demands of the industry while at the same time helping the youths to come out of poverty (US Agency for International Development, 2017).

Policy Recommendation 2: Integrating the TVET Policies with the Small Business Development Policy Framework.

Policy Strategy I: Around 60% of apprenticeship cadet trainings should be done in MSME's.

Policy Strategy Outcome II: Reduce the labour cost of small business by solving the skill deficiency problem. Expand the skilled workforce in woodcraft, welding, automotive mechanics, carpentry and joinery and agriculture.

Success Stories III: There are many TVET programs in Kenya that are networked with small business centres. Under this scheme, TVET students do their practical learning with the MSME's and once they finish their education, government provides them grants to start up their own business (Simiyu, 2010).

Policy Recommendation 3: Increase Government Expenditure on TVET Education in Fiji.

Policy Strategy I: Increase government expenditure on TVET education three fold by the end of 2017. Use this increase in expenditure to upgrade equipment and revise the salary scale of TVET teachers.

Policy Strategy Outcome II: Students are more productive and innovative when they use modern technology to learn.

Success Stories III: The \$50.2 million grant given to vocational schools in Mongolia to upgrade their vocational schools program enhanced students learning because the new equipment provided students hands-on training on the use of industry related equipment (Millennium Corporation, 2017).

Policy Recommendation 4: Use of ICT in the Delivery of TVET Education in Fiji.

Policy Strategy I: Distance education should be provided for all TVET courses.

Policy Strategy Outcome II: Business owners who are working full time will be able to enhance their skills.

Success Stories III: Asian Development Bank (ADB) projects in South Africa that use ICT to deliver TVET education have noticed remarkable success.

Policy Recommendation 5: Government should provide full scholarships or subsidies for employees from small business enrolled in the TVET programs.

Policy Strategy I: Ministry of Education should provide 100% scholarship on TVET education and employees should sign bond with the Ministry of Education that they are going to work for the MSME's three years post-graduation.

Policy Strategy Outcome II: Solves the problem of skill deficiency faced by small businesses.

Success Stories III: Governments programs in providing scholarships to MSME employees in Manila have helped these youths to become future MSME owners themselves. Initiative's mentioned in the above policy strategies have helped to increase innovation in Manila.

Conclusion

The main aim of this policy paper was to critically examine the effectiveness of the TVET policies in providing skilled workforce to the MSME's in Fiji and propose policy prescriptions to diagnose the problems on the TVET policies in Fiji. This study found that the existing TVET policies are not aligned to the needs of the industry, particularly to the needs of the MSME's. A collaborative effort is needed between policy makers, businesses, donor agencies and the youths to solve the existing problems diagnosed in the TVET policies in Fiji.

References

- Atchoaréna, D., Da Graca, P. D., & Marquez, J. M. (2008). Strategies for post-primary education in small island developing states (SIDS): Lessons from Cape Verde. *Comparative Education*, 44(2), 167-185.
- Bureau of Statistics. (2016). *Fiji Bureau of Statistics: Key Statistics*. Bureau of Statistics. Fiji Islands: Suva.
- Crossley, M., & Sprague, T. (2014). Education for sustainable development: implications for small island developing states (SIDS). *International Journal of Educational Development*, 35(1), 86-95.
- Government of Fiji. (2005). *Technical, Vocational, Enterprise Education and Training (TVET) policies in Fiji*. Fiji Government: Suva.
- Government of Fiji. (2015). *Employment Relations (National Minimum Wage Regulations (2015))*. Fiji Government: Suva.
- Government of Fiji. (2016). *2016 Budget Address: The Future, A Strong Fiji, A Fair Fiji and A Health Fiji*. Fiji Government. Fiji Islands: Suva. Retrieved from http://fijivillage.com/eventpages/2015/Budget2016/Documents/2016_Budget_Address.pdf
- Maglen, L., Wall, M.W., & Rokovunisei, M. (2015). *Research Into the Financing of the Technical and Vocational Education and Training in the Pacific: Fiji Country Report*. Australian Council of Educational Research. Australia: Victoria.
- Millennium Corporation. (2017). *In Mongolia, the Right Training for a More Successful Future*. Retrieved from <https://www.mcc.gov/our-impact/story/story-the-right-training-for-a-more-successful-future>.
- Ministry of Business, Enterprise and Cooperatives. (2016). *Year Plan for SME Sector Development*. Mauritius: Port Lois.
- Ministry of Education. (2014). *Ministry of Education Annual Report 2014*. Fiji Government. Fiji Islands: Suva
- Morris, P. (2015). *Review of the Pacific Framework for Technical and Vocational Education and Training*. South Pacific Commission. New Caledonia: Noumea.
- Mow, I. C., Vaai, E. K., Thomson, I., & Taloka, K. P. (2017). *ICT in Education in Small Island Developing States of the Pacific*. Netherlands: Springer International Publishing.
- Romer, P. M. (1994). The origins of endogenous growth. *The journal of economic perspectives*, 8(1), 3-22.
- Simiyu, J. (2010). *TVET Best Practice Clearing house*. Germany: UNESCO Commonwealth Secretariat. Retrieved from http://www.unevoc.unesco.org/fileadmin/user_upload/docs/1963-UNESCO-TVET-KenyaENG_LR.pdf
- Smith, G. (2014). *SME's Contribute \$800million to the Economy*. Retrieved from <http://fijione.tv/m-smes-rake-in-800-million-for-2013/>.
- Solow, R. M. (1956). A contribution to the theory of economic growth. *The Quarterly Journal of Economics*, 70(1), 65-94.
- UNESCO. (2015). *Education for All: 2015 Education Review*. World Education Forum. Korea: Incheon.
- Union, A. (2007, May). *Strategy to revitalize technical and vocational education and training (TVET) in Africa*. Meeting of the Bureau of the Conference of Ministers of Education of the African Union. Africa.
- US Agency for International Development, (2017). *Young Ethnic Minority Women Breaks Ethnic Stereotypes*. Nicaragua: Managua.

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Editor's Note: Much time and human capital is wasted by inefficient ways of doing things. Learning is no exception. Time invested to develop better study habits can raise grades, reduce the failure rate, and increase satisfaction for teachers and learners. It also has economic value. As the range of tools and options to support learning increase, major improvements in teaching and learning can be expected.

Developing a training program to improve students' studying habits in the Arab Open University, Jordan

H. Abood and M. Kamor
Jordan

Abstract

This study aimed at assessing study habits of students in Arab Open University/ Jordan for their daily work, TMA, and their examinations in order to develop a training course to improve their study performance. A 31 item questionnaire was designed to define three domains of study habits. The 171 students who filled the questionnaire out of 2450 BA student defined 17 studying habits that should be considered by the suggested training course. A five day training course was designed based on the results of the students' responses.

Keywords: instructional technology, distance learning, blended learning, open learning, studying habits, studying strategies, studying practices, training courses, training program, Arab Open University.

Introduction

Education worldwide is heading to provide numerous and diverse knowledge sources through increased reliance on information and communication technology in teaching and learning. Modern educational trends, such as Open Learning System (OLS) and Distance Learning System (DLS), are gradually dominating education, which put students face-to-face to cope with new requirements, skills and learning patterns.

These new educational trends have already provided millions of opportunities for those who are interested in learning in different parts of the world. Those people were not able to learn before because of economic, social, health or other reasons. Teaching strategies, methods and media used by these new styles of education have been diversified and more effective to meet various needs of individuals and communities. They have been created to develop learners' creative thinking and problem solving skills, and to apply their knowledge and experience in various life situations. Therefore, public concern about new educational trends and styles has rapidly expanded all over the world. In fact, adopting such new trends in education has become a criterion for judging how modern and effective an education system is in any community (Al-Jureysi, Al-Ruheli and Al- Omeri, 2015).

Non-traditional experiences of e-Learning to provide active learning and achieve behavioral objectives of education have been based on student-centered learning, self-learning strategies, diversification of sources of knowledge, and multimedia use in order to more effectively get, generate and disseminate knowledge. This provides the ability for synchronous and asynchronous communication between students and teachers as well as among students themselves. Vrioni (2011) stressed the need for these new learning styles for students' participation, diversification of activities and applications that have a great impact on students' study skills and experience.

The focus of e-learning is based on the student; it is the student who should search for, select and apply knowledge. Therefore, self-learning is the cornerstone of open learning and distance learning which is largely dependent upon Information and Communication Technology (ICT). The role of teacher, however, still emphasizes mentoring, induction and communication with student through various channels. (UNESCO 2002)

Open learning combines theoretical and practical characteristics that can best meet the needs of students, academics and trainees. Those who join this kind of learning course can efficiently achieve their intended learning objectives. Eventually, open learning has a greater impact by competitively providing the market with the most appropriate and up-to-date knowledge and skills. (Abdel Fattah 2006)

On the other hand, open learning systems use diverse sources of knowledge and a wide range of multimedia applications to build effective distance communications between students and their teachers. These aspects have often been at the expense of traditional methods of learning where students have limited sources of knowledge with a face-to-face dialogue with teachers. Some scholars argue that open learning provides students with opportunities to get knowledge without much effort or seriousness, as this knowledge is always available and easy to reach. Distance communication would then play a negative role to guide the students, especially in the case of younger students. (Aladdin, 2014)

Tait (2004) argues that the study load in open learning, where students need many self-learning skills to search for knowledge, in a time where just a little and indirect support is provided by their teachers, makes them compare their effort with that received by their colleagues in traditional universities. The technical and research skills required to accomplish tasks, the abundance of material and sources available on so many sites, and the difficulty of choosing an appropriate learning method and content, coupled with difficulties of predicting the pattern of questions in e-exams compared to traditional education systems, increases students' confusion about what to study and how.

Open learning students are often part-time students, mostly with family and job responsibilities. For a high percentage of these students, time, money and distance make it impractical for them to become full-time students. They also differ from younger students in the sense that they have their own view about what tasks they are required to do, and what knowledge, skills and objectives they prefer. The majority of them manage their own schedules and make their own decisions to continue, start or stop study to fit their own circumstances, responsibilities, and availability. This is specially the case with those who are joining their study years after their last access to any educational programme. (Moore & Kearsley 2012)

Other studies have indicated that failure in acquiring e-learning skills by students and the difficulties of adapting to open learning technical requirements, are the main causes of low achievement (Al-Balbisi, 2007). Others have linked that to students' motivation and their level of emotional intelligence (kmor 2013), while Samkange (2013) argues that there are fears among students in open education from their inability to complete the curriculum, which reflects negatively on the quality of the educational outcomes

Arab Open University (AOU), which was established in 2002, used the blended learning system to achieve its goals. Through its Learning Management System (LMS), the University provides digital resources; recorded lectures, paper textbooks, e-library, educational materials as in addition to various channels for closer communication between teachers and students, such as forums, e-mail etc.. (Arab Open University 2016)

Studies in the United States and other countries showed that students who had been unable to meet the requirements of open education, primarily self-learning and investigation for knowledge across different sources, is at the forefront of the causes of dropout in universities, especially in their first year of study (Moore &Kearsley 2012).

A study by Al-Mousa, Kamel, Lakhoua &Al-Tarawneh (2012) conducted in four branches of Arab Open University; Jordan, Egypt, Saudi Arabia and Oman, showed that the main reasons for students' dropout is the demanding nature of open education, and the inability to fulfil the

requirements of this type of learning. However, the study stressed that overcoming this problem is possible provided that an effective strategy is applied.

Tait (2004) claimed that addressing the dropout problem depends upon the teachers' ability to clarify the nature and requirements of open learning and how it differs from traditional education. They have to justify the criteria used in students' overall evaluation, encourage them to pay more effort to study and help them achieve the stated objectives. Moore & Kearsley (2012) indicated that one way to address this problem is to help students reorganize their learning style according to sequential steps that guarantee the acquisition of the proper studying habits and skills of open education. Teachers have a fundamental role in this respect by explaining the needs and requirements and encouraging students to daily prepare for sessions, TMAs, and examinations.

AOU has conducted a number of successful training and counseling services since its foundation fourteen years ago. This had a positive effect on the ongoing academic programmes as well as their outcomes as reflected in their steady number growth of students and number of branches established in the Arab countries. However, indicators mentioned about dropouts in the University show that more concern is to be there to encourage and enhance students' competencies and skills to be really oriented to the nature and requirements of this style of education. In order to achieve this goal, one should go directly to the students to investigate how they study, how they prepare for their daily work, TMA and exams, in order to design an effective training service that can improve their studying habits. This is what this study aimed to tackle.

Since the researchers are staff tutors in the University for several years, they could collect a wide range of students' remarks from different academic faculties and stages of study about their learning style and learning problems they face. Newly enrolled students at the University mentioned the lack of studying skills, the need for planning and organization of learning as being the main problems, while others pointed out that open learning is time consuming. Those who passed 45 hours or more complains of frequent tuition burden such as TMAs. This remark had also been raised in a study conducted by Musa, Al-Tahat, Al-Masha'lah and Abbasid (2016).

Problem of the Study

There are evidences of dropout among students in the Arab Open University because of its nature of study. Students from various departments claimed that learning is much more demanding in AOU compared with traditional universities. This stresses the need to train students how to prepare for their weekly meeting with their teachers, for TMAs and for exams. As information about students' studying habits at the University are not precisely available, as well as the lack of a training program at the University to develop these skills, it has become necessary to investigate and diagnose these habits to develop an active training program for them.

Questions of the study

- What are the common studying habits among undergraduate students in the Arab Open University?
- What are the skills that the University undergraduate students need to develop to improve their studying habits?
- What training program should be designed to provide students in the University with the needed skills to improve their studying habits?

Instrument of the study

A questionnaire of 31 items was uploaded on the University LMS to be available for all undergraduate students to answer voluntarily. The items were stated to identify the students' studying habits. They were divided into three categories depending on the purpose of the study;

- Preparation for weekly meetings.
- Preparation for TMAs.
- Preparation for exams.

Students' responses were also divided into four levels scale according to the availability of each habit.

The questionnaire was subject to the normal assessment procedures of content validity and reliability. The referees were seven teachers from AOU and other universities in Jordan. Besides, five randomly chosen students were asked to assess the wording of the items, and a number of the stated items were added or rephrased. Cronbach's alpha was used to show that content validity was 80%. All the referees agreed that high response rates (25% and above) for (sometimes& no) indicate the degree of absence of a habit.

Sample of the study

171 out of 2450 undergraduate students from all departments of AOU/ Jordan in the 2nd semester 2015/2016 voluntarily responded to the questionnaire that was uploaded on LMS. The sample students were divided into three categories according to the number of credit hours already completed; those who passed 45 hours or less (60 students), 46-90 hours (56 students) and 91 hours or more (55 students).

Methodology of the study

Given that the study is merely descriptive and aims at identifying the undergraduate students studying habits as a step to develop an accurate training course to improve their studying performance, the statistical procedures applied were limited to percentage comparisons for each item responses. The researchers applied the referees' criteria to identify the items responses which need to be considered when developing the training course. A lowest percentage of 25% was agreed upon by all the referees to be the cut point on the categories (sometimes and no) to identify such items.

First Question

What are the common studying habits among undergraduate students in the Arab Open University? Table 1 shows the students' (sometimes/no) responses on the first set of the studying habits which are related to their daily preparation for the class meetings:

Table 1 reveals the studying habits which achieved high (sometimes/no) responses for preparation for the class meetings. Responses to item 7 and 8 indicate that a high percentage of students with 45h or less don't tend to share their colleagues in the preparation or discussion in class. This may indicate a poor communication among students in the early stages of their study as they have not yet been oriented to their new educational environment. Al-Mousa & others(2012) showed that increased dropout in the first year is due to the difficulties of studying and lack of proper academic skills. The second category (46-90 h) do not use self-learning or look for other resources for preparation. The third category (91h or more) has shown a weak interest in taking notes down, which may reflect that the students at the latest stage of their study have been well adapted to the study style and activities which compensates for the notes taking, or as Kamor (2013) noted, it is a lack of experience.

Table 1
Preparation for class meetings

Item	To prepare for the weekly meetings:	(sometimes) + (no)					
		1-45 h		46-90 h		91-more	
		No	%	No	%	No	%
1	I study the stated unit in the textbook	35	58.3	37	65.5	35	36.6
3	I look for additional books and periodicals	42	67.7	39	69.7	34	61.2
6	I write down a summary of what I study	23	38.3	20	35.7	25	45.5
7	I prepare questions and notes to share with class	37	76.7	42	75	34	61.9
8	I study with a mate or more	45	90.1	45	80.3	36	65.4

Table 2 shows the students' (sometimes/no) responses to the second set of the studying habits which are related to TMAs:

Table 2
Preparation for TMAs

Item	To prepare for the TMAs:	(sometimes) + (no)					
		1-45 h		46-90 h		91-more	
		No	%	No	%	No	%
13	I ask others to guide me in preparing my TMAs	34	56.7	35	71.4	34	40.5
14	I look for similar models in the web	27	35	26	46.5	30	54.6
16	I review the related questions at the end of each textbook unit	22	63.3	28	49.5	24	43.6
17	I try to answer the related questions at the end of the textbook units	25	41.7	27	49.2	26	47.2
18	I ask somebody to comment on my TMAs	39	65.0	41	91.2	35	63.6
19	I ask my tutors to give me early comments on my TMAs	31	51.7	33	58.9	29	52.7

The students' responses to the six items in Table 2 show clearly a lack of more than one basic habit to prepare TMAs for the three groups of the study. This may belong– as research interviews with some students indicated – to high stress and anxiety that some open education students normally show, once they start preparation for their TMAs. This stresses the need to train students how to acquire TMA skills in order to prevent leakage and low tuition rates (Moore & Kearsley, 2012). Such result may also indicate the lack of students' interest in their teachers'

comments on TMAs as Musa and others (2016) confirmed, which leads to a lack of knowledge build up despite their progress in education.

Table 3
Preparation for exams

Item	To prepare for the exams:	(sometimes) + (no)					
		1-45 h		46-90 h		91-more	
		No	%	No	%	No	%
21	I cooperate with my mates	42	70	43	76.8	34	62
23	I arrange a detailed schedule for study	23	38.3	20	35.7	16	29.1
25	I look for further references to improve my knowledge	44	73.3	44	78.1	35	63.6
28	I try answering the questions in the end of the textbook units orally	21	35.0	20	35.7	15	27.3
29	I try writing answers to the questions in the end of the textbook units	25	41.6	20	29.7	22	40
30	I try answering expected questions orally	29	47.7	23	41.2	20	36.3
31	I try writing answers to expected questions	61	51.7	24	42.9	24	43.6

Unexpectedly, students' responses in Table 3 show a weak awareness of some certain studying habits although the items are concerned with midterm and final exams. This is specially the case with items 21 and 25, which got 76.8 and 78.1. They are related to sharing others and looking for further references. It is a result that may indicate a trend to be stick only to textbooks and knowledge memorization, exactly as they had been accustomed to do before joining AOU. Moreover, the table shows unstable results which do not go in line with the proposed academic growth. Tait (2004) had stressed the fact that high load of work, lack of practice and research skills needed in open learning systems as well as e-curriculum uploaded on so many web sites, put students face-to-face with a critical situation where they find it difficult to choose an appropriate method of studying.

Second question

What are the studying habits that the University undergraduate students need to develop?

Tables 1, 2, and 3 show that 18 out of 31 studying habits which are related to the preparation for daily classes, TMAs and exams need to be improved. They indicate what skills should AOU students in Jordan improve to upgrade their academic performance, which in turn decreases the rate of dropout. The tables show that all three categories of students who completed (1-45/ 46-90/ 91 hours and more) are included in this result. The 18 items mentioned have been categorized by the referees under 5 domains of skills as shown in Table 4:

Table 4
Studying Habits and Needed Skills

Items	Needed Skills
1, 6, 7	Self-Learning Skills
3, 14, 25	Data Collection Skills
8, 13, 18, 19, 21	Social Communication Skills
23	Time Management Skills
16, 17, 28, 29, 30, 31	Self-Evaluation Skills

Third Question

What training course should be designed to provide students in AOU/ Jordan with the needed skills to improve their studying habits?

With reference to Table 4, the training course requires a focus on the five key skills stated in the table in terms of objectives, content, procedures and evaluation.

The Training Course

Overall Goal: to improve the studying habits of AOU students / Jordan through acquisition of:

Self-learning, Data Collection, Social Communication, Time Management & Self-Evaluation Skills.

Components: The behavioral objectives, content, procedures and evaluation are described in the course design below.

Training calendar: The training course is scheduled for 5 days, 4 hours a day, every day is devoted to one of the five mains (sets) of skills needed as shown in the table. It should be arranged one week before the starting day of each academic term.

Day Skill	Time	Objective	Content	Activities	Evaluation
First/ Self Learning	1	Explain what Open Learning means Define (Self Learning, Deep Reading, Main Ideas, conceptual Maps	Traditional and Modern Education Characteristics	Present concepts on Power Point Discuss the content elements	
	2 + 3			Workshop to analyze reading texts, deriving main ideas and drawing conceptual maps Open discussion on the first day experience of the course	
	4				
				Quiz Identify the main concept in the following text. Using the following text, state 5 questions. Pick 3 main ideas and three secondary ones from the following text. Put the following text into a conceptual map form. Write a summary of the following text in not more than 30 words. What can you find in the LMS that may help in your daily study?	
Second / Data Collection	1	Quote correctly from a reference Get a reference from the e- library Explain how to apply TMA rubrics	<ul style="list-style-type: none"> Using the University library Using the University e- library <ul style="list-style-type: none"> Using LMS as a knowledge resource <ul style="list-style-type: none"> Quotation & citation TMA and rubrics 	PPT Presentation Quotation application Open discussion	
	2 + 3			<ul style="list-style-type: none"> Library visit and applications Applications on e-library 	
	4			Open discussion on the second day experience of the course	
				Quiz What references to use other than the textbook Do citation for a reference in text and the bibliography. Get a reference from the University e-library State the steps how to find a reference at the University library	

Third / Communication with Others	1	Use LMS correctly to communicate Generate ideas & questions to participate in class discussions	Concept of effective communication with teacher Communication with students Using LMS - Effective Participation in class	Describe LMS on data show	
	2 + 3			Practical training on LMS	
	4			Open discussion on the third day experience of the course	Quiz What does communication services the LMS provide? How do you upload your TMAs? What are the communication services the University provides
Forth / Time Management	1	Plan daily study schedule	Time planning at home Time planning at the University Do we have spare time? Time and daily study Time and TMA Time and Exams	Common time planning trends	
	2 3			Workshop for time planning	
	4			Open discussion on the fourth day experience of the course	Quiz Put a daily plan for your studying Put a plan for fulfilling your TMAs for next term Put a plan to prepare for term exams
Fifth / Self Evaluation	1	Explain how to make use of teachers' notes on TMAs and tests papers Develop criteria for daily work, TMA & tests	Self-evaluation of daily work Teachers' notes on TMAs Teachers' notes on tests' papers	Explain common notes on TMA and tests Open discussion on the notes	
	2 3			TMA examples Tests' examples	
	4			Open discussion on the fifth day experience of the course	Quiz Explain how important is TMA as a requirement in AOU How can students make use of TMA teachers' notes Put a curriculum to self-evaluate TMA and tests

The suggested Quiz is to be developed each course as needed.

References

- Abdel Fattah, M. (2006). **Distance Learning Management Requirements to Meet Information Technology Challenges**. www.kfs.edu.eg
- Al-Mousa, N., Kamel, N., Lakhoua, L. & Altarawneh, Y. (2012). **Causes of Students' Drop-out at the Arab Open University**. Unpublished, Jordan: AOU.
- Aladdin, J. (2014). Passive Results of Using Internet. **Jordanian Journal of Educational Sciences**, Vol. 10, No. 3, Pp. 321-335.
- Arabic Open University (2016) <https://lms.arabou.edu.kw/jordan022013>.
- Belbiysi, M. (2007). The effectiveness of Al-Quds Open University Students in Salfit in Using Distance Learning Skills. **Palestinian Periodical for Distance Open Education**, Vol. 1, No. 1, pp. 355-402.
- Dalziel, J. (2008). **Learning Design: Sharing Pedagogical Know-How, Opening up Education, and Carnegie Foundation for Advancement of Teaching**, London: MIT Press. Pp. 375-387.
- Jeraisy, A., Al-Rehaily, T. & Omari, Aisha (2015). Impact of Social Mobile Applications on the Holly Qur'an Education for Tibah University Mail Students and their Attitudes towards them. **Jordanian Journal of Educational Sciences**, Vol.11, No. 1, Pp. 1-15.
- Kmor, M. (2013). Achievement Motivation and its Relation with Emotional Intelligence Level among AOU students. **Al-Quds University Journal for Educational & Psychological Research**, Vol.1, No.2, Pp. 321-351.
- Moore, M. & Kersley, G. (2012). **Distance Education: A Systematic View of Online Learning**. 3rdEdition, United Kingdom: Wadsworth Cengage Learning.
- Musa, N., Al-Abbas, S., Al-Masha'lah, M., Al-Tahat, K. & Al-Mousa, M. (2016). **AOU Teachers & Students Views in Feedback**. AOU: Unpublished.
- Samkange, M. (2013). Interrogating the Teaching and Learning Modes in Open and Distance Learning (ODL) within the context of quality education. **Turkish Online Journal of Distance Education – TOJDE**, ISSN 1302-6488 Vol. 14 No. 1 Article18.
- Tait, J. (2004). The Tutor/Facilitator Role in Student Retention. **Open Learning**, Vol. 19, No. 1. The Open University, UK Pp. 97-108.
- UNESCO (2002). **Education for All**. Paris: UNESCO.
- Vrioni, R. (2011). Effects of Group Learning on the Academic Performance of University Students. **Problems of Education in the 21st Century**, Vol.33, Pp. 111-117

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