E-Learning and National Innovation in Bahrain: Opportunities, Challenges & Future Developments

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ABSTRACT

The Kingdom of Bahrain as a country has institutional capacity in ICT. Due to a multiplicity of factors in the educational system that impede the effective implementation of best practices in general and successful e-learning in particular, however, this capacity is not being used for knowledge development.

Even though this is a serious situation which holds negative repercussions on labor market gains as well as on research development and innovation (RDI) systems and national innovation systems, it can still be improved. Its improvement, however, calls for several measures from policymakers that can generate better education outcomes in the long run and thus, consequently, have a positive impact on both RDI and national innovation systems.

Keywords: E-learning, Knowledge Development, National Innovation, Bahrain

INTRODUCTION

This paper presents a synopsis of a chapter that was written as a part of an edited book on e-learning in the Middle East and North Africa (MENA) region. The chapter, which is currently under publication by Springer, focuses in particular on e-learning in the Kingdom of Bahrain and touches upon its history, main opportunities, challenges, and future developments, as well as its role in knowledge development and national innovation.

Definition of E-Learning and Research Problem

E-learning is a term with a multiplicity of definitions (Carry & Willis, 2001). It is usually used synonymously to *technology-based learning,* which is described by Koller, Harvey, & Magnotta, (2009, p.iii) as "the learning of content via all electronic technology, including the Internet, intranets, satellite broadcasts, audio and video tape, video and audio conferencing, internet conferencing, chat rooms, e-bulletin boards, webcasts, computer-based instruction, and CD-ROM". E-learning is seen by some as the new paradigm of modern education (Akour, 2012, p.60) and its potential for more and more users increases with an increase in Internet access (Mirza & Al-Abdulkareem, 2011). On the same lines, any delay in the provision of Internet access by governments of a certain region consequently results in a delay in the adoption of e-learning in that region. This delay in Internet access explains one of the main reasons behind the delay in e-learning adoption in the Middle East (ME) in particular, which in turn has led to a major deficiency in published research with respect to "…the benefits, limitations, barriers, and acceptability" of e-learning in the region (Mirza & Al-Abdulkareem, 2011, p.86). This research scarcity has proven to be one of the main challenges faced in the writing of the chapter under consideration, which discusses e-learning in Bahrain as an ME country.

Nonetheless, despite the little research out there, it is clear that Bahrain- like other ME countries in general and adjacent GCC countries in particular- has witnessed during the 21st Century a growing interest in the adaptation and appreciation of e-learning (Mirza & Al-Abdulkareem, 2011); it has also been able to realize the important role that e-learning and educational technology can play in helping it develop and progress (Dini, Markey, & Mohamad, 2015, p.39). This is evident from (1) its realization in the past decade that sustainable economic development requires investments in knowledge that can facilitate technological innovation (Tseng, 2014); (2) its attempts to diversify its competencies away from natural resources; and (3) its investment in education, research, and innovation (Schwab, 2011 as cited by Tseng, 2014, p.213), by establishing several e-learning projects and programs including e-learning for K-12 and college students (Mirza & Al-Abdulkareem, 2011).

Research Question

Given the growing interest in e-learning in the GCC, in general, and in Bahrain in particular, and considering the lack of research surrounding it, it seemed necessary to explore what the current status of this form of learning in the Kingdom is and the extent to which it is contributing to its national innovation.

Contextual Background

Pressures from a competitive global market as well as the need for a high skill set have lately led to major economic, social, cultural, and educational developments in the Kingdom of Bahrain. These developments have sprung from reform initiatives that were set in 2005 as integral components of the country's national economic strategy underlying *Vision 2030*, which is the comprehensive economic vision of Bahrain (Abdul Razzak, 2014a). The main objectives of this vision is to enhance the skills of Bahraini citizens and to provide them with more and better jobs; develop new economic sectors; make use of unprecedented growth prospects; and encourage innovation- all for the aim of empowering Bahrainis to compete in an increasingly global marketplace and for providing them with greater chances at a better life. Policymakers in Bahrain have long realized that *Vision 2030* can be more easily and efficiently achieved through a knowledge-based economy and an information-based society (Abdul Razzak, 2014a, p.62), by which there is a great reliance on information and high skill levels (OECD, 2005), as well as a dependence on and use of data, information, knowledge, and ICT in innovative and productive ways that lead to competitive advantage internationally (Abd.Mukti & Abd Malik, 2004). This is an indication that Bahrain's current economy is significantly correlated with ICT integration in every life aspect (Abdul Razzak, 2013), especially in the field of education and training, which plays a substantial role in developing human skills and competencies that prepare citizens for future employment challenges.

The main emphasis in the last decade has been mainly on science education and ICT-based instruction; since, in Bahrain and the GCC context in general, these are perceived as "tools for legitimating countries' inclusion in an international political, economic, and social community, and a key component in the establishment of national innovation systems" (Wiseman & Anderson, 2012, p.608). This is reflected clearly in the latest education reforms in the GCC countries that have accepted and legitimized the use and integration of ICT in educational institutions as a method of instruction (Oyaid, 2009 as cited by Wiseman & Anderson, 2012). Such institutionalization of ICT in instruction is "in part due to the growing pressure on national education systems to prepare students to develop specialized ICT competencies that are dynamic and easily transferable" (Wiseman & Anderson, 2012, p.610).

RESEARCH METHODOLOGY

Because of the nature of this enquiry (i.e. a book chapter rather than an empirical research study) and due to its wide scope (covering Bahrain in general), a traditional literature review was selected as the research methodology, through which:

(1) a research problem was identified *(basically the research gap with respect to e-learning in Bahrain)*;

(2) a research question was formulated *(What is the current status of e-learning in Bahrain and how much does it contribute to the country's national innovation?);*

(3) a thorough review and analysis of what exists on the subject of e-learning in Bahrain was conducted; and

(4) a synthesis of research findings was developed.

RESULTS

The results deduced from the review of the literature are presented below in the following 2 categories: (1) History of and Opportunities for E-Learning and (2) Challenges Facing E-learning.

History of and Opportunities for E-Learning in Bahrain

Since the 1990's, Bahrain recognized that the integration of ICT in education promotes inclusive education and so is a primary way in providing education for all its citizens. The Ministry of Education (MoE), therefore, started introducing computer literacy courses in high school classes and these courses first covered mainly topics like the history of computers, computer components, and keyboarding but then evolved in the next decade to include more advanced topics, such as: computer operations, applications, and technology. A network was also established, which connected all the public schools' computer labs together and teachers were provided with training workshops that taught them computer applications for both personal and instructional purposes (Jamlan, 2004). Additionally, since the mid 1990's, there were several attempts to integrate the Internet into the educational system but all of these remained to be ad hoc, haphazard, and exploratory efforts to deliver online courses to targeted groups of students, without any real or coherent e-learning strategy officially existing in the school system (Jamlan, 2004). In 2003, things started changing when the government launched a major ICT initiative known as King Hamad's Schools of the Future Project (KHSFP), which aimed at first introducing ICT in the educational school system and then providing access and applying e-learning in all stages and schools of the Kingdom. This project was the result of a national strategy that aimed at developing a new environment for e-learning, in belief that such an action will equip future generations with the basic skills needed for establishing a robust information society and a knowledge-based economy (Al-Ammary, 2011). On the same lines, the government established in 2005 and funded an UNESCO prize known as the King Hamad Bin Isa Al-Khalifa Prize for the Use of ICTs in Education, as a reward for any excellent ICT initiative (whether model, best practice, or creative use), intended to enhance teaching, learning, and/or overall educational performance and outcomes. Over the years, this

prize managed to encourage innovation and research in educational technology and e-learning on the part of high-level educators and practitioners in both the ICT and education fields (Al-Ammary, 2011). Similar to KHSFP, therefore, this prize was harmonious with Bahrain's Vision 2030 in its emphasis on employment of highly-developed skills, innovation, and ICT integration for the development of education, research, and culture, and the construction of a knowledge-based society. These two initiatives have acted as a springboard for the creation of a new type of culture in Bahrain that is more responsive to, and accepting of, the use of technology in instruction and general developmental aspects.

Additionally, the Bahraini government launched in 2008 the Regional Center for Information and Communication Technology, which serves as a knowledge hub and a research focal point for the GCC states and Yemen. This center's main objective is the creation of capacity in knowledge sharing and acquisition among these countries, mainly through research, strategic planning for, and coordination and application of a variety of technology solutions, aiming at promoting sustainable development in all sectors (Official Center's webpage on the UNESCO website). Bahrain, furthermore, launched in 2007 its eGovernment program, which has succeeded in electronically integrating together all government efforts, organizations, and channels through a streamlined communication network and in providing better and faster services for everyone in Bahrain. Due to this program, Bahrain has become a world leader in the field of eGovernment, as evidenced from its attainment of a number of awards and ranks regionally and internationally. Bahrain's achievement of such leading ranks was not possible without the introduction and implementation of various ICT initiatives, such as: developing advanced technological infrastructure and capabilities; securing the latest tools and technologies; employing effective technology solutions; launching new communication channels; and creating open data platforms that promote innovation (Kingdom of Bahrain eGov official website). These initiatives, as well as other eGovernment-related ones, have had a positive impact on all public and private sectors in Bahrain, including the field of education.

For example, the Open Data Platform initiative, which was launched to promote transparency by making available to the public data published by various government entities (e.g. studies, reports, governmental statistics, demographic data, information regarding the environment, trade, and economy), has constituted an easily accessible and useful database of electronic resources for educational research purposes. Furthermore, the MoE's online database of public library resources, as well as E-libraries in all higher education institutions across Bahrain, have also facilitated information access.

All of these initiatives and others like them have helped in creating opportunities for, and promotion of, the use of ICT in education. Through them, the Kingdom has proven its willingness and determination to confront the challenges involved in transforming the educational system and culture from a pre-ICT teacher-centered one to a more flexible and student-centered one, which appreciates and implements e-learning and other ICT-based pedagogies. This is because Bahrain has taken the essential steps for laying the foundation needed to make e-learning take root and flourish, namely: comprehensive strategic planning; a robust technical infrastructure that supports all the technical aspects necessary for the production of course materials, delivery of e-learning courses, and teacher and student support; and quality assurance procedures and regular measurements to assess e-learning effectiveness (Jamlan, 2004).

Challenges Facing E-Learning in Bahrain

Despite the ample initiatives taken and the opportunities created, ICT-based education or e-learning in Bahrain remains to be faced by a number of challenges before it can reach the maturity level that can contribute to the desired economic sustainable development targeted by the government. Some of these challenges are school-related; while, others exist more in higher education institutions, as evident in the two lists of challenges below that were compiled from the literature:

School-Related Challenges

- *Lack of Familiarity*: There continue to be in Bahrain educational practitioners and even students who are not totally familiar with technical advancements and concepts of e-learning (Mirza & Al-Abdulkareem, 2011).

- *Incomplete Understanding*: Teachers' and school leaders' who are familiar with e-learning in the public schools of Bahrain seem to have an incomplete understanding and application of it and in particular of the concept and process of *technology integration.* This is because they tend to focus mainly on only two of the three essential components of effective technology integration, which are (1) *teachers and students learning how to use ICT* and (2) *teaching using ICT*. The third component, *students learning through ICT,* remains to be left somewhat ignored. This is a serious shortcoming, since this component designates a form of active and engaged learning-which is considered an international best practice and one that is a central aim of the introduction of ICT integration and e-learning in education [Abdul Razzak (2013) and (2014a)].

- *Reluctance:* There are educationalists and primarily teachers who are still reluctant to abandon their traditional teaching practices and replace them with technology-based pedagogies, and this is for different reasons, mostly challenging conditions existing in schools that act as barriers for trying out ICT integration, such as: high student-to-teacher ratios and lack of time to plan for ICT; lack of proper technological and pedagogical training; and multiplicity of tasks and responsibilities assigned to most teachers because of the introduction of several new reform projects into the schools at one time (Abdul Razzak, 2014a).

- *Lack of Autonomy:* Public schools in Bahrain follow more or less a one-size fits all model when planning and budgeting for relevant ICT resources and training; this is due

to their being heavily guided and mandated by the MoE, which tailors such plans for them that, understandably, do not always end up being in their best interests [Abdul Razzak (2013) and (2014a)].

- *Limited and/or Outdated Resources:* Not many public schools are well-equipped in terms of technology resources in ways that would help meet student and staff needs, neither in terms of availability nor in terms of currency and age. In more precise terms, in most schools, technology resources are available only in a limited number of classrooms and computer labs instead of being available in all classrooms [Abdul Razzak (2013) and (2014a)].
- *Frequent Technical Problems:* Many schools experience frequent technical problems with their computer networks and there is an insufficiency of technical support specialists available to fix them [Abdul Razzak (2013) and (2014a)].
- *Lack of Arabic Teaching Software:* There is an absence of high-quality teaching software in Arabic. Most of what is available is in English, which constitutes a challenge to most teachers in Bahrain [Abdul Razzak (2013) and (2014a)].

Challenges Existing in Higher Education Institutions

Some existing challenges for e-learning in HEIs are similar to those in Bahraini schools, such as the reluctance to try technology-based pedagogies; the frequency of technical problems and glitches; and the scarcity of research, in particular action research, around educators' own use of teaching practices (Abdul Razzak & Al-Baker, 2015) including e-learning implementations. Other challenges are ones that seem to be common worldwide, such as inconsistencies in platforms, tools, and software; faculty's lack of confidence in using technology; and the difficulty keeping up with the latest technologies (Essam & Al-Ammary, 2013).

Other challenges existing in HEIs in Bahrain are found below.

- *Limitation in the Models of E-Learning Institutions Available:* There are currently no virtual e-learning institutions in Bahrain but there is one hybrid institution, which is the Arab Open University (AOU). All the other colleges and universities basically follow a traditional e-learning model in which online and traditional learning run parallel to each other (Al-Musawi, 2014).

- *Different Types of Learning Management Systems (LMSs) Within the Same Institution:* Many HEIs in Bahrain adopt more than one type of learning management system (LMS) at the same time, as is obvious from a recent study by Al-Ammary, Mohammed, & Omran (2016); in one case, even 3 different types are adopted simultaneously. Although "adopting more than one system for e-learning indicates that universities are placing high priorities for e-learning and try to encourage both students and instructors to use e-learning by offering them different systems to satisfy their experience and knowledge" (Al-Ammary, et al., p.54), it tends to sometimes create confusion on the part of both the faculty members as well as the students, especially when teaching or taking courses across colleges; since, they may find themselves having to adapt to features of two different systems adopted by the different colleges.

- *Basic Utilization of E-Learning Platforms*: A recent study by Al-Ammary et al. (2016) on e-learning in HEIs in Bahrain has found that e-learning is being used mainly for uploading and downloading resources and assignments, which are considered as the basic services provided by e-learning platforms. Other uses, such as communication with instructors or students, are way less, partly because users prefer other channels of communication, mainly mobile applications and social media (e.g. WhatsApp; Instagram; Facebook, etc.). Online assessment is also not common, on the grounds that it is insecure and monitoring students' performance online is difficult. Students in most universities are therefore still being assessed in the classrooms by traditional techniques.

- *Insufficient Knowledge of Electronic Course Design:* Some faculty members are not yet comfortable with designing basic online activities. It is therefore farfetched that they be utilizing online teaching methods that capitalize on students' higher-order thinking skills, such as critical and creative thinking, problem solving, and innovation (Abdul Razzak, 2014b). It seems therefore that the situation in most of the Kingdom's universities is quite similar to what Al-Sulaimani (2010) discovered with respect to education systems in the GCC, basically that even though they have increased access to ICT tools and resources, they often still mirror pre-ICT educational cultures and settings. For this reason, they still do not possess the ability to build knowledge production capacity needed for the development of (1) subject-area expertise and also of (2) the ability to transfer what is learnt in school to support research development and innovation in real-world situations beyond the classroom (Wiseman & Anderson (2012, pp. 611 & 616). Since, as Luckin (2008) as cited by Wiseman & Anderson (2012, p.610) maintains, "… building knowledge production capacity requires active, student-focused, inquiry-based education to be available via ICT". This therefore, remains to be an area of weakness in the universities of Bahrain and it brings us to the subsequent challenge.

- *Lack of Alignment Between E-Learning and Institutional Strategies and Objectives:* The institutional strategies, goals and policies of universities in Bahrain, in general, do in fact emphasize the utilization of instructional methods that can develop and promote skills needed for knowledge acquisition, creation, and implementation, which eventually contribute to sustainable development of innovation at the national level. Given the weakness explained in the previous point, however, regarding the inability of education systems to build knowledge production capacity and to create opportunities for innovation, it seems therefore that when it comes to e-learning, there happens to be a lack of alignment between it and the overall institutional

strategies and objectives of most universities, as was discovered by Al-Ammary et al. (2016).

- *Almost No E-Learning System Leading to a Degree:* Apart from AOU, there remains to be in Bahrain no systematic use of e-learning throughout any university that leads students to a certificate or degree. Despite this, AOU Bahrain branch, however, still does not offer any e-learning education program. Bahrain Teachers' College (BTC) - the official and only teacher training institution in Bahrain- similarly does not offer any e-learning or educational technology degree. The Arabian Gulf University (AGU) is the only institution that offers a Diploma and a Master's program in Distance Teaching and Training. What this indicates therefore is that e-learning education programs that train and graduate professional e-learning instructors are extremely scarce in Bahrain. This has adverse consequences on students' knowledge production and innovation since, as Wiseman & Anderson (2012) suggest, the more teachers are trained and supported in ICT-based pedagogies, the more they are capable of linking "their own education and expertise in knowledge development to the learning experiences and knowledge outcomes of their students" (p.617).

CONCLUSIONS

The purpose behind introducing e-learning not only in Bahrain but in the whole GCC region is to impact employment and labor arrangements and measures in ways that would lead to national sustainable development and innovation. Although The Kingdom of Bahrain as a country has institutional capacity in ICT, the current status and conditions of ICT integration and e-learning in the public schools and universities of Bahrain unfortunately suggest that there currently is no evidence of ICT being used for building knowledge production capacity that would support national sustainable development. Indications of this, as portrayed by the

results of this investigation, are reflected in several conditions existing in most educational institutions at all levels, such as:

- scarcity of research;
- lack of sufficient teacher training and support in ICT-based pedagogies;
- reliance on traditional teacher-centered practices which lead to e-learning environments that mirror pre-ICT educational cultures;
- heavy usage of e-learning systems to upload and download course materials and rare usage of e-learning platforms that use questions, case problems, simulations and interactive activities that can, as Broadbent (2002) explains, improve the quality of student learning;
- limited investment in e-learning to address and develop students higher-order thinking skills, which ultimately impacts negatively the accuracy, quantity, and quality of the knowledge they acquire, create, and implement; and finally
- poor transfer of knowledge to new situations outside of the classroom.

It is safe to argue, then, that even though Bahrain with its many and ambitious e-learning initiatives has set the foundation for innovation development, it has not yet reached the point of fostering and transferring innovation from K-12 education to higher education and eventually to the labor market, in order to support research development and innovation (RDI) systems and national innovation systems. This confirms what has been discovered by research, that basically "…technology tools do not alone create innovation; it is the ways technology is integrated into learning that creates the opportunity for both tacit and explicit innovation" (Wiseman & Anderson, 2012, p. 611).

The current status of e-learning in Bahrain consequently calls for several measures from policymakers, such as:

- mandating that all universities and colleges granting Education degrees to offer new e-learning and educational technology programs;
- suggesting that HEIs consider providing e-learning opportunities that systematically lead students to a certificate or degree of some sort;
- requiring from universities to have in their strategic plans clear and specific research agendas, which (1) identify themes to be focused on by researchers, among them ICT and e-learning themes; (2) include strategic objectives related to provision of research training and funding, dissemination of research findings, and informed decision making and interventions based on research outcomes; and (3) encourage the implementation of action research that is related to e-learning implementations at the classroom level;
- developing strategies for introducing and promoting action research in K-12 education and for supplying teachers, head teachers, and school leaders with proper research training and greater autonomy, without which the implementation of action research is almost impossible;
- developing for all educational institutions in Bahrain technology plans that incorporate ICT-related professional development opportunities that include both ICT literacy and ICT pedagogy training that concentrates on the design of electronic activities, which engage students and develop their higher-order thinking skills and knowledge acquisition, creation, and implementation capacity;
- sufficiently equipping institutions with the latest technology tools and resources and with supplying them with the necessary technical support;
- discovering ways to "*Arabicize*" existing high-quality teaching software or, even better, providing Bahraini technolgy-savvy youths with the necessary programming and pedagogical training, through which they can develop teaching software that measures

up in quality, if not competes with, what is already existing in the market" (Abdul Razzak, 2013, p.315);

- improving some of the conditions exisiting in schools which have been acting as barriers to effective implementation of best practices, in general, and succeesful e-learning and ICT integration, in particular.

Successfully implementing such measures and others like them can in the long run improve the quality of the whole education system in Bahrain.This will generate better education outcomes in terms of more prepared and qualified graduates who get pumped into the labor force. The resulting impact of this will ultimately be, therefore, a positve one on RDI systems and national innovation systems, which will consequently help pave the way toward the creation of the information society targeted by Bahrain's 2030 Economic Vision. All of this can certainly become more possible when such educational measures are supplemented with actions outside the education arena, like future economic investments and developments, which Bahrain has in fact already started planning for (e.g. the 4th National Telecommunications Plan and 5G technology).

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Student experiences of E-learning tool at College of Health Sciences

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ABSTRACT

Technology enables new learning experiences when combined with traditional face-to-face instruction. Today's modern classroom uses learning management system and e learning tools that capture student's cognition and engages them in learning process via technology. By receiving frequent and timely feedback on their performance, students can achieve the highest learning outcomes through a learner centric academic pathway. This paper presents an overview of learner experiences of MasteringChemistry®, an online-based learning support and monitoring tool, at College of Health Sciences. The survey results revealed that 85% of the students showed positive response regarding the usefulness of e-learning tool in improving their learning. In addition, 87% of the students found MasteringChemistry has variety of options for personalizing the learning experiences. Since Feedback is a critical component on online learning and assessment, 77% of the students found receiving timely feedback on their assignment was helpful. Furthermore, 70% of the students believed that MasteringChemistry® made them more active and self-directed learners. All the above findings support that technology assisted learning shifts the pedagogy from instructor-centered to learner-centered.

Keywords: online assignments, immediate feedback, learning flexibility, interactivity.

INTRODUCTION

Higher education systems all over the world are challenged nowadays by the new information and communication technologies (ICT) (Peters, 2001). From an educational perspective the "e" in e-learning stands for more than electronic, it can also stand for extending and enhancing learning experience. E learning seems to be initially intended for distance education. However, their usage may be extended to support face-to-face and blended delivery (Sarah, 2005). Soren Niper (1989) identified three generations of distance education: the first was correspondence teaching; the second was multi-media teaching via the use of print with broadcast media, cassettes and to some degree computers; and the third generation was identified with the new interactive communication technologies.

Learning nowadays is shifting from instructor-centered to learner-centered, and is undertaken anywhere, from classrooms to homes and offices. With the emergence of e learning, online learning tools are becoming more and more important. Such tutoring tools allow students to practice at their own pace, providing them with proper explanation and feedback when they make mistakes. Educational institutions are striving to encourage the use of learning technologies that enhance and complement classroom teaching, meet different interests and provide successful learning outcomes.

At College of Health Sciences – University of Bahrain, it had always been the college strategy to adapt different learning technologies in order to graduate students who are independent learners. Thus, by using e learning, teaching and learning could be enhanced and developed, as students work in and outside the class, which makes modules "more participated, interactive and student-centered" (Garrison & Vaughan, 2008). Working outside class encourages students to study independently and thus spend more time engaged in learning which improves their performance (Esgi, 2013).

MasteringChemistry® is an electronic homework management system that has been adapted in 2011 by the Integrated Sciences Department to teach the Chemistry and Biochemistry courses. This system accompanies General, Organic, and Biological Chemistry (Structure of life) by Karen Timberlake (Pearson) textbook, which is used in teaching the courses. The main purpose of embracing this system is to keep students more engaged in learning, hence, providing advantages to their learning and performance. (http://www.masteringchemistry.com/).

MasteringChemistry® system provides students with all resources used in teaching; like PowerPoint Presentations, online tutorials, and online case studies. It also provides a great opportunity to students to revise and review their information through reviewing questions and quizzes supplied in the system as well. Moreover, MasteringChemistry® enables users to view the textbook anywhere and at any time just with few clicks via the "e-text" feature. Another feature that distinguishes this system is the online assignments, where each student is assigned to different set of questions out of a pool selected by his/her tutor. An advantage of this feature is the fact that "Many of the questions give individualized answer feedback, so students can correct their mistakes and quickly resolve a misconception. In this study, we aim to investigate the college of Health Sciences students experience and perceptions of the MasteringChemistry® system. Understanding student perceptions towards learning environments is crucial for enhancing learning effects.

RESEARCH METHODOLOGY

This study was conducted at College of Health Sciences – University of Bahrain to understand learner experiences with MasteringChemistry® as an e-learning tool. MasteringChemistry® enabled the students to engage with course content on a regular basis outside the classroom to test their knowledge and to gain a better understanding of what they need to work on by providing regular feedback. The sample size was 50 first year Allied Health students who were enrolled in CGS-102 chemistry course in the academic year 2015-16. The study was conducted after the students used MasteringChemistry® for 15 weeks.

A questionnaire was developed from literature review and modified by the Education Development Center at CHS. Data was collected using the questionnaire divided into six parts. The first part refers to the structure and organization of MasteringChemistry®. The second part includes student evaluation of the MasteringChemistry® content and the third part was measuring the student's motivation of using the system. In the fourth part of the questionnaire respondents assess the effectiveness of the feedback provided by the system and the fifth part was about their interaction with the system. The sixth part focused on their personal learning experience of using MasteringChemistry®.

Participants were asked to indicate their responses on a 5 point scale (1-strongly disagree, 2-disagree, 3-uncertain, 4-agree, 5 –strongly agree.). For each question students' responses were considered to be positive when any one of strongly agree or agree is checked. Negative response included the selection of uncertainty, disagree or strongly disagree. The students were also asked two other questions. The first was about the resources of MasteringChemistry® that worked well in understanding the topics and the second about the number of hours/week spend on MasteringChemistry®.

RESULTS

1. **Structure & organization of MasteringChemistry®.**

Successful learning requires effective and engaging learning content. The old competitive reference points describing information resources that used to distinguish between institutions – the numbers of science labs and library books – are being replaced by a new one: information resources and tools available to students [Green, & Gilbert, 1995]. The quality of well-designed e-Learning programs is the precedent factor for learners when considering e-Learning. Quality is an important factor influencing learning effects and satisfaction in e-Learning [Piccoli et al., 2001]. 96 % of the students who took the survey responded that Mastering Chemistry is well organized. (**Figure 1**)

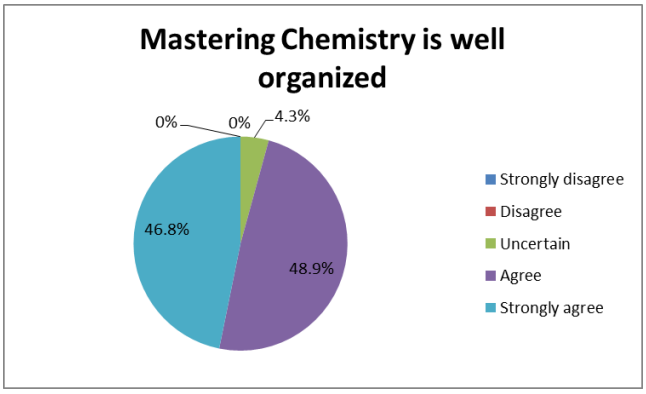

Figure 1: shows that 96 % of the students felt that mastering chemistry is well organized

A well-designed delivery process, with appropriate assistance to students for solving their curriculum and technical difficulties, can decrease e-Learners' uncertainty and frustration with eLearning, further leading to better learning experiences. Hence, e-Learning course quality influences perceived e-Learner satisfaction very significantly [Sun et al., 2008]. 79% of the student's responses that they got clear instruction from the Chemistry faculty at the CHS on how to use Mastering Chemistry before posting any online assignment (**Figure 2**).

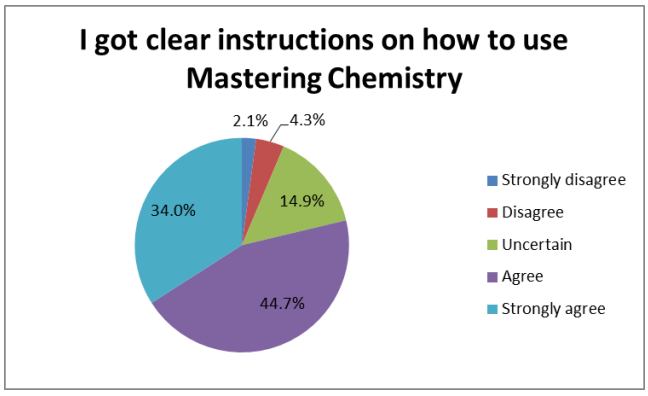

Figure 2: shows that 78.7 % of the students got clear instructions on how to use Mastering Chemistry

2. Content of MasteringChemistry®.

Web-enhanced learning improves instruction and course management and offers numerous pedagogical benefits for learners [Sun et al., 2008]. Course Websites have proved to be an effective means of delivering learning materials, with students responding positively to the quality resources they make available [Wernet et al., 2000]. Online resources allow students to revisit or go over challenging material at their own pace and as often as they require to reinforce their learning. Animations, simulations and videos can all be used to demonstrate something that is hard to understand from explanations in words or on paper. Multimedia-based e learning has a dramatic impact on both the process and product of learning because the multi-sensory learning environments can help maximize learners' ability to retain information [Syed, 2001]. There was a clear indication that the e-learning tool enhanced the learning of students. Majority of the students (84.7%) indicated that using Mastering Chemistry improves their learning (**Figure 3**).

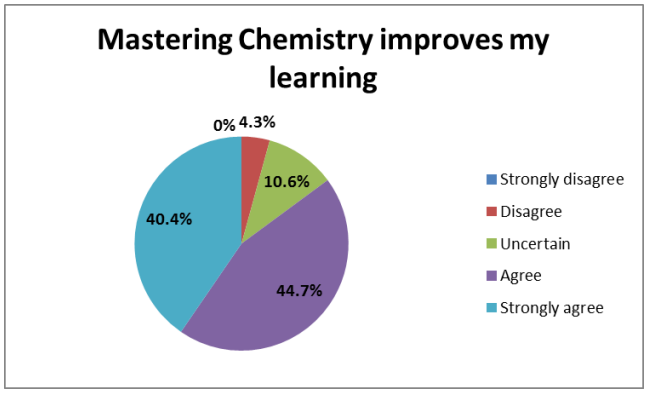

Figure 3: shows that 84.7 % of the students think that Mastering Chemistry improves their learning

3. Students Motivation

E-learning tools increase learning flexibility as students can easily access online material and reuse it as needed. Mastering chemistry offers learners a variety of options for personalizing the learning experience based on their specific needs and preferences. Moreover, students can participate in online course activities when and where works best for them. To increase flexibility, therefore, means essentially to overcome obstacles emerging from the rigidity of traditional forms of education by enabling learners to select what is best for them with respect to key dimensions of learning [Collis & Moonen, 2001]. 87.2% of the students have either agreed or strongly agreed that online learning provided flexibility to study (**Figure 4**).

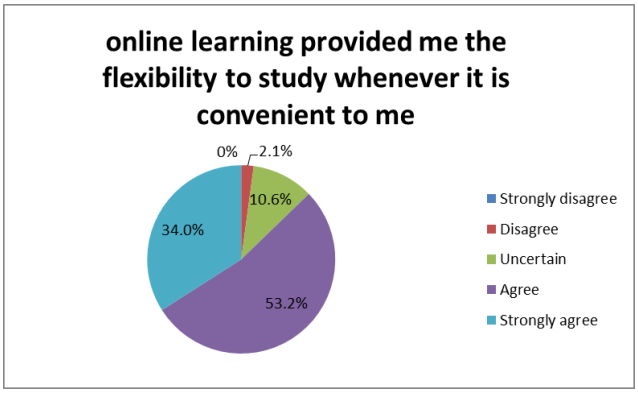

Figure 4: shows that 87.2 % of the students felt that online learning provided flexibility to study

Effective online assessments should include a wide variety of clearly explained assignments on a regular basis. Rather than relying on their first exam scores regular online assignments offers students an earlier opportunity to remediate and the resources they need to do it. In the course Chemistry for Allied health, students were assigned 11 graded homework assignments after each chapter is covered in the class. Each assignment takes approximately 30-45 minutes and have only one week to complete. This keeps them regularly engaged in learning. Students were allowed three attempts to complete each question. We continuously monitor the grade book, using the color-coding to analyze student progress and engagement. Homework is a formative assessment

tool, so 20 percent course credit is assigned accordingly. 74.5% students felt that online assignments were a good use of their time (**Figure 5**).

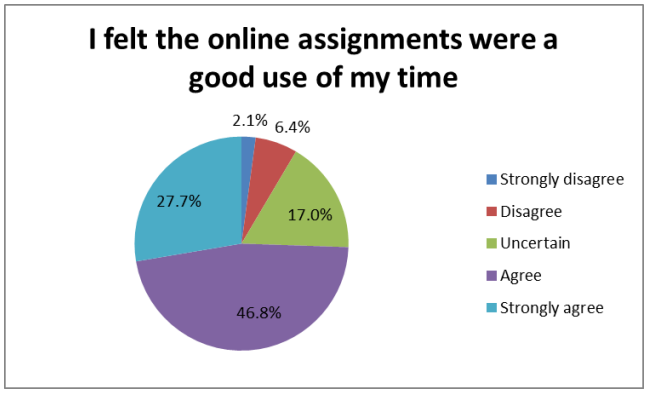

Figure 5:- shows that 74.5 % of the students rated that online assignments were a good use of their time.

4. Immediate Feedback

Feedback is a critical component on online learning and assessment. Effective assessment techniques include projects, portfolios, self-assessments, peer evaluations, and weekly assignments with immediate feedback [Jorge & Berryl, 2007]. Effective and high quality feedback has been identified as an integral part of the learning process [Ramsden, 2003]. Quality formative feedback needs to be timely, motivating, personalized, and in direct relation to assessment criteria. Feedback is more effective if it is provided timely since students can still recall how they addressed each assessed task [Race, 2006]. Timely feedback is also important because it allows students to apply it to future learning and assessments.

At CHS, mastering chemistry is an e-learning tool that effectively supports the provision of formative feedback. Students get immediate feedback on their answers for the weekly assignments and multiple attempts for each problem, their understanding of the material will improve, which will result in higher exam scores. There is a clear indication of the usefulness of online assignments and feedback system of mastering chemistry to the students. 76.6% of the student have either agreed or strongly agreed that online feedback of the assignments was helpful (**Figure 6**).

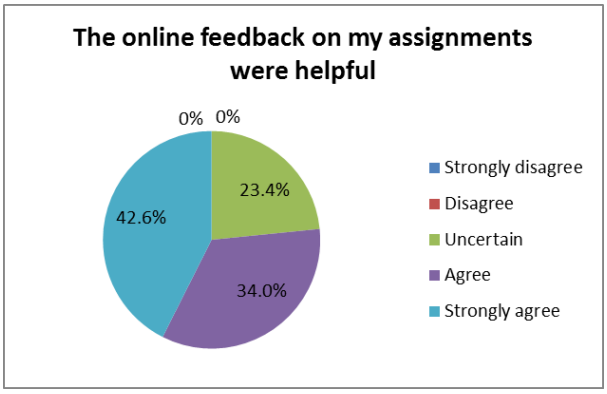

Figure 6: shows that 76.6 % of the students think that online feedback system of Mastering Chemistry was helpful

5. Students Interaction with MasteringChemistry®.

Active learning environments with high levels of interactivity between students and their environment (peers, instructors, and content) not only motivate students, but also improve overall learning achievement and satisfaction [Rebecca, 2014]. Learning environments in which social interaction and collaboration are allowed and encouraged lead to positive learning outcomes [APA, 1997]. Collaborative learning tools can improve student satisfaction in the online learning environment. This type of environment allows for social interaction and creates meaningful, active, learning experiences [Bonk & Cunningham, 1998]. These tools allow for group work and immediate feedback. Students are able to share viewpoints and discuss them with one another in a virtual environment, thereby gaining insights and perspectives [Gunawardena, & Zittle, 1998]. Mastering Chemistry facilitates student-instructor and student-student interactions. The overall high ratings of interaction with peers speak the importance of communication and collaboration that students require. According to the survey results, more than 80% students prefer to do their weekly assignments with their friends at the college and 83% felt that Mastering Chemistry helped them to learn from their peers (**Figure 7**).

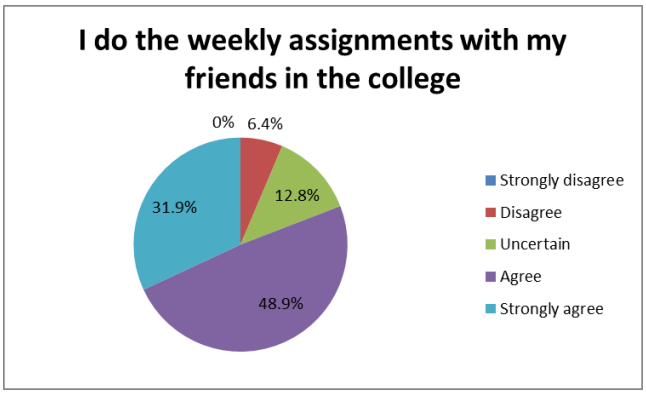

Figure 7: shows that 80.8 % of the students prefer to do their weekly assignment with peers.

In a virtual learning environment, interactions between learners and others or course materials can help solve problems and improve progress. Interacting electronically could improve learning effects [Piccoli et al., 2001]. Accordingly 83% of the students share with difficult topics with their peers when using Mastering Chemistry. **(Figure 8)**

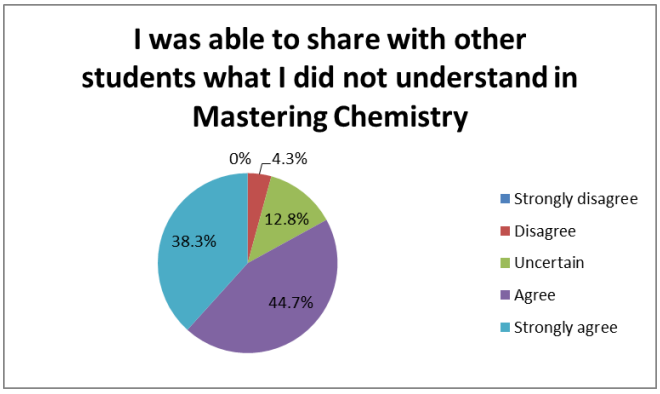

Figure 8: shows that 83 % of the students felt that MasteringChemistry helped them to learn from their peers.

6. Learning Strategies

The modernization of education suggests that the students not only have to acquire skills and habits to work with the growing volume and more sophisticated information streams but also have to possess ability to get new knowledge, independently to build the overall cognitive process in the surrounding IT environment [Shopova, 2012]. E learning is important for building technologically literate workforce as well as for meeting

society's continuous need for rapid lifelong learning delivered in increasingly more convenient form [Nycz & Cohen, 2007]. Students need to demonstrate time management and organization skills where the learner is able to complete assignments within due date and manage course content effectively. By using Mastering Chemistry, 70% of CHS students took more responsibilities for the learning by their own. **(Figure 9)**

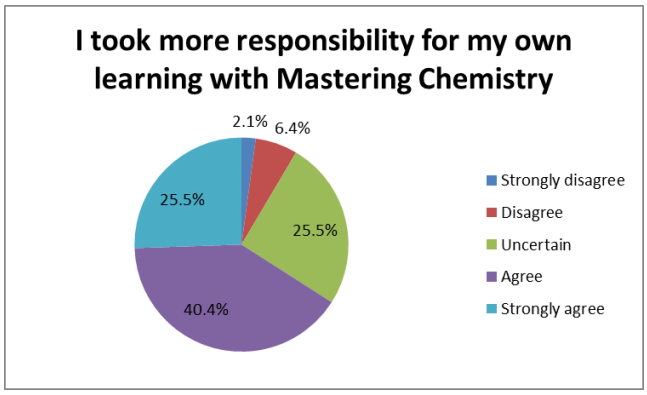

Figure 9: shows that 70 % of students took more responsibility of their own learning

Students in Web-enabled learning environments become more active and self-directed learners, who are exposed to enhanced learning materials [Kandies & Stern, 1999]. E-learners have demonstrated increased retention rates and better utilization of content, resulting in better achievement of knowledge, skills, and attitudes [Clark, 2002]. With respect to the usefulness of the online resources, all of them agreed that one or more of the online resources (self-study activities 21%, review questions 17%, quizzes 23%, and weekly assignments 39%) worked well in understanding the topics (**Figure 10**). The students rated weekly assignments as the highest (39%) because it was part of the course assessment.

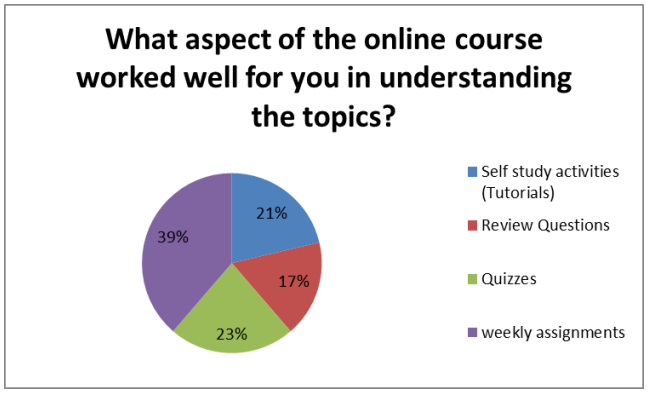

Figure 10: shows that more than one resources worked well in understanding the topics

In addition, 63% of the students reported that they spend 2 hours or more per week using other online resources of mastering chemistry such as quizzes, self-study activities and review questions outside of weekly assignments (**Figure 11**).

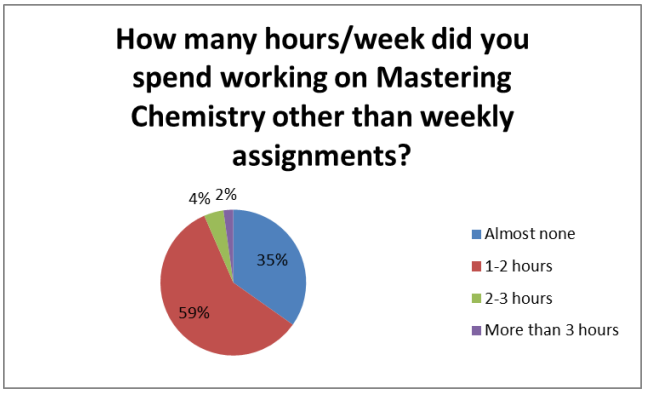

Figure 11: shows 63 % of the students spend 2 hours or more per week on Mastering Chemistry

CONCLUSIONS

Understanding student perceptions towards learning environments is crucial for enhancing learning effects. Assessing the general value of e learning and its characteristic, students agree that having e-course as addition to classroom teaching is helping them to organize their learning and achieve better results. The findings suggest that the learners respond favorably to Mastering Chemistry as an online learning and monitoring tool in providing academic support through practice, immediate feedback, revision of concepts and reflection through hints and the availability of theoretical concepts when working with exercises or assignments. It also offers lecturers opportunities for constant monitoring and support of concepts not adequately understood by students. Technology assisted learning shifts the pedagogy from instructor-centered to learner-centered. It promotes the interactivity between students and their learning environment (peers, instructors, content).

Future studies may explore methods to increase learner autonomy and interaction among instructors and students for improving learning performance. We will continue the use of mastering chemistry, the e-learning tool for all Chemistry courses in Integrated Sciences Division at CHS and will monitor and report the results to better understand and develop high quality e-learning experiences for our students.

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eLearning at Bahrain Polytechnic: A discussion of the issues, time considerations, the ESL influence and possible future directions.

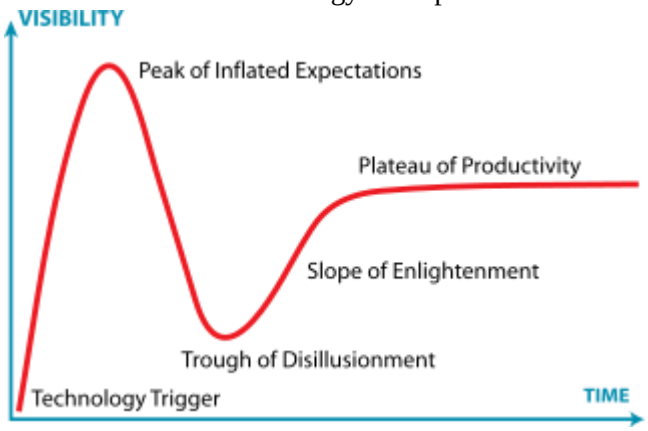
Introduction

The definition of eLearning has been ambitiously debated in academic publications, and, as no solid conclusion has been reached, it is generally defined at Bahrain Polytechnic as something more than the uploading of static documents (MS Word, PowerPoint) but something less than fully online interactive lessons, or 'blended learning.' Tentatively, this has been taken to mean the combination of online resources and activities presented in class to be accessed before, during and after by students. This document will firstly outline some of the possible issues at Bahrain Polytechnic, it will then consider some of the time scales applied by other organizations to eLearning projects. Finally, a consideration of future directions for Bahrain Polytechnic, making us the educational institution of choice for Bahrain.

Issues

The technology hump

With any new technology, there will necessarily be a period of adjustment. The cognitive load may be large or small depending on the tutors current state of technological readiness and current practices. This applies both to introducing new technology to current situations and to technology upgrades. Teachers not only have to get used to using the technology, but to also find pedagogically sound ways of using that technology in the classroom or as a teaching tool. The technology hump is often accompanied by initial periods of despondency as users come to understand the processes needed and restrictions of particular software. This despondency and cognitive load may lead to negative ramifications as the user will be disinclined to make use of the new technology. This process can be likened to the 'Hype Cycle'



Time

Learning any new skill takes time, motivation and a reason to invest. Leaving discussions concerning intrinsic and extrinsic motivation aside (although they are a very important discussion to have), when the teaching practitioner is able to complete their job to a standard that, at the very least, allows for the continuance of employment, there is no impetus to consider different methods of instruction. Finally, if that learning involves software that may

or may not assist the tutor (in other words, it is not known if the new skill will be useful or not) in their particular teaching methodology, why would there be investment?

Sense of Identity/Community of Practice

Standing in front of a classroom can be anxiety causing, even for experienced teachers. Schemata created from experience become the confidence giving comfort zone that support the person at the chalk face. If Maslow's work on the 'self' and self-actualization are interconnected to the sense of accomplishment at work [paraphrased], then any interruption to previous methods, necessarily has an impact on the individual sense of self. Therefore, suggestably, top-down suggestions to move from the known to the unknown may be greeted negatively.

Evaluation

Models of evaluation must, by necessity, be included in this discussion. Classroom materials, most often created in 'Word,' are used at the chalk face and have anecdotally become the norm in the Learning Management System (LMS). These (and PowerPoint slides, Portable Document Formats (PDF) etc.) can be added to the LMS very simply. This could be called 'Information dissemination' as the manner in which they are used is not communicated in the LMS. This, however, may mean that tutors can continue with very little change from traditional classes. Current course evaluation practices do not account for the possible impact of 'e'ifying course materials beyond information dissemination. The shift from teacher centred classrooms to a Problem Based format and moving from face to face document orientated classes to a more autonomous 'e' format adds several layers of complexity to the analysis.

Priorities

As mentioned above, the introduction of eLearning technologies into the classroom involves initial learning curve, a period of adjustment, and then a period of re-assessing current classroom strategies. If staff need to be Academic Advisors, create new learning resources and

assessments, mark, moderate and do all the other things that teaching staff need to do, it is difficult to prioritize the time required to learn, adjust and evaluate new technology. This may be further complicated if they operate under the assumption that the technology will fail them.

Understanding of what is expected

As the introduction states, the definition of eLearning has been debated in academia since the creation of the internet (or thereabouts). Additionally, this understanding is unique to individual staff members. This leads to debate not only on the 'What' but also to the level of expectations. How does the polytechnic define what is an appropriate level of 'eLearning' in each course? How do staff view what is communicated by the institution? How do individual staff members feel about their own levels of 'e'-ness and how does that impact on their courses and teaching styles.

Additionally, there is a necessity to further clarify for users the difference between using piecemeal software and creating complete coherent lessons.

Buy-in

What kind of incentives need to be offered for staff to include eLearning strategies in their teaching. How can appropriate strategies be created to ensure quality buy-in, and not just surface level commitment? Can they be the same campus wide or should be be differences according to the needs of the faculty?

The process

Finally, the polytechnic, for the most part, already has a series of resources made for each course. They sit in the Learning Management System (LMS) and could be modified into a more efriendly format. However, how can this happen?

Time Considerations

Too often, when asked about time needed developing lessons (both online and in a face to face (F2F) environment), it is very difficult to give a clear and definitive answer. It all depends what the current state of resources are, what the expectations are of the parties concerned, what constitutes a lesson and what resources are available to the designers. Designing lesson material is as much of an art as it is a science.

Research done at the Chapman Alliance (www.chapmanalliance.com/howlong/, 2010) produced the following results.

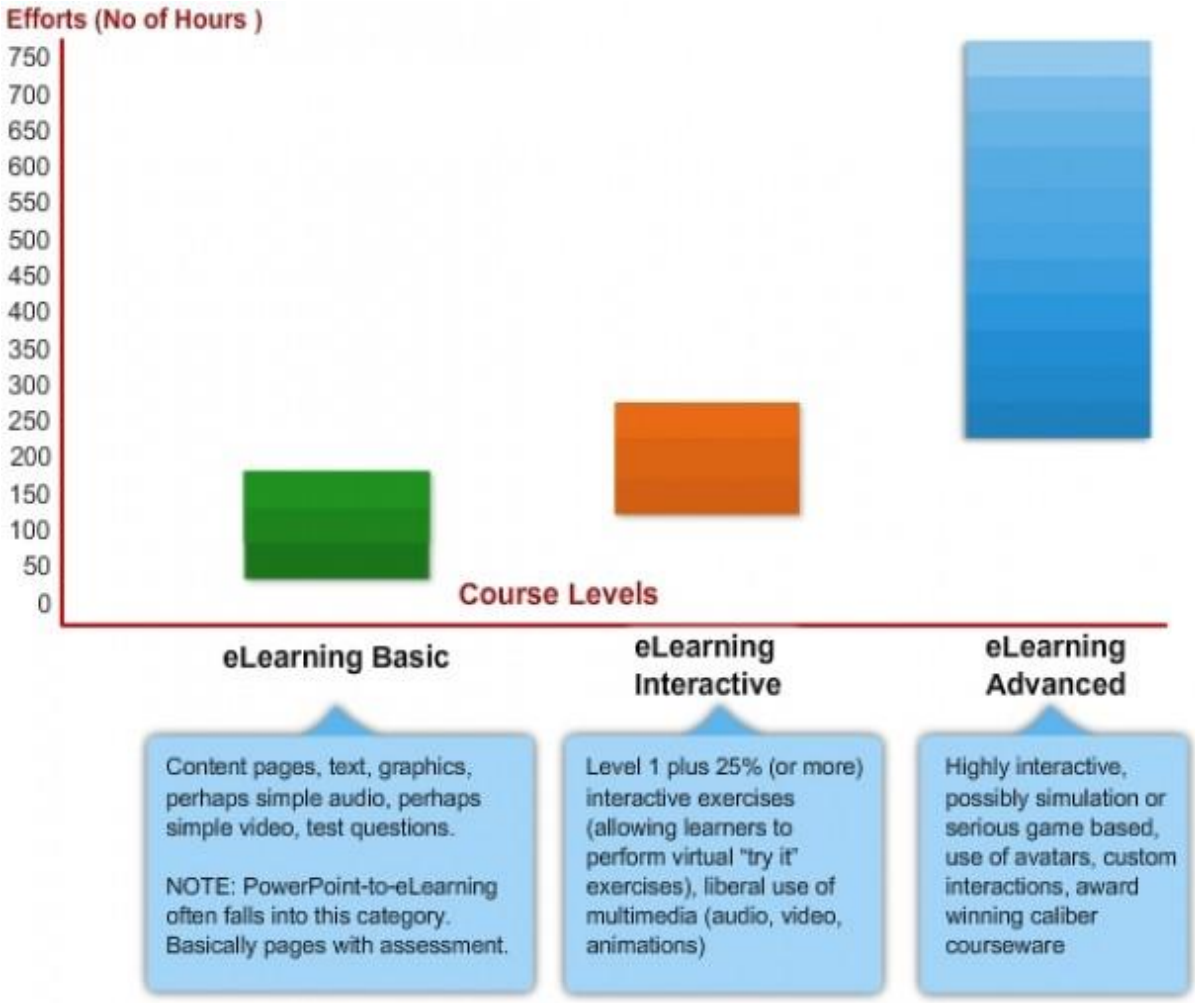
The survey indicated that the predominant development software used were

Software used to develop instruction	
Microsoft Word and PowerPoint	71.7 percent
Adobe Flash	56.5 percent
Captivate	50 percent
LMS-based tools	26.1 percent
Articulate	19.6 percent
Lectora	15.2 percent
WebEx Presentation Studio	10.9 percent

The research surveyed 249 organizations and received 3,947 responses from trainers, who create content for about 20,000,000 learners. The results are divided by the level of the electronic media being used and the type of learning materials used. The results show the number of hours spent in the preparation of one hour of class time.

Instructor-Led Training (ITL)		
ITL includes front end analysis, design, lesson plans, handouts, workbooks, PowerPoint, SME reviews of content to be used during live, face-to-face learning events.	**22 Hours**	Simple learning content, possible repurposing of learning source material, with minimal learning support materials
	43 Hours	Average project for creating corporate ILT class with well documented deliverables (Lesson Plan, Handouts, Workbooks, PowerPoint Visuals)
	82 Hours	Complex subject matter, very custom, extended time spent on formatting classroom deliverables
Level 1 eLearning (Basic)		
Level 1 includes content pages, text, graphics, perhaps simple audio, perhaps simple video, test questions. NOTE: PowerPoint-to-eLearning often falls into this category. Basically pages with assessment	**49 Hours**	eLearning output, Rapid Development, Simple Content, Specialized Authoring Tools (i.e. PowerPoint to eLearning tools)
	79 Hours	eLearning output, Most typical (average) Level 1 eLearning Content
	125 Hours	eLearning output, Complex projects, difficult to produce, more media production
Level 2 eLearning (Interactive)		
Level 2 includes Level 1 eLearning content plus 25% (or more) interactive exercises, allowing learners to perform virtual "try it" exercises, liberal use of multimedia (audio, video, and animations)	**127 Hours**	eLearning output, Rapid development through templated interactions, simple animation, efficient or low-end media production
	184 Hours	eLearning output, Most typical (average) Level 2 projects
	267 Hours	eLearning output, advanced and custom interactions, embedded simulation activities and lots of media
Level 3 eLearning (Advanced)		
Level 3 includes highly interactive, possibly simulation or serious game-based, use of avatars, custom	**217 Hours**	eLearning output, templated interactions, templated games and simulations, efficient simulation development

interactions, award-winning caliber courseware.		practices (rapid development)
	490 Hours	eLearning output, Most typical (average) Level 3 projects
	716 Hours	eLearning output, complex projects, advanced learning simulations and games, extensive media production



Source Citation: Chapman, B. (2010). How Long Does it Take to Create Learning? [Research Study]. Published by Chapman Alliance LLC. www.chapmanalliance.com

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Source Citation: http://www.astd.org/Publications/Newsletters/Learning-Circuits/Learning-Circuits-Archives/2009/08/Time-to-Develop-One-Hour-of-Training

The ESL/EFL influence

The picture becomes further complicated when the current context is considered. Although many students have what appear to be high level speaking skills, it is often the case that the other productive skill, writing, lets them down. This is particularly apparent in the academic writing genre, which, of course, is genre (faculty) specific. Student writing is often characterized with run on sentences, incorrect logical assumptions, and a lot of non-academic language, not to mention grammatical inconsistencies.

Although less quantifiable, it seems to stand to reason that receptive skills (reading and listening) would also be at a lower level than that of a Native English speaker. Therefore the approach to the classroom, the approach to how lessons are structured, and in particular, the approach to how eLessons are structured must be carefully considered. Care must be taken to reduce cognitive load, to provide information that is 'digest-able' and at an appropriate level*. Care must be taken to provide simple, yet specific instructions, and all materials must be trialed and retrialed.

* Appropriate levels may be:

End of Foundation 1
Flesch-Kincaid Grade Level ... 8-9

End of Foundation 2
Flesch-Kincaid Grade Level ... 9-10

Degree students
Flesch-Kincaid Grade Level ... 10-12

Therefore, in this context, the production of coherent online materials may take longer than the time periods suggested above. This combined with the current staff shortages make the production of eMaterials daunting indeed.

Future Directions

One rule per semester

Push, over the course of each semester, one thing that will support both eLearning and increase staff ePreparedness and the coherency of the eLessons. This has been trialed in an ad hoc. manner asking staff to stop adding static documents and instead to use 'Pages' (where appropriate) and 'Books' in the LMS. This has been met with some success; in particular the use of books has seen a dramatic rise in the past 2 years (currently close to 400 are in use).

The current push is to increase the use of Mahara – the ePortfolio of choice for Bahrain Polytechnic.

Open and available support

It is essential that staff feel that they can approach a person to support them with bespoke training. Communication through written methods is difficult as language used leads to misunderstanding and is often more time consuming. Just In Time (JIT) training (through meeting requests), weekly training, bespoke sessions and the LMS 'walkaround' frees staff to ask questions in a place that they are more comfortable and does not to detract from resource preparation. Additionally, the support section of the LMS is regularly updated with instructions, answers to questions and things used in training.

The Two week Re-Jig

The LMS trainer takes a two week period (usually two sections) of a course and re-jigs them in another format. These should be created for a 'future week,' so that once the changes are in place the tutor can then use them in the classroom. The tutor will then be able to apply the same process to other parts of the same course (possibly with training), and other courses that they are involved with.

Showcasing

Staff who make the time to prepare coherent lessons should be asked to showcase what they have done. Currently there is no avenue for this. The LMS trainer is often asked to show best practice examples but without approval from the tutor(s) concerned, this is ethically inappropriate.

Top down approach

Support from upper management is essential in accomplishing any move towards a more eCentric environment. This could be further aided by requiring all 'Advice giving' staff (this would include the Academic Development Department) to have a strong working knowledge of both e-concepts and the LMS. This is particularly important in the advancement of the Problem Based Learning initiative.

Gaining staff buy in

Staff need to feel that they have some involvement in the future direction the LMS (and the polytechnic for that matter) for there to be buy in. The decisions around what training they need, what future plugins should be included, should ultimately fall at their feet. There is current discussion with the director of ICTS to open processes to add in the inclusion of both new software and staff access to that software. This process should include LMS options too.

LMS Connection

Currently, the LMS is viewed as standalone or something additional. The LMS administrators need to ask for information in order to complete their jobs despite policies and procedures being in place that request the information at the time that it is needed. An institutional shift is needed, particularly when the department containing the information is unwilling to provide it. The LMS needs to lead organizational decisions in some cases and needs to be included in top level decisions. There have been cases where decisions made at higher levels are not possible in the LMS.

Trailing and testing new software

This activity needs to have a process attached to it. Piecemeal software (such as WhatsApp for communication with students) may serve a purpose and may provide answers to institutional eShortcomings. However, with respect to auditing and appeals (both legal and institutional), these present an issue with the potential to impact on our standing in the Bahrain (and the Middle East) academic community, cause legal issues and cause bad publicity. The activity of finding, testing, and applying robust rules to new software needs to become a legitimized activity so that the Polytechnic can both utilize new tools, have someone on campus who can train staff and protect the institution from possible issues.

Commercialization

Currently the institution is offering courses which range between information dissemination to level One eLearning courses. Provided students are added to Active Directory, anyone can be added to any course at any time. This means that short course not on campus can be easily run from inside the institution (notwithstanding the number of Turnitin licences should plagiarism checking software be needed). However, the current courses are designed for blended learning and the creation of fully online lessons may require investment in software (Articulate for example), an Audio Visual room (plans already available) and training for staff. An intermediate level (Level two) of online courses could also be developed but careful attention to cohesion, coherency, appropriateness and clarity, combined with an effective evaluation cycle, needs to be applied. This may take more than the current one hour of preparation for every hour of contact classroom time.

A further approach, one that would need to be investigated, is that we could farm out what we do. For instance, a staff member at a different tertiary institution on the island reported that although they have a Moodle instance, it is underutilized. In order to have any course 'turned on' there are a series of forms that need to be manually filled out. These then need to be signed by the dean and then given to the ICT department. There is no guarantee that the course will be opened within a reasonable period of that happening. Then once the course has been opened, the staff members then need to add the students to the courses themselves. These are two labour intensive and time consuming processes. Further, the staff have no access to any person who can support, train or make best practice suggestions to them. We could provide this to other organizations.

Conclusion

Bahrain Polytechnic is a unique institution in a unique situation. As outlined above, there are barriers or obstacles that, if not overcome, need to borne in mind as progress is made. Much of this relates to affective factors that are inherent to any institution. However, supplying the conditions necessary for adjustment to new teaching strategies, new software, new hardware, along with suppliying that new software and hardware are manageable possibilities. Forward planning now, with a greater importance placed on eLearning (definition not withstanding) and the tools made available to teaching staff will support the polytechnic and its students far into the future.

Vulnerability and Socially Networked Learning

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Abstract

The view of technology within education and educational research has predominantly been instrumentalist or essentialist, with technology either viewed as the transparent means to obtaining educational goals or as having innate and absolute attributes (Hamilton & Friesen, 2013). These perspectives separate technology from the social contexts it inhabits and influences, frequently disregarding the very personal negotiations of identity and identity performance which working online can entail for students. In this paper, I explore the factors which contribute to feelings of vulnerability when learning within networked publics. Through a review of literature, I identify pedagogical, technological, commercial and political drivers of socially networked learning, before turning to the risks which may be derived from such learning. Next, I look more closely at the identity role of 'student', the individual construction of identity standards (Burke and Stets, 2009; Davis, 2014) and ways in which socially networked learning may require a shift in what have traditionally been successful role identities for the student. Finally, I present some tentative ideas about the implications for teaching, suggesting that teachers need to be aware of the commercial exposure inherent to working in open spaces, provide alternatives, include identity work which focuses on digital footprints, and support students with a discourse that embraces the sometimes messy, always contingent, nature of emergent identities.

Keywords: networked publics, identity, vulnerability.

Introduction

Within discussion of digital education, socially networked learning is a ubiquitous concept (Edwards, 2014, p. 526) which frequently carries with it notions of heightened democratic participation, freedom, cosmopolitanism and openness (Edwards, Tracy & Jordan, 2011). Dominant discourse suggests these are naturally liberating and inherent properties of networked learning; attention is less widely given to the vulnerabilities and insecurities that networked learning can involve. Yet, "establishing oneself as a node in a broad network of distributed creativity", which Joichi Ito (2011) suggests is the new process of education, can be a daunting experience for students. Indeed, even within a closed network some students report "strong feelings of exposure and inhibition" (Kruger, 2006, p. 3) and can struggle with a perceived abundance of information, ideas and resources within the network (Veletsianos & Navarrete, 2012, p. 152). Thus, through this paper I seek to explore the factors which contribute to feelings of vulnerability when learning within networked publics, "publics that are restructured by networked technologies; they are simultaneously a space and a collection of people" (boyd, 2010, p. 41). This framing is deliberately broad, so as to include learning which utilises a range of social software, including social network sites (SNSs), which boyd & Ellison define as "web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system" (2007, p. 211), as well as knowledge building sites such as wikis and blogs, whether group or individual. In such blogs, one writes "oneself into being" in the same way that one does through profile generation (boyd, 2006; boyd 2010).

Through a review of literature, I briefly examine drivers that encourage socially networked learning, before turning to the risks which may be derived from such learning. Next, I look more closely at the identity role of 'student', the individual construction of identity standards (Burke and Stets, 2009; Davis, 2014) and ways in which socially networked learning may require a shift in what have

traditionally been successful role identities for the student. Finally, I present some tentative ideas about the implications for teaching.

Why networked learning?

Much early educational work with the Internet was driven by content. In part, the shift towards socially networked learning is because the dominant educational paradigm supports social constructivist assumptions about the cognitive processes involved in learning (Mayes & de Freitas, 2007). It is related to a longer tradition of cooperative and collaborative learning, for example, Vygotsky (1930-1934/1978) and Lave and Wenger (1991), which grew out of the cultural-turn that reoriented the social sciences to a "focus on social and cultural factors rather than the individual and their psychology, or on the biological bases of learning" (Jones, 2007, p. 170). Within the paradigm, all learning is social, as proponent Tressie McMillan Cottom recently highlighted in interview: "learning is inherently social. It relies on context and stories and negotiation of self and history and selves. We can come to know alone, but to learn we have to be social" (Weber, 2016).

However, the affordances of technology also clearly play a part. While notions of "participatory culture" (Jenkins, 1992, as cited in Jenkins, Ito & boyd, 2016) existed before Web 2.0 technology, both in practices such as fandom and in theory such as Lave & Wenger's Community of Practice (1991), the digital domain enables participation in a way which print does not. "With digital culture, more people are making media and sharing what they made with each other" (Jenkins *et al*., 2016, p. 8). This affordance has been embraced not just by individuals and educators, but, as boyd notes, also by corporations capitalising on people's practices (Jenkins *et al*., 2016, p. 9). These commercial interests in networked publics also influence socially networked learning.

Another driver of socially networked learning is perceived student needs in their future working lives. In a recent presentation (ePortfolios in Ireland: What Now, Where Next? 2016), Helen Beetham observed that there are 1.4 million 'micro' firms, with less than 10 employees, in the UK

and Ireland alone. Owing to the trend towards employment in these firms, or within self-started companies, Beetham suggests that future graduates will be reliant on their digital identities to gain work (2016). Using a theory of strong and weak ties (Granovetter, 1973, as cited in Pearson, 2009), which Erika Pearson explains can be used to "explain how information, ideas, and social energy or capital circulate between individuals, and within and between networks, particularly in mediated networks" (Haythornwaite, 2002; Genoni, etal., 2005; both as cited in Pearson, 2009), it follows that future graduates will benefit from building these digital identities, and developing digital networking practices, through socially networked learning.

Preparing students for future lives can also be viewed from the perspective of producing competent, employable graduates to meet the needs of the economy, a task which has long been imposed on higher education by governments (Yorke, 2004). There is ample policy pressure to produce graduates with the communication and identity management skills which participation in socially networked learning may help to develop. For example:

> *All universities should be expected to demonstrate how their institution prepares its students for employment, including through training in modern workplace skills such as team working, business awareness, and communication skills.*
>
> Department for Business Innovation and Skills (BIS), 2009, p. 8

Similarly, policy demands more flexible learning opportunities which can be completed from within the workplace and home (BIS, 2009, p. 6). Against a historical backdrop of student feelings of isolation and alienation within distance education (Galusha, 1997, as cited in Veletsiano & Navarrete, 2012), socially networked learning seems a logical progression.

The risks of - and resistance to - learning in networked publics

Guy Merchant describes a discourse of identity threat which speaks of the anxiety and mistrust which surrounds identity performance online. Fear exists around being deceived, facing identity theft and being surveilled (Merchant, 2006). While these are no doubt genuine risks that learners, and especially younger or less digitally experienced learners need to be taught to evade, the prevalence of the discourse's associated 'scare stories' speaks to an angst which may be a barrier to student engagement with socially networked learning. It additionally raises questions about what teachers can legitimately ask students to do in unbounded public spaces. However, the widespread nature of these fears is also a call to aid students in moving past their fears, with requisite online safety skills, so that they can build diverse online social networks and avoid what Sheehan (2015) terms "the spiral of silence". This theory and associated research suggests that more diverse social networks, with weak ties (Granvetter, 1973, as cited in Sheehan, 2015) between people of different backgrounds, enable people to better read the opinion climate, and makes them more likely to voice their opinions that they perceive to be in the minority. In this sense, helping students to build diverse online networks through socially networked learning could add value for society, as well as individuals (Sheehan, 2015).

A further political dimension to the vulnerability that we can expose students to when asking them to learn in unbounded networks and though SNSs is that of generating "quantifiable, marketable" communications. Such communication acts can, according to Bassett (2013), be viewed as "data donations" that are commoditised by being captured in code and added to databases. Bassett (2013) contends that rather than contributing to community solidarity and social justice, our communication is being used instrumentally by corporations. Where we ask students to learn becomes important from this perspective, as they should be able to choose whether they give such data to corporate organisations without it affecting educational opportunities.

For danah boyd (2006; 2010), the interplay of the affordances and dynamics of networked publics raises further concern. She observes that because communications within SNSs are persistent, replicable, scalable, and searchable, and broadcast to an invisible audience, participants face a blurring of public and private domains, and potential context collapse when messages intended for one audience are received by another (boyd, 2006; 2010). Madrigal (2011) provides evidence of such context collapse in the context of recruitment, with 95% of hiring managers acknowledging checking applicants' SNS activity, and 69% admitting to not hiring a candidate based on information found therein. When asking students to work in semi-public and public spaces, teachers need to be aware of the digital footprint which students necessarily leave through participation. Students are vulnerable to context collapse not just because of the multiplicity of identity but also due to the tension between information persistence and developing identities (Kimmons & Veletsianos, 2014).

The student identity role

Within identity theory (e.g. Burke and Stets, 2009; Stryker, 1980 as cited in Benson & Mekolichick, 2007), which is in the tradition of symbolic interaction theory, the definitions attached to the roles one performs and the groups one is part of influence one's conception of self, or, one's identity. Individuals perform multiple roles, but those roles which are most salient to the individual are those which are most tightly linked to one's conception of self (Benson & Mekolichick, 2007, p. 500). According to Burke and Stets (2009, p. 63), individuals create an identity standard for each role which establishes the boundaries of what it means for that individual to be that role within their culture. They further "propose that within any given situation where the role is adopted, the individual will seek to verify or adapt the identity standard to more closely align with their perceptions of the nature of that role" (Davis, 2014, p. 399).

Burke & Stets suggest that "student identity is comprised of multiple meanings including being academically responsible, intellectually curious, sociable, and personally assertive" (2009, p. 50). The meanings that are dominant for each individual will govern their behaviour when claiming student identity. Traditionally, the most academically successful students were those whose dominant meanings were those of being academically responsible and/or intellectually curious. In contrast, strong sociable and personally assertive dimensions may have indicated less serious student orientations (Cantwell, 2007, as cited in Davis, 2014, p. 402). However, it has been observed within socially networked learning that success is in part dependent on the ability to build trust and maintain a strong sense of identity within the group (Krüger, 2006, p. 4), which could be assisted by a strong sociable dimension. Indeed, Davis (2014, p. 402), using White & Le Cornu's (2011) Visitors and Residents Framework, suggests that "a strong degree of intellectual curiosity and a high degree of sociability may support a greater degree of digital residency", meaning that individuals with these student identity meanings are more likely to be present with others when online, and thus build stronger learning communities.

Within socially networked learning, it would seem that a different arrangement of dominant meanings leads to success in the student role than in more traditional learning scenarios. When reporting research on the uptake of digital technology by those in the academic role, Benson & Mekolichick (2007, p. 508) suggested that those individuals who were more likely to adopt digital technology as it became part of the behaviours associated with the academic role were those for whom the role was most salient. While their research is concerned with use of digital technologies in general rather than engagement with socially networked learning per se, it suggests that the meanings within identity roles are, to a degree, malleable to the changing demands of context over time. Indeed, in Krüger's study, those participants who were most successful were those who were able to "negotiate and re-negotiate their identity" (2006, p. 4).

Tentative conclusions and the implications for teaching

In this paper, I have identified pedagogical, technological, commercial and political drivers of socially networked learning. There is a risk amid such broad encouragement that educators cease to question the ideological motivations of moves towards learning in networked publics. However, as I have highlighted, there are legitimate reasons for learners to resist and to feel vulnerable within socially networked learning scenarios. Teachers need to be cognisant of the commercial exposure inherent within SNSs in particular, and in unbounded spaces. Voicing political agency by choosing not to donate data to commercial enterprises should not limit learning opportunities; educators need to be conscious of the choices they are offering students, and also to help learners to become more aware of the ramifications of their choices.

Context collapse can be a very real concern, particularly due to the affordance of information persistence (boyd, 2006; 2010) combined with the necessarily developing nature of identity (Kimmons & Veletsianos, 2014). As such, identity work that includes an examination of digital footprints seems to be a necessary companion to socially networked learning. In addition, learners need safe spaces to try on emergent identities. This could involve a progression from more closed to more open presentations of identity (Beetham, 2016), such as that in the MSc in Digital Education (Edinburgh), which begins with a personal blog with one reader, but later provides options for semi-public group blogging in Digital Education in Global Context and public blogging within open courses such as Education and Digital Cultures or The Digital Student Experience (Sinclair, 2016).

Examination of the student identity through an identity theory lens suggests an identity role which is itself in a state of flux. Within this movement, what it means to be successful in the student role appears to be changing. Combined with emergent identities within the field of study, as students *become* through learning, uncertainty about the role identity can contribute to feelings of precariousness. A supporting discourse may be one that embraces the not finalised, sometimes

messy and contingent nature of learning and identity, and makes space for such contingencies amid the present climate of outcomes, efficiency and measurability which exists within education.

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The importance of e-Learning for Islamic Finance Human Capital Development

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Over the past decade, the global Islamic finance industry has done exceptionally well. The current worth of the Islamic Finance industry is estimated to be $2 trillion, according to Thomson Reuters, by 2020 this figure is expected to be $3 trillion – a 50% jump. Although a positive sign, this poses a unique risk to the industry – a lack of qualified human resource capital.

This session will look at the gaps in the development of human resource capital in the Islamic finance industry. A case will be built on how there is a paradigm shift in education and how Islamic finance can leverage off the e-Learning opportunity.

The presenter will share a short PowerPoint presentation followed by a demonstration of the BIBF e-Learning platform being launched in the second week of April. The e-Learning platform is based on the four year globally exclusive agreement between BIBF and The Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI), to bring all Standards onto e-Learning. The first phase which will be in English, brings all AAOIFI Standards, starting from the Shariah then Accounting and Auditing and Governance, online. This will be followed by launching in Arabic.

Abstract

SharePoint and Sway – Web Content Innovations Today

by

Khalid Sharif, Presenter

This practical session will focus on the strength of both Microsoft products, namely the popularly known “SharePoint” and the newly developed technology called “Sway” which are being considered as the recent smart innovations breakthrough where users can manage and develop great and effective content with the beauty of simplicity.

Latest SharePoint is a highly configurable and widely used web-based application that integrates with Microsoft office and being regarded as repository of all information in a document management and collaboration platform.

Microsoft Sway, on the other hand, is a new way to present your content, your message and make it looks great and eye-catchy for readers. It is a solution with a twist that moves you from one setting to another without signing up or downloading additional software. Sway can simply be embedded into SharePoint and quickly come up with polished and interactive reports, presentations, newsletters, personal stories and others. One can tell his or her story with interactive content such as video, charts to get the audiences into an interactive mood. One does not have to juggle apps and web sites and pages to search for relevant information because the intelligence of Sway suggests and assist you find the right media needed such as images, videos and other content that you can just drag and drop into your work. Formatting like one does with PowerPoint "The old school way" will now be thing of the past because Sway’s built-in design engine takes care of it. One can remix the designs or customize it for personal use. Sharing a Sway with family, friends, colleagues and others for them to see your creation is easy by simply sending them a link, no matter what device they are using or where they are located.

The presenter will talk about his experience as a project manager for SharePoint platform as a content repository for organizations and how sway will help in boosting the engagement of users by utilizing the interactivity provided.

The participants will go through the step wise approach of creating and sharing interactive teaching and learning materials, reports, stories and presentations as part of the workshop. There will be a sample demonstration of how Microsoft Sway Content is being developed and interactive discussion on its competitive advantage over the other solutions. The audience is

expected to leave the session equipped with a level-up content creation tool and conversant of the new technology which is cost effective and user-friendly.

Introduction to ClassFlow (Practical Session)

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ABSTRACT

This session walks the participants through the development of interactive lessons and assessments using ClassFlow. The attendees will get the chance to: register for a ClassFlow account, search for lessons developed by other teachers, deliver engaging lessons, assess through interactive formative and summative assessments and reward learning in real time. The participants will learn through the creation of ClassFlow flipcharts relevant to the courses they teach. At the end of the session, some participants will be asked to volunteer to share their designed flipcharts for peer and instructor feedback.

Keywords: interactive, learner response system, flipcharts, assessments

Overview

ClassFlow is a cloud-based software that allows for interactive lesson delivery and hence amplify the depth of student and teacher engagement in the classroom. It helps teachers create and share lessons, deliver and analyse assessment results and connect learners' devices directly to the lessons and assessments. Access to ClassFlow lessons and resources is available 24/7 as long as the teacher and students are connected to the Internet. The teacher does not have to worry about any software updates as the software is online and is inherently updated.

Introduction to ClassFlow (Practical Session)

Eid, H.

Bahrain Polytechnic

ABSTRACT

This session walks the participants through the development of interactive lessons and assessments using ClassFlow. The attendees will get the chance to: register for a ClassFlow account, search for lessons developed by other teachers, deliver engaging lessons, assess through interactive formative and summative assessments and reward learning in real time. The participants will learn through the creation of ClassFlow flipcharts relevant to the courses they teach. At the end of the session, some participants will be asked to volunteer to share their designed flipcharts for peer and instructor feedback.

Keywords: interactive, learner response system, flipcharts, assessments

Overview

ClassFlow is a cloud-based software that allows for interactive lesson delivery and hence amplify the depth of student and teacher engagement in the classroom. It helps teachers create and share lessons, deliver and analyse assessment results and connect learners' devices directly to the lessons and assessments. Access to ClassFlow lessons and resources is available 24/7 as long as the teacher and students are connected to the Internet. The teacher does not have to worry about any software updates as the software is online and is inherently updated.

Developing Excellence in e-Learning

Mohamed AlQaddum

Mustafa Alabbasi

Overcoming Barriers to excellence and development in e-Learning: Zain e-Learning Center's Experience

Introduction:

The aim of this paper is to share the experience of launching an e-learning initiative from scratch at the University of Bahrain. It explores the barriers and difficulties encountered and how Zain e-learning center overcame these problems. In addition, it will highlight the impact of the educational system and culture on securing success, excellence and development in using e-learning mode. The lessons learned from this experience are valuable to other higher education institutions to build on and avoid the mishaps and difficulties encountered. The paper will also discuss opportunities of transforming e-learning into a real knowledge based investment and a viable solution for long life learning. It will also propose some ideas that have not yet been materialized to improve learning situations for all learners including people with disabilities. In addition, it will highlight a major and serious problem that may undermine the efforts to expand in e-learning which is the question of recognition of this mode of learning as an alternative to face to face learning.

During the session, a short film and a power point presentation will be shown.

e-Learning Augmented Problem-based Learning : The Bahrain Polytechnic Journey

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ABSTRACT

This paper seeks to discuss the significance of e-learning and aims to consider its importance within the blended learning approach. The significant use of these within the Problem-Based Learning (PBL) environment shall also be examined.

Design/Methodology/Approach

As a higher-learning institution that aims to graduate students with the necessary 21st century soft employability skills, Bahrain Polytechnic implements problem-based learning as its teaching and learning methodology across its Faculties. The institution's Curriculum Development Unit developed a unique process to assure PBL implementation, and ensure it is consistent across all Faculties. Through developing an internal PBL review process, courses are observed closely and tutors are guided and supported. The process is equipped with a number of tools for enhancing students' learning quality and is available on the institution's e-learning platform.

In order to put the discussion in context, the institution's PBL journey is of importance in this piece; the paper also refers to the successes, as well as challenges encountered in the use of e-learning to enhance PBL pedagogy. Implications for practice and future enhancement plans for e-learning in PBL are also broached in this paper.

Findings

The application of e-technology in education is by far one of the ultimate achievements of the 21st century. The extent and depth in which learning can now be delivered and achieved is limitless. Teaching and learning is now a borderless activity that could go beyond the confines of a brick-and-mortar classroom. The value of desktop computers, tablet computers, laptops and smartphones is so notable that these are now essential tools in teaching and learning. So much can also be said about the enormity of web and mobile-based applications that have been developed for various uses in education.

As an institution of 21st century higher learning, all of the Bahrain Polytechnic's courses, across all Faculties, use some form of e-learning technology. The campus is equipped with smart boards used in majority of the classrooms, wired internet connectivity together with desktop computers available for use by both staff and students. MOODLE, as the institution's learning management system is used by all courses and is accessible by all teaching staff and students. Mahara is the official e-portfolio of the institution which could serve as a collection of electronic evidence of one's work. There also are a myriad of course and programme-specific applications which are used to enhance the students' learning.

Research Limitations/Implications

The scope of the paper was limited by the existence of MOODLE as the official learning management system at Bahrain Polytechnic. The recently introduced e-portfolio application, Mahara has excellent collaboration functionalities; however it is not as popular as MOODLE. Though examples of course and even programme – specific e-learning applications being used in the institution shall be mentioned, this paper shall not discuss on the specifics of the use of these applications. Though PBL is an important part and parcel of the ideas being presented,

the purpose of this is not to delve into the deep philosophical underpinnings of the methodology. That is a discussion for another paper.

Originality/Value

This research takes place in a context where Problem-based Learning mode at Bahrain Polytechnic is still in the early stages of implementation. Problem-Based Learning is not as common as Project-based Learning (PrBL) at the Bahrain Polytechnic and therefore programmes must develop their own approaches to create the PBL atmosphere.

Key words: e-learning, Problem- based learning (PBL), Blended learning, MOODLE, Mahara, Internal PBL Review Process.

INTRODUCTION

Ever since its inception in the Michael G. DeGroote School of Medicine at McMaster University in Hamilton, Ontario, Canada in 1965, problem-based learning has significantly changed the landscape of education. Simply put, problem-based learning or PBL as it is commonly called is "the learning that results from the process of working toward the understanding or resolution of a problem" (Barrows and Tamblyn, 1980). It is a methodology that places carefully designed ill-structured problems at the forefront as triggers for learning. These problems are encountered by the students first in their learning experience even before any theoretical preparation has occurred. The students work cooperatively in small groups in identifying what is known about the problem as well as knowledge gaps which are needed to find the solution. The students then conduct research in order to close the gap. New knowledge is eventually constructed when the students return and bring their research findings for discussion.

Before the birth of the internet, education was primarily structured around the physical presence of a teacher in front of a class. When the commercial form of internet was launched in the early 1990's, one of its applications that saw tremendous growth was in education. The "use of technology to provide instructional content or learning experience delivered or enabled by electronic technologies" (Ong, Lai, Wang, 2004) or e-learning was initially received with much negativity as there were fears of taking away the human component of learning. But now as technological applications have grown in leaps and bounds, it has grown to become an industry in itself. As recent developments caused e-learning solutions to become more affordable, the extent of use of electronic technology has not only brought its value within a physical classroom but in virtual ones, as well. Of recent years, this has now given birth to what is known as blended learning, of which e-learning is a significant component.

Blended learning, also known as hybrid or mixed-mode methodology was initially designed with online digital media being applied in a physical classroom set-up where portions of course content and delivery are computer-mediated while still having the face-to-face contact time occurring between teacher and student. Careful design goes into this modality. It leverages on the strengths of both the face-to-face and online delivery. If properly designed and effectively delivered, "a blended learning program can make better use of instructional resources and facilities, and increase class availability thus speeding up the pathway to graduation for students. Blended courses have the potential to increase student learning outcomes while lowering attrition rates in comparison with equivalent fully online courses" (Dzuiban et al, 2004).

Morrison (2013) wrote that blended learning does serve a variety of purposes that offer several benefits, as well including:

1. The potential for institutions to manage instructional and facility resources more efficiently, teaching more students within a semester.
2. With blended learning, there is the possible provision of convenience and flexibility for students, freeing up time for work, family obligations or extra-curricular activities.
3. Blended learning develops a skill set for students that otherwise would not be possible in exclusive face-to-face instruction. Skills include digital citizenship, information management skills, self-directed learning, and web research and collaboration skills.

In recent years, this methodology has evolved into a variety of formats. Horn and Staker (2014) generally describe these in their work as:

1. **Rotation model** — a course or subject in which students rotate on a fixed schedule or at the teacher's discretion, between learning modalities, at least one of which is e- learning. Other modalities might include activities such as small-group or full-class instruction, group projects, individual tutoring, and pencil-and-paper assignments. The students learn mostly in the brick-and-mortar campus, except for any homework assignments.
    a. *Station Rotation* — a course or subject in which students experience the Rotation model within a contained classroom or group of classrooms. The Station Rotation model differs from the Individual Rotation model because students rotate through all of the stations.
    b. *Lab Rotation* — a course or subject in which students rotate to a computer lab for the online-learning station.
    c. *Flipped Classroom* — a course or subject in which students participate in online learning off-site in place of traditional homework and then attend the brick-and-mortar school for face-to-face, teacher-guided practice or projects. The primary

delivery of content and instruction is online, which differentiates a Flipped Classroom from students who are merely doing homework practice online at night.

d. *Individual Rotation* — a course or subject in which each student has an individualized schedule and does not necessarily rotate to each available station or modality. An algorithm or teacher(s) set(s) individual student schedules.

2. **Flex model** — a course or subject in which e- learning is the backbone of student learning, even if it directs students to offline activities at times. Students move on an individually customized, fluid schedule among learning modalities. The teacher of record is on-site, and students learn mostly in the brick-and-mortar campus, except for any homework assignments. The teacher of record or other adults provide face-to-face support on a flexible and adaptive as-needed basis through activities such as small-group instruction, group projects, and individual tutoring. Some implementations have substantial face-to-face support, whereas others have minimal support.

   As customization of learning occurs in this model, the **face-to-face driver model** may be considered a variation of it. This approach is designed for students who may have some struggles with their learning or for those who best learn at their own pace. Here, the decision to use online instruction is on a case-by-case basis, so only certain students in a given class will participate in this format. (DreamBoxLearning, 2013)

   Similarly, the **online driver model** may be a flex variation. This is for students who need more flexibility and independence due to personal schedules. The students work outside of the classroom environment and the curricular material is predominantly done through an online learning platform. There are optional face-to-face interactions with the teachers. (Thompson, 2016)

3. **A La Carte model** — a course that a student takes entirely online to accompany other experiences that the student is having at a brick-and-mortar school or learning center. The teacher of record for the A La Carte course is the online teacher. Students may take the A La Carte course either in the brick-and-mortar campus or off-site. This differs from full-time online learning because it is not a whole-school experience. Students take some courses A La Carte and others face-to-face at a brick-and-mortar campus.

   The **self-blend model** used by highly self-motivated students may be a variation of this as the learners take remotely offered online courses to further supplement what they are already learning in the classroom. (DreamBoxLearning, 2013)

4. **Enriched Virtual model** — a course or subject in which students have required face-to-face learning sessions with their teacher of record and then are free to complete their remaining coursework remote from the face-to-face teacher. Online learning is the backbone of student learning when the students are located remotely. The same person generally serves as both the online and face-to-face teacher. Many Enriched Virtual programs began as full-time online schools and then developed blended programs to provide students with brick-and-mortar school experiences. The Enriched Virtual model differs from the Flipped Classroom because in Enriched Virtual programs, students seldom meet face-to-face with their teachers every weekday. It differs from a fully online course because face-to-face learning sessions are more than optional office hours or social events; they are required.

This list is definitely not exhaustive and neither is it prescriptive. Practitioners have also seen value in combining one or even more of the formats mentioned.

DISCUSSION

PBL speaks into the shift from the teaching paradigm to the learning paradigm (Barr and Tagg, 1995). Student learning has taken the predominant emphasis as compared to teacher-focused instruction. The whole process has gone through variations across the programmes and institutions that have decided to implement it. In a 2005 Chapter contribution, Barret gives a basic operational view of the PBL process as:

a. Students are presented with a problem.
b. Students discuss the problem in a small group PBL tutorial. The facts of the case are clarified and the problem is defined.
c. Brainstorm ideas based on the prior knowledge, identify what need to be learn to work on the problem and unknown things (learning issues). Skim through the problem and develop an action plan for working on it.
d. Students engage in independent study related to learning issues outside the tutorial. The information sources drawn from; library, databases, the web and resource people.
e. Sharing information, peer teaching and working together on the problem during the PBL tutorial (s).
f. Present and discuss solution to the problem.
g. Review what have been learnt from working on the problem. All participants in the process engage in self, peer and tutor review of the PBL process and each person's contribution to that process.

As would be clearly evident in the sequence, the use of blended learning and hence also the use of e-learning technologies fit into the picture as an excellent reinforcing support mechanism for PBL,

particularly in the self-directed learning phase. However, applying of such is not an exclusive necessity in that step but could practically lend value in all the basic steps of the PBL process. Its use could enhance not only the process itself but the learning of the student, as well.

BAHRAIN POLYTECHNIC EXPERIENCE

Bahrain Polytechnic, since its establishment in 2008, has been dedicated to the development of life-long learning, work-ready graduates, equipped with the necessary 21st century skills. This is achieved through the use of a vibrant, dynamic and active learning environment (i.e. both physical and e-learning platforms). With this in mind, it makes logical sense to choose Problem Based Learning (PBL) as it has been identified as a particularly powerful pedagogy and teaching and learning approach to promote and develop transferable employability skills such as, learning, self- management, team-work, communication, initiative and enterprise, planning and organization, problem-solving and **technology** amongst students, while they simultaneously acquire domain-specific knowledge or content.

Bahrain Polytechnic stated in its vision that its ambition is to be a world class provider of applied higher education, by producing professional and enterprising graduates. To assure that, the institution adopted problem- based learning philosophy to equip students with the 21st century skills. This could not be achieved without qualified academic staff members.

All academic staff are required to complete Bahrain Polytechnic Certificate Tertiary in Teaching and Learning (CTTL) to prepare them for their roles. This programme includes three modules; module (A) which covers the theoretical understanding of PBL, module (B) is mainly about the practical application of the theories and finally, module (C) which is related to embedding e-learning in the lesson via implementing blended learning method.

The implementation of PBL began in July 2010, after which the Bahrain Polytechnic Problem- Based Learning Model was developed. A comprehensive and detailed implementation plan for "course- based PBL" was then developed; however, due to a number of constraints (e.g. levels of staff expertise, number of staff needed, amount of resources and workload constraints) the plan was not completed.

As a guide for the implementation of the methodology, PBL criteria as well as a 7-step PBL process, as shown below, were designed as was appropriate for the Bahrain Polytechnic setting.

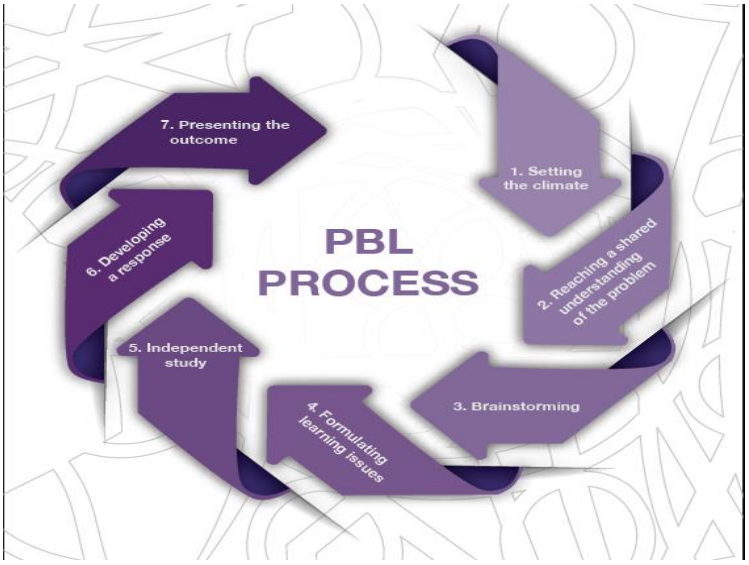

Figure 1: The Bahrain Polytechnic 7-Step PBL Process

To maintain the institution's teaching and learning quality, the Curriculum Development Unit at Bahrain Polytechnic was tasked with the responsibility for developing a comprehensive and detailed implementation plan for 'Course-Based' PBL in the Polytechnic over the next 5 years. The unit then introduced PBL practices which, among many, emphasized on the important of having access to computers and internet in any PBL class. The use of blended learning was also highly encouraged.

Each Faculty was then tasked with the responsibility of developing their own 5-year PBL implementation plan. The plan was to initially identify courses to be (re)developed in PBL format in one semester and deliver it in the following semester. The process was led by the PBL Steering Committee which was formed to overlook the entire process and it report directly to the institution's Academic Board.

Midway through the implementation of the 5-year plan, the Curriculum Development Unit then developed an Internal PBL Review Process which aimed to affirm courses that are well defined by the Bahrain Polytechnic PBL criteria and provide feedback and support for courses that require further re-development. Embedded within the review process are tools used to assess the implementation of PBL. Within these tools, the use of blended learning within the observed course is clearly examined. These tools are the PBL self-evaluation form filled out by the course coordinator, class observation tools which serve as the tutor-supporting tool and the course review form which serves as the course-support tool.

To summarize the internal PBL review, the semestral process begins with awareness meetings with the Programme Managers, Course coordinators and the teaching teams regarding the process and its purposes. This is followed by meetings with the course coordinators to talk about the course details and scheduling of class visits. Prior to the class visits, the coordinators are asked to fill in the PBL self-assessment form and send it to the curriculum development advisors. This form gives the advisors an overview of the PBL implementation status of the course. The course coordinator briefly describes the course design while the advisors ask pertinent questions particularly on points pertaining to PBL and blended learning. A pre-class visit meeting with the tutor is conducted to discuss the planned class activity for the visit as well as to thresh out any questions that the tutor may have regarding the process. During the actual class visit, the curriculum advisors would observe how student-centered, PBL as well as blended learning would be implemented using available resources. This is followed by post-visit feedback meetings with the tutor.

Discussion would center around the points noted by the curriculum advisors on the tutor-supportive PBL observation as well as the course-supportive PBL course review forms. Both the tutor-supportive observation and course-supportive PBL review forms have components which look into the use of e-learning technologies. Notable for the course-supportive PBL review form would be comments from the advisors regarding their observations from perusing through the course MOODLE sites. A copy of the tutor PBL observation form is given to the tutor, whereas a copy of the PBL course review form shall be forwarded to the course coordinator before the end of the semester. The PBL course review form is completed towards the end of the semester pending the results and analysis of a student PBL experience survey which they fill out online via MOODLE towards the end of the course. The PBL course review form shall also contain the recommended PBL format being used. The PBL course review form is then submitted to the PBL Steering Committee which then discusses through the recommendations. The Committee may or may not approve the recommendations of the advisors. Further recommendations may be given by the Committee to the course coordinators should further re-development be necessary. Outcomes of the review as well as the discussion points from the PBL Steering Committee are reported to the institution's Academic Board towards the end of the semester.

Successes

This substantial project began in the 1st semester of Academic Year 2015 – 2016 from September to mid-December. A total of 32 courses across the Business, ICT, Web Media and Engineering programmes were visited and observed. Positive feedback from students were registered in the courses under review was also collected via MOODLE site. Data were collected and submitted as a report to the Academic Board. For its initial run, the PBL internal review has evidenced that these courses use varied forms of projects as problems that drive the students' learning.

In general, there has been evidence of the use of blended learning within the observed courses. In fact, e-learning technologies have been applied in almost, if not all of the 7-step PBL model.

Table 1: Applications of e-Learning Technology Across the 7-step PBL Model

7-step PBL Model	Description	General e-Learning Technology
1	Setting the Climate: small group formation; definition of ground rules; initial encounter with the problem	Tutor uploads session instructions and problem description onto MOODLE, the learning management system or Mahara, the e-portfolio application. Tutor could also setup groups on MOODLE by creating group forum (this feature will allow only students within a particular group to communicate, other class students will not be able to access group work) for students to share documents, drafts, work completed, ideas and research done. Use of email; Google Doc; Google+; Drop Box; students may access these even before coming to class; use of computers, smart devices; Smart boards; internet
2	Reaching a shared understanding of the problem: students initially discuss through the problem using prior knowledge; tutor concept checks to ensure that there are no	Uploaded problem on MOODLE and / or Mahara; email; use of computers, smart devices; Smart boards; internet. Students could communicate together via group forum created by tutors to share thoughts or they could use the general news forum to

	misunderstandings	ask the whole class or share knowledge with them. In all cases, tutor would be able to follow up with students via this e-learning management system and provide feedback to students at any time during the day in or off campus. MOODLE forum could also be connected to both tutor and students emails. If tutor decided to activate that feature then both he/ she and the students will be able to receive notification email whenever anyone post anything on MOODLE.
3	Brainstorming: students discuss through what is known and what is not known and what needs to be done to bridge the knowledge gaps; tutor- facilitated	Online resources made available by the tutor on MOODLE; pertinent online resources available on the internet; different databases available at the LLC web page; students who could not make it on-site may join the discussion through web- or mobile based applications like Skype or WhatsApp; use of computers, smart devices; Smart boards; internet
4	Formulating the learning issues: ideas are discussed; key issues identified; research topics allocated to group members; tutor-facilitated	Online resources made available by the tutor on MOODLE; different databases available at the LLC web page; Log of student work loaded onto Mahara; pertinent online resources available on the internet; students who could not make it on-site may join the discussion through web- or mobile based applications like Skype or WhatsApp; use of computers, smart

		devices; Smart boards; internet.
5	Independent study: self-directed learning; students work of assigned research tasks; tutor available for guidance.	Online resources made available by the tutor on MOODLE; Log of student work loaded onto Mahara; pertinent online resources available on the internet; students who could not make it on-site may join the discussion through web- or mobile based applications like Skype or WhatsApp; use of computers, smart devices; Smart boards; internet; library provided databases; videos
6	Developing a response: students synthesize outcomes of independent research; students critique on resources and outcomes presented; discuss possible solutions and agree on them; tutor-facilitated	Log of student work loaded onto Mahara; significant research work may be uploaded onto Mahara for off-site perusal by students; collaboration and critiquing may be done via Mahara or any other collaborative tool; MOODLE forum could be used to upload students outcomes, students can read each other work and provide feedback online, tutor would be able to facilitate and respond using the notification response feature; pertinent online resources available on the internet; students who could not make it on-site may join the discussion through web- or mobile based applications like Skype or WhatsApp; use of computers, smart devices; Smart boards; internet; library provided databases; videos

7	Presenting the outcome: presentation of work done ; reflection on the learning	Use of computers, smart devices; Smart boards; internet; videos

As the official learning management system of the institution, MOODLE is used as a repository for the essential materials for the course. These span from the course notes, related learning resources (videos, e-books, links) Forums also exist in MOODLE which may be used for online discussions. As the official institutional e-portfolio, Mahara may be used to create journals, upload files, embed third-party resources from the web and collaborate with other users in groups. For students, it gives them the ability to track their learning progress and achievements which may be shared with others. They could use it to give feedback as a group discussion or collaborative tool. For tutors, it is an excellent tool for giving student feedback and support.

Popular use of applications which are used for determining the students' levels of understanding by engaging and assessing them as learning happens through the use of real-time questioning, result aggregation, and visualization such as the online Kahoot quiz and Socrative have been observed. Student polling apps like Google forms, Statpac, Pollmo have also been seen. Collaborative apps like Padlet and WeMe were also noted.

There are also course and programme-specific e-learning applications that support the students' learning, particularly in the Schools of Business, Engineering, ICT, Web Media and Visual Design.

The Library and Learning Center also provides an array of free academic databases which are accessible by both the staff and students. Examples of such are arXiv, Citebase Search, EconBiz, ERIC: Educational Resource Information Center, GENESIS, Index Copernicus and more.

All of these aid in the implementation of PBL by providing the supportive tools for student self-directed learning to effectively occur and enhance their research and critical thinking skills.

On the other hand, the Curriculum Development Unit in collaboration with the Teaching and Learning Unit continuously contributes in shaping academic staff members' knowledge and experience by running workshops during the annual Teaching and Learning Symposium at the beginning of each academic year and the Teaching and Learning week at the middle of the year. These workshops focus on the theoretical part of PBL, some practical applications, issues and challenges around PBL, the role of e-learning in any PBL mode class, e-learning implementation in blended learning classes as well as introducing different features of MOODLE and Mahara which support tutor's activities in the classroom.

Also, over the past two years, and due to many request from schools, the Curriculum Development Unit through its PBL team in collaboration with the Career and Employment Center (CEC) has successfully run PBL Workshops in both Arabic and English language for school teachers from both government and private schools. The workshops articulated the important role e-learning plays in enhancing the quality of teaching and learning in classrooms.

Challenges

A variety of challenges still exist which somehow hinder or slow down the full realization of an efficient blended PBL implementation. Most of these actually are rooted in budgetary constraints . This has affected the purchase of physical resources such as laptops for faculty use and the upgrading of some computers for research in certain classrooms. Ideally, for in-class PBL to be efficient, the presence of decent wi-fi connectivity or several desktop computers or laptops for student use is highly recommended. Several classrooms within the campus do not have the necessary connectivity nor

computers. Certain library databases have not been renewed due to these constraints as well. External academic staff training has also been put on hold due to this budgetary issues.

Way forward

Though Bahrain Polytechnic is a young institution and its problem- based learning model is still in its early stages of implementation, more and more programmes within the Polytechnic are keen to either develop or re-develop their courses in the PBL delivery mode. The process shall continue until all courses listed in the 5 year implementation plan get reviewed under the current Internal PBL Review Process.

There are recent discussions across Bahrain Polytechnic academic community in terms of carefully reconsidering its Academic Strategic Plan and determining ways and means of catapulting the institution into a recognized world-class higher educational institution. Part of the discussions currently going on would be the improvement of the e-learning platforms currently in use. Budgetary constraints are definitely part of these considerations, as well.

In order to answer the challenges of acquiring external staff training, the Teaching and Learning Unit in cooperation with the Curriculum Development Unit provide iterative, relevant, in-house trainings. These come in the form of trainings, workshops and seminars during the Academic Symposium week at the start of the academic year and a Mid-Year Academic Training week before the start of the second semester of an academic year. There are also several short training sessions conducted all throughout the semester which is made available to all staff, as applicable and appropriate.

Furthermore, to share these successes with other institutions, Bahrain Polytechnic has recently announced that it shall be launching its first external PBL Workshop Series. These workshops shall target participants from different educational institutions in Bahrain over the coming months. The

workshops shall focus heavily on embedding e-learning in PBL delivery mode classes along with other important topics in this area, which would provide a good opportunity for other higher education institutions to experience new pathways of teaching.

CONCLUSION

Due to the attendance policy of the institution, face-to-face meetings between students and tutors are required. This being said, the institution most likely practices the rotation model of blended learning, with students experiencing the station, lab rotation and flipped classroom format types in varied combinations. This hybridized methodology fits well with PBL as its face-to-face component aids the tutor in facilitating or guiding through the learning of the students. The use of e-learning assists by providing the students the appropriate media for research, collaboration and discussion to help them build new knowledge. Ultimately, the support that e-learning bestows upon PBL provides is the creation of an optimal environment for the student, in which they may develop the necessary 21st century employability skills for them to become excellent and highly employable problem solvers.

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مشكلة الدراسة – تحديدها وخطة لدراستها

المقدمة

تمتاز الفترة الحالية بالتغيرات السريعة الناجمة عن التقدم العلمي والتكنولوجي والتقنية الحديثة للمعلومات، لذا أصبح من الضروري المواكبة العلمية والعملية لهذه التغيرات، ومواجهة المشكلات الناتجة عنها مثل كثرة المعلومات وزيادة عدد المتعلمين ونقص بالهيئة التدريسية وبعد المسافة.

ويهدف التعلم الالكتروني إلي محاولة تعويض النقص الحاصل في المهارات التدريسية والتدريبية في بعض القطاعات التعليمية عن طريق الصفوف الافتراضية، والمساعدة في نشر التقنية في المجتمع، وإعطاء مفهوم أوسع واشمل للتعليم المستمر، وإعداد جيل من الخريجين القادرين على التعامل من التقنية ومهارات العصر والتطورات الهائلة التي يشهدها العالم، وتوفير بيئة تفاعلية غنية ومتعددة المصادر تخدم العملية التعليمية بكافة محاورها، وتعزيز العلاقة بين أولياء أمور الطلبة والمدرسة

وترى الباحثة من هنا يكون إبراز دور التكنولوجيا الحديثة في تدريس المقررات باستخدام الحاسوب وبعض الوسائل التعليمية الأخرى، بدأت الدراسة بمعرفة دور وأهمية الوسائل التعليمية (شفافيات – الفيديو – مجسمات – التلفاز – لوحات – البوسترات ...الخ) باعتبارها أداة مساندة للعملية التعليمية.(الحيلة, 2005م)

وبما أن كلية التربية الأساسية من المؤسسات التعليمية التي تهتم بالوسائل التعليمية، وبما أن التعلم الإلكتروني احد الوسائل التعليمية الحديثة، فقد ركز قسم تكنولوجيا التعليم بالكلية على تقديم برامج التعليمية والتدريبية على أساس التطور المناهج التعليمية واستخدام ما هو انسب وأفضل في مجالات التعليم مواكباً الحركة التكنولوجية الحديثة.(الحيلة، 2003م)

وترى الباحثة بأن قسم تكنولوجيا التعليم أحد الأقسام الهامة بكلية التربية الأساسية الذي يهدف إلي إعداد أخصائي تكنولوجيا التعليم إعداداً أكاديميا وتربوياً للعمل في المجالات التعليمية المختلفة مثل المدارس والجامعات ومراكز التطوير التكنولوجي، حيث يتم التركيز على إعداده إعدادا جيداً باعتباره مصمماً للمواد المساندة للعملية التعليمية بجميع مراحلها الدراسية، وقادراً على استخدام المستجدات التكنولوجية، ومهارات التعامل معها.

وترى الباحثة نظراً للأهمية الكبيرة لاستخدام الكبير التعلم الإلكتروني في عملية التعلم والتعليم بقسم تكنولوجيا التعليم بكلية التربية الأساسية، واعتباره من أساسيات الرئيسية لطرائق التدريس فيها، وتشكيله أحد الموضوعات المهمة في العملية التعليمية في قسم تكنولوجيا التعليم فإنه ينبغي أن يحظى دائماً بالدراسة والتحديث والتطوير والابتكار، لذلك جاءت هذه الدراسة في محاولة للتعرف على أثر التعلم الإلكتروني في تصميم وإنتاج الشفافيات التعليمية، ومعرفة اتجاهات الطالبة تحو التعلم الإلكتروني.

مشكلة الدراسة

تؤكد الدراسات التربوية على أهمية تكنولوجيا التعليم ودورها في العمل على الحد من الآثار المترتبة على وجود مثل هذه المشكلات، ويرجع ذلك إلي ما تملكه تكنولوجيا التعليم من خصائص تجعلها مناسبة لتفعيل دور المؤسسات التعليمية في تعليم أعداد كبيرة من المتعلمين ومراعاة الفروق الفردية بينهم.

ومن هنا انبثقت مشكلة الدراسة والتي تتمثل بالملاحظات التالية:

لوحظ أن مقرر تصميم وإنتاج الشفافيات التعليمية فيه العديد من المهارات العملية (الحركية) التي تحتاج إلي مزيداً من التدريب من قبل الطالبات لإتقانها، وهذا يحتاج إلي مزيداً من الوقت مما يتطلب تصميم وحدة إلكترونية لمساعدة الطلاب على عملية التدريب.

بمراجعة موقع كلية التربية الأساسية الخاص بالهيئة العامة للتعلم التطبيقي لوحظ أنه لا توجد مقررات الكترونية بقسم تكنولوجيا التعليم بكلية التربية الأساسية على الرغم من توافر البنية التكنولوجية.

إن مقرر (ق.ر 237) تصميم وإنتاج الشفافيات التعليمية من المقررات التخصصية الهامة التي تحتاج إلي إتقان عملية التدريب بالنسبة لطلاب كلية التربية الأساسية بصفة عامة وطلاب قسم تكنولوجيا التعليم بصفة خاصة مما يدعوا إلي الاهتمام بتطوير طرق التدريس ورغبة القائمين عليهما على تدريب الطلاب على مهاراتها، لضرورة استخدامها في الحياة العملية والتدريسية، ومن هنا يمكن تلخيص مشكلة الدراسة بالتساؤل الرئيسي التالي

ما أثر التعلم الإلكتروني على مهارات إنتاج الوسائل التعليمية واتجاهات نحو التعلم الإلكتروني، وهو العنوان الخاص بالدراسة.

أسئلة الدراسة

ما أثر استخدام التعلم الإلكتروني على مهارة إنتاج الوسائل التعليمية بقسم تكنولوجيا التعليم بكلية التربية الأساسية ؟

ما أثر استخدام التعلم الإلكتروني على اتجاهات طالبات قسم تكنولوجيا التعليم بكلية التربية الأساسية ؟

فروض الدراسة

يؤدي استخدام التعلم الإلكتروني إلي تحسين مهارات إنتاج الوسائل التعليمية لدى طلاب كلية التربية الأساسية بقسم تكنولوجيا التعليم.

يؤدي استخدام التعلم الإلكتروني إلي اتجاهات الطلاب نحو التعلم الإلكتروني.

أهداف الدراسة

يهدف البحث إلي معرفة أثر:

التعلم الإلكتروني على مهارات تصميم وإنتاج الوسائل التعليمية لطالبات قسم تكنولوجيا التعليم، الذي يهدف إلي إعداد الطالب إعداداً صحيحاً جيداً وتهيئة لاستخدام ما هو جديد من تقنيات تعليمية في مجال الحاسب الآلي.

التعلم الإلكتروني في تدريس مقرر (ق.ر237) على مهارات تصميم وإنتاج الشفافيات لطالبات قسم تكنولوجيا التعليم، الذي يهدف إلي إعداد الطالب إعدادا صحيحاً جيداً وتهيئة لاستخدام ما هو جديد من تقنيات تعليمية في مجال الحاسب الآلي.

التعلم الإلكتروني على مهارات تصميم وإنتاج الوسائل التعليمية باستخدام الحاسوب في مقرر تصميم وإنتاج الشفافيات في قسم تكنولوجيا التعليم – كلية التربية الأساسية.

أهمية الدراسة:

تنبع أهمية الدراسة عن اقتناع كامل بأهمية الوسيلة التعليمية في العملية التعليمية، وما للحاسوب من أهمية في حياتنا المعاصرة وإلي ما يمكن أن يقدمه من دور بالغ الأهمية في تيسير العملية التعليمية، فضلاً عما يوفره من وقت وجهد للمعلم والمتعلم معاً، ويمكن أن تفيد نتائج البحث الحالية في:

تقديم نموذج لوحدة الكترونية تعليمية تساهم في تنمية مهارات تصميم وإنتاج الوسائل التعليمية وخاصة تصميم وإنتاج الشفافيات.

تأهيل طالبات قسم تكنولوجيا التعليم على استخدام التعلم الالكتروني، والتأكيد على استخدام الحاسوب وبرمجياته بشكل فعال في مقرر تصميم وإنتاج الشفافيات التعليمية بقسم تكنولوجيا التعليم بكلية التربية الأساسية.

تبصير قادة التربية ومتخذي القرار التربوي بأهمية التعليم الالكتروني وكيفية تطبيقه واستخداماته.

تدريب الطالبات قسم تكنولوجيا التعليم على استخدام الحاسب الآلي في تصميم وإنتاج الوسائل التعليمية بصفة عامه وتصميم وإنتاج الشفافيات بصفة خاصة.

يمكن أن تفيد نتائج هذه الدراسة القائمين على تصميم وإنتاج المقررات التعليمية الالكترونية والمهتمين بكيفية زيادة فاعليتها وكفاءتها.

مما يساهم بشكل فعَال في رفع مستوى الطالبات وإكسابهم المهارات الأساسية المختلفة في استخدام الحاسب الآلي سواءً للتعلم الإلكتروني أو لتصميم وإنتاج الوسائل عند استخدام هذه الطريقة في التعلم.

حدود الدراسة:

الحدود المكانية: قسم تكنولوجيا التعليم كلية التربية الأساسية التابعة للهيئة العامة للتعليم التطبيقي والتدريب بدولة الكويت.

الحدود الزمنية: الفصل الدراسي الثاني لعام (2008 – 2009م).

الحدود البشرية: طالبات قسم تكنولوجيا التعليم – ومقيدين بمقرر (ق.ر 237) تصميم وإنتاج الشفافيات التعليمية.

حدود المقرر التعليمي: اقتصرت الحدود في هذا البحث على الفصل الثاني – الثالث والرابع المتركزة حول تصميم وإنتاج الشفافيات آلياً باستخدام الحاسب الآلي

منهج الدراسة وإجراءاتها

المقدمة:

تناول الباحثة في هذا الفصل الحالي الجوانب الخاصة بمنهج الدراسة والإجراءات من حيث المنهج التعليمي والمجتمع والعينة، عرض خصائص العينة التي أُجريت عليها الدراسة وذلك بهدف توضيح مدى تمثيلها لمجتمع الدراسة، مع وصف المتغيرات التابعة والمستقلة للدراسة، ستوضح الباحثة توضيحاً للأدوات التي استخدمت في الدراسة الحالية، من حيث الإحداثيات وبناء محتوياتها وخواصها السيكومترية من صدق وثبات الأداة، وثم شرح الإجراءات التي اتبعتها الباحثة في عمل التصميم التعليمي في تصميم الوحدات الدراسية الخاصة بمقرر تصميم وإنتاج الشفافيات التعليمية، وبالإضافة إلي المراحل تنفيذ الدراسة، والصعوبات التي واجهت الباحثة، وفي نهاية الفصل سوف نتطرق إلي الأساليب الإحصائية المستخدمة في معالجة بيانات الدراسة.

منهجية الدراسية

اعتمدت الدراسة الحالية على المنهج التجريبي بتصميم الشبة التجريبي (Experimental Method) وهو الخيار الأفضل للمنهج لإثبات العلاقات السببية وأقربها إلى إمكانية تحقيق ذلك.

والذي من خلاله يمكن فحص الفروض الخاصة بالدراسة وقد تم اختيار شعبتين من مقرر تصميم وإنتاج الشفافيات التعليمية بقسم تكنولوجيا التعليم من كلية التربية الأساسية لبنات، لتمثل الشعبة الأولى هي المجموعة التجريبية التي تعرضت لطريقة التعلم الالكتروني للوحدات الدراسية الثانية – الثالثة والرابعة، من خلال استخدام الأقراص المدمجة (CD).

واعتبرت المجموعة الثانية وهي المجموعة الضابطة التي تم إعطاء المعلومات لها بإتباع الأسلوب التقليدي في التعلم.

وبعد الانتهاء من تطبيق الدراسة من تدريس الثلاث الوحدات المتخصصة في تصميم وإنتاج الشفافيات التعليمية عن طريق استخدام الحاسب الآلي، قامت الباحثة بتقديم بطاقات لتقيم الأعمال الخاصة بالطالبة لكلا المجموعتين لمعرفة النتائج الخاصة بالدراسة والاستبانه الخاصة لقياس اتجاهات الطالبات نحو التعلم الإلكتروني.

متغيرات الدراسة

المتغيرات المستقل: تضمن البحث الحالي على متغير مستقل واحد رئيسي وهو احد الأساليب الحديثة في التعليم والتعلم، وهو أثر التعلم الإلكتروني، من خلال تصميم موقع افتراضي للمقرر باستخدام احد وسائل التعلم الإلكتروني.

المتغيرات التابعة: أشتمل هذا البحث على متغير تابع واحد وهو اتجاهات الطلبة نحو التعلم الإلكتروني.

متغيرات الضبط: تم ضبط المتغيرات التالية بين المجموعتين التجريبية والضابطة

1. **العمر**
2. **المرحلة الدراسية**
3. **إجادة استخدام الحاسوب**

مجتمع وعينة الدراسة

مجتمع الدراسة:

يتمثل مجتمع البحث كافة الطالبات المسجلين بكلية التربية الأساسية بنات، للعام الدراسي (2008–2009)، التابعة للهيئة العامة للتعليم والتدريب التطبيقي في دولة الكويت، وعددهم (460) طالبة في قسم تكنولوجيا التعليم، حيث إن عدد جميع الطالبات 6799 طالبة مسجله في كلية التربية الأساسية بنات لعام 2008–2009.

تم الحصول على هذه المعلومات من كلية التربية الأساسية قسم التسجيل التابع للكلية.

عينة الدراسة:

تم اختيار عينة من شعبتين لمقرر تصميم وإنتاج الشفافيات التعليمية من ضمن الشعب المطروحة في الفصل الدراسي الثاني للعام الدراسي 2008–2009م، والتي تعتبر من المقررات الإجبارية التخصصية التي يقرها قسم تكنولوجيا التعليم بكلية التربية الأساسية، والمقرر يحتاج إلي مقررات مسبقة منها الرسوم والحاسب الآلي، وتم اختيار هذه الشعبتين على عدة اعتبارات، منها رضي استعداد

وترحيب من قبل كلا دكتور (بدر نادر) رئيس قسم تكنولوجيا التعليم وأستاذة المقرر الخاصة بالمجموعة التجريبية لتدريس المقرر بطريقة التعلم الإلكتروني، ومجموعة أخرى تدرس بطريقة التعليم التقليدي.

تم اختيار هذا المقرر من قبل الباحثة على هذه الدراسة لما لها من خبرة في هذا المقرر حيث قامت بدراسة هذا المقرر خلال استكمال دراستها مما ساعد الباحثة في عملية إعداد وتصميم التعليمي الخاص بالمقرر للوحدات الدراسية إلكترونياً.

بلغ عدد أفراد العينة لكلا من المجموعتين (30) طالبة، موزعتين كالآتي المجموعة التجريبية وعدد أفرادها (13) طالبة، وحين بلغ عدد أفراد المجموعة الضابطة (17) طالبة، وتتراوح أعمار أفراد كلا المجموعتين ما بين (18–30)، من مختلف التخصصات الأدبية والعلمية، ومختلف المراحل الدراسية ما بين السنة الثانية والثالثة

أدوات الدراسة

تمثلت أدوات التي أعدت من قبل الباحثة لكي تتمكن من الحصول على البيانات الخاصة بالدراسة من أهمها:

1. مقياس الاتجاه نحو التعلم الإلكتروني:

لقد استخدمت الباحثة مقاس الاتجاه نحو التعليم الإلكتروني والذي أعده الباحث (زين الدين، 2006م)، كلية التربية النوعية ببورسعيد، وهي ورقة بحثية معدة للمؤتمر العلمي الثاني لكية النوعية جامعة قناة السويس، والذي تم تطبيقه على طلاب كلية التربية الأساسية

2. بطاقة تقييم الشفافيات التعليمية:

والتي تقيم أداء الطالبة في تصميم وإنتاج الشفافيات إلكترونياً باستخدام برنامج معالج النصوص، وبرنامج العروض التقديمية . سواءً تعرض باستخدام الجهاز العرض العلوي أم تعرض إلكترونيا.

وفيما يلي توصيف لكل من الأدوات المستخدمة في البحث التي اتبعتها الباحثة في تصميم وتحكيم هذه الأدوات:

أولاً: مقياس الاتجاه نحو التعلم الإلكتروني:

قام زين الدين (2006م) بإعداد المقياس بعد الإطلاع على الدراسات والأدبيات والبحوث المتعلقة بموضوع البحث وهي الاتجاه نجو تقنية المعلومات عامة تقنية الانترنت خاصة وبناءً على بعض الدراسات الأجنبية منها (CAQ:1997, FAIT:1998, WU.G: 1996, Stephens & Creaser 2002) وبعد حساب الصدق والثبات.

الخصائص السيكومترية لمقياس الاتجاه نحو التعلم الالكتروني.

الصدق:

صدق المحكمين: تم عرض المقياس على مجموعة من المحكمين من هيئة التدريس بكليات مختلفة مرفقاً بها التعريفات الإجرائية بهدف إبداء الرأي والحكم على مدى انتماء كل عبارة للبعد الذي تقيسه، مدى وضوح كل عبارة وصحتها من حيث الصياغة اللغوية، وإجراء أي تعديلات مناسبة، وتمت أضافت وحذف وتعديل عليها على حسب ما أشار إلية لجنة التحكيم الخاصة بالمقياس والتي لم تصل نسبة الاتفاق عليها (80%) وأصبح المقياس من (30) عبارة موزعة على ثلاثة أبعاد.

أما بلا نسبة للصدق العاملي للمقياس، تم التحليل العاملي لمصفوفة الارتباطات بين عبارات المقياس وعددها (30) عبارة بطريقة المكونات الأساسية من التدوير المتعامد، وفي ضوء قيمة الجذر الكامن ونسبة التباين العاملي، أسفر التحليل عن (3) عوامل استحوذت على (61,70%) من التباين الكلي، وبذلك يشير التباين أن مقياس الاتجاه نحو التعليم الكتروني يتمتع بدرجة صدق معقولة.

الثبات:

تم التأكد من ثبات مقياس الاتجاه نحو التعلم الالكتروني بمفهوم الاتساق الداخلي باستخدام معادلة ألفا كرونباخ, من خلال تطبيق المقياس على عينة استطلاعية من طلبة جامعة الكويت وكلية التربية الأساسية – الكويت، وجامعة الخليج العربي – البحرين والبالغ عددها (75) بواقع (24) من الذكور, و(51) من الإناث. حيث يقع معامل ألفا لأبعاد المقياس, وكان معامل الثبات يساوي (0,952) وهي مؤثرة على المقياس .

جدول(1)

نتائج معاملات الثبات بمفهوم الاتساق الداخلي لأبعاد مقياس الاتجاه نحو التعلم الالكتروني

أبعاد مقياس الاتجاه نحو التعلم الالكتروني	معامل الثبات بطريقة كرونباخ الفا		
	الذكور (24)	الإناث(51)	العينة الكلية
فوائد التعلم الالكتروني	0.89	0.83	0.85
حب التعلم الالكتروني	0.92	0.86	0.89
قلق التعلم الالكتروني	0.89	0.83	0.85
المجموع الكلي	0.97	0.94	0.95

أشارت النتائج المتعلقة بمعاملات الثبات كما يتضح من الجدول (1), أن جميع قيم معاملات الثبات تراوحت ما بين (0.85–0.89), وهذه القيم تدل على قدر عالي من الثبات بين عبارات كل بعد من هذه الأبعاد, وان معامل الثبات للمجموع الكلي لدرجات المقياس بلغ (0.95) وهو معامل ثبات مقبول لأغراض هذه الدراسة.

أما بالنسبة للمقارنة بين الجنسين نجد أن قيم معاملات الثبات لمجموع فقرات المقياس بلغت (0.97) للذكور و(0.94) للإناث, الأمر الذي يشير إلى ارتفاع معامل الثبات لدى الذكور عن الإناث, أما بالنسبة للفروق في معاملات الثبات لأبعاد المقياس نجد أنها تراوحت ما بين (0.89–0.92) بالنسبة للذكور, وما بين (0.83–0.86) بالنسبة للإناث.

ثانياً: بطاقة تقييم الشفافيات المنتجة الإلكتروني:

قامت الباحثة بإعداد بطاقة تقييم

1- للشفافيات المصممة عن طريق برنامج معالجة النصوص (Word).

2- الشفافيات المصممة عن طريق برنامج العروض التقديمية (Power Point).

1. الشفافيات التي تعرض باستخدام جهاز العرض العلوي (Over Head Projector).
2. الشفافيات التي تعرض باستخدام جهاز عرض البيانات (Data Show).

تم الاستعانة برسالة قريني (2000م) الخاصة بأسس استخدام الخطوط والرسومات الملونة في إنتاج الشفافيات بواسطة الكمبيوتر، ومن ثم عرضها على المحكمين من تخصص تكنولوجيا التعليمز.

يتضح من بعد إجراءات جميع المعاملات

1. قامت الباحث بإعادة صياغة بعض العبارات، ومن ثم تم عرضها على محكمين من ذوي الخبرة والاختصاص، من جامعة الكويت وكلية التربية الأساسية – قسم تكنولوجيا العليم بدولة الكويت.
2. أجرت الباحثة بعض التعديلات المطلوبة على عبارات وبنود الاستبيان في ضوء ملاحظات وتوجيهات هؤلاء المحكمين ومدى ملائمة الاستبيان للغرض الذي أعدت من أجله، ومن ثم تم إخراج أداة الدراسة بصورتها النهائية.
3. قامت الباحثة بالالتقاء بأستاذ المادة للعينة الاستطلاعية والحصول على موافقته للتطبيق المقياس على العينة الاستطلاعية بجامعة الكويت وكلية التربية الأساسية.
4. بعد إدخال النتائج باستخدام برنامج (SPSS) قامت الباحثة بحساب الثبات بطريقة الاتساق الداخلي باستخدام معادلة ألفا كرونباخ والمقارنة بين الاستبانة المستخدمة من قبل الباحث محمود زين الدين والاستبانة التي أعدتها الباحثة.
5. تم الإطلاع على نتائج العينة الاستطلاعية مع المشرف والتأكد من صدق وثبات الاستبانه التي سيتم تطبيقها.

إجراءات تنفيذ الدراسة

فيما يلي قامت الباحثة بتوضيح الجميع الخطوات التي اتبعها في إجراء وتنفيذ البحث وفق للترتيب الزمني الذي نفذت به البحث:

1. حصلت الباحثة بعد إجراء التعديلات المطلوبة على مقترح خطة الدراسة على الموافقات الرسمية لعنوان وخطة دراسته من الجهات المعنية بجامعة الخليج العربي بالبحرين وهي على الرتيب: برنامج التعليم والتدريب عن بعد، ثم مجلس كلية الدراسات العليا بالجامعة.
2. مراجعة آخر الدراسات العربية والأجنبية التي أجريت حول هذا الموضوع، وذلك للتعرف على الصعوبات التي واجهت أي باحث، لمحاولة تلافيها أو تذليلها، كما تم الاستفادة من هذه الدراسات في بناء إطار النظري عام للسير بهذه التجربة من الناحية النظرية والعملية.
3. نظمت الباحثة أسماء المواقع التي سوف تتم توزيع الاستبيانات الاستطلاعية، بدأت بالزيارات اليومية وتوزيع الاستبيانات على الطلبة.
4. قامت الباحثة بالحصول على موافقة من الدكتور علي الكندري القائم على تطبيق الاستلانة على عينة من طالبات جامعة الكويت قاموا باستخدام التعلم الإلكتروني في بعض مناهجهم الدراسية.
5. قامت الباحثة بالإطلاع على توصيف المقرر والأهداف العامة للمقرر ومذكرة مقرر تصميم وإنتاج الشفافيات التعليمية لتحديد الأهداف العامة والخاصة للوحدة الدراسية التي ستطبق عليها أسلوب التعلم الإلكتروني.
6. تم تصميم الوحدات الدراسية الخاصة بالمقرر وفقاً لنموذج كمب لتحويل الوحدات الدراسية إلكترونياً وعرضها في أجهزة الطالبات المسجلات في المقرر، وفقاً للأهداف العامة للوحدات الدراسية، وثم عرضها على أعضاء هيئة المحكمين من المختصين في تكنولوجيا التعليم والإدارة التقنية والتعلم عن بعد.
7. تم تطبيق الدراسة خلال الفصل الثاني من عام 2008–2009 خلال الفترة 2009/3/22 حتى تاريخ 2009/6/4 بواقع 5 ساعات في الأسبوع لكل من المجموعة التجريبية والضابطة.
8. تم اختيار العينة الخاصة بالبحث (المجموعة التجريبية والضابطة) بالطريقة المذكورة في خطوات اختبار العينة.
9. في بداية التطبيق تم تجميع البيانات الخاصة بكل طالبة في كلا المجموعتين من حيث العمر والمرحلة الدراسية، وأما بالنسبة للمجموعة التجريبية تم إضافة البريد الإلكتروني.
10. قامت الباحثة بالالتقاء بأستاذ المقرر ورئيس قسم تكنولوجيا التعليم دكتور بدر نادر لأخذ الموافقة على تطبيق البحث على طالبات المسجلات في مقرر تصميم وإنتاج الشفافيات التعليمية.
11. كان هناك أستاذان مختلفان لكل من المجموعة الضابطة والتجريبية، وكان الاختلاف الوحيد بينهما هو طريقة التدريس.
12. قامت الباحثة بالحصول على موافقة القائم على رئاسة قسم تكنولوجيا التعليم على تطبيق التصميم التعليمي على عينة الدراسة والتي شملت طالبات قسم تكنولوجيا التعليم بكلية التربية الأساسية – المسجلات في مقرر تصميم وإنتاج الشفافيات التعليمية.
13. بهدف تطبيق الاستبانة، فقد جهزت وأعدت الباحثة عدد (150) نسخة من استبانة الدراسة لتوزيعها لاحقاً.
14. بعد ذلك، قامت الباحثة وعبر التواصل مع قسم شؤون الطلبة بكلية التربية الأساسية بأخذ إحصائية الطالبات المقيدات في قسم تكنولوجيا التعليم حتى الفصل الثاني للعام 2008–2009م.

15. من بداية الفصل الدراسي الثاني بعد انتهاء أستاذ المادة من إعطاء الطلبة المقرر الخاص بتصميم وإنتاج الشفافيات بالطريقة التقليدية (يدوياً)، تم تقديم برنامج تمهيدي للمجموعة التجريبية وذلك في الأسبوع من شهر مارس قبل البدء بالدراسة الفعلية لاستخدام الأسلوب الإلكتروني في عملية التدريس، وقد شمل هذا البرنامج على ما يلي:

1) إعطاء الطالبات فكرة واضحة وصورة كاملة ومفصلة عن أسلوب الدراسة لهذا المقرر وأهدافه وعن جميع المعلومات التي تحتاجها الطالبة في دراسة هذا المقرر.

2) عرض مجموعة الوحدات وعناوين الموضوعات الدراسية في مقرر تصميم وإنتاج الشفافيات التعليمية، وشرح فكرة مبسطة عن كل وحدة دراسية.

3) إعطاء الطالبات جدول يوضح التواريخ وأوقات ابتداء وانتهاء تطبيق كل وحده دراسية، بالإضافة إلي التقويم الدراسي لفصل الدراسي الثاني الخاص بأستاذ المقرر.

4) إعطاء الطالبات أرقام هواتف الخاصة بأستاذ المقرر والخاص بالباحثة والبريد الإلكتروني والساعات المكتبية.

5) تم تزويد الطالبات بالوحدات الخاصة بالبرنامج، وإنزالها على جهاز الحاسب الآلي الخاص بكل طالبة.

6) تم تخصيص الأسبوع الأول من الدراسة لتدريب الطالبات على التصميم التعليمي وكيفية استخدامه.

7) حرصت الباحثة على حضور جميع المحاضرات الخاصة بالمجموعة التجريبية، ذك بهدف الرد على استفسارات الطالبات وتوفير الدعم الفني اللازم وبالإضافة إلي متابعة طريقة التدريس.

8) بعد الانتهاء من التطبيق تم تخصيص أسبوعان من التطبيق لتقيم مخرجات الطالبات من الشفافيات المصممة عن طريق الحاسب الآلي والتي تعرض الكترونياً.

16. بعد اكتمال البيانات المطلوبة للدراسة من الاستبيانات قامت الباحثة بإدخال البيانات الخاصة بالدراسة التي تم تجميعها عن طريق أدوات الدراسة في برنامج (SPSS) وتحليلها باستخدام الأساليب الإحصائية المناسب لها.

الصعوبات التي واجهتها الباحثة

1- هناك بعض الطالبات لم يكن لديهن الخبرة الكافية في التعلم الإلكتروني.

2- وجود طالبة في المجموعة التجريبية من اصل فارسي لا تجيد اللغة العربية بصورة جيداً.

3- صعوبة في تجميع الاستبيانات الاستطلاعية.

4- غياب طالبات أثناء الأسبوع الأول من التطبيق، مما أدى إلي تأخر التطبيق مدة أسبوع واحد.

الأساليب الإحصائية

من خلال الإستبانة تم قياس الاتجاه الخاص بالطلبة لمعرفة اتجاهات الطالبات نحو التعلم الالكتروني لمقرر تصميم وإنتاج الشفافيات التعليمية باستخدام الموقع (المقرر الالكتروني) التجريبي الخاص بالمقرر.

يطلب البحث الحالي استخدام الأساليب الإحصائية التالية لمعالجة البيانات المتعلقة بالبحث، وتم ترميز البيانات وإدخالها إلى الحاسب الآلي باستخدام البرنامج الإحصائي للعلوم الاجتماعية **(SPSS)** واستخدمت الباحث المعالجة الإحصائية.

نتائج الدراسة ومناقشتها

تهدف الدراسة إلى معرفة أثر استخدام وحدة الكترونية على مهارات تصميم وإنتاج الوسائل التعليمية باستخدام الحاسوب في مقرر تصميم وإنتاج الشفافيات, ومعرفة اتجاهات الطالبات نحوها, وقدمت الدراسة الفروض الآتية:

الفرض الأول: يؤدي استخدام التعلم الالكتروني إلى تحسين مهارات إنتاج الوسائل التعليمية لدى طالبات تكنولوجيا التعليم بكلية التربية الأساسية.

الفرض الثاني: يؤدي استخدام التعلم الالكتروني إلى تحسين اتجاه طالبات قسم تكنولوجيا التعليم بكلية التربية الأساسية نحو التعلم الالكتروني.

النتائج المتعلقة بتكافؤ المجموعتين التجريبية والضابطة:

تم التحقق من تكافؤ المجموعتين التجريبية والضابطة في كل متغير من متغيرات الضبط التالية: العمر، المرحلة الدراسية، إجادة استخدام الحاسوب, وبناءً على نوع المتغير استخدمت الباحثة أساليب إحصائية مختلفة.

أولاً: التكافؤ في متغير إجادة استخدام الحاسوب (جيد, جيد جدا, ممتاز)

تم التحقق من الفرق بين المجموعتين التجريبية والضابطة في متغير مدى إجادة استخدام الحاسوب, بإستخدام اختبار مربع كا^2 (Chi-Square Test)، ويبين الجدول رقم (4–1) توزيع طالبات كل من المجموعتين التجريبية والضابطة في مدى إجادة استخدام الحاسوب. وُتبين النسب المئوية بأن نسبة طالبات المجموعتين التجريبية والضابطة اللواتي يجدن استخدام الحاسوب بدرجة جيد جداً, تزيد على نسبة الطالبات اللاتي يجدن استخدام الحاسوب بدرجة جيد، إلا أن اختبار مربع كا^2 أشار إلى أن هذه الفروق ليست دالة إحصائياً (كا^2= 4.336، د.ح = 2 الدلالة المشاهدة= 0,114).

جدول (4-1)
توزيع طالبات المجموعتين التجريبية والضابطة بحسب مدى إجادتهن لاستخدام الحاسوب

المجموعة	العدد	مدى إجادة الحاسوب			المجموع
		جيد	جيد جدا	ممتاز	
التجريبية	13	0	6	7	13
النسبة المئوية		%0	%46	%54	%100
الضابطة	16 20	1	12	3	16
النسبة المئوية		%0.06	%75	%24.94	%100
المجموع الكلي	29 40	1	18	10	29
النسبة المئوية		%0.03	%62	%37.97	%100

ثانياً: التكافؤ في متغيرات العمر والمرحلة الدراسية

تم التحقق في بداية الأمر من التوزيع الطبيعي لمتغيرات الضبط(العمر, المرحلة الدراسية), وذلك من خلال استخدام اختبار شابيرو– ويلك (Shapiro-Wilk), والجدول (4–2) يبين نتائج هذا التحليل

اختبار شابيرو- ويلك (Shapiro-Wilk) للتوزيع الطبيعي لمتغيرات العمر والمرحلة الدراسية

متغيرات الضبط	المجموعة	الإحصاء	درجات الحرية	الدلالة المشاهدة
العمر	التجريبية	0.670	13	0.000
	الضابطة	0.785	16	0.002
المرحلة الدراسية	التجريبية	0.446	13	0.000
	الضابطة	0.591	16	0.000

ويتضح من نتائج التحليل للجدول السابق بأنه يوجد اختلاف دال إحصائيا عند مستوى (0.01) عن التوزيع الطبيعي في كل من متغيري الضبط (العمر, المرحلة الدراسية) للمجموعتين التجريبية والضابطة ، ويتضح من ذلك إلى أن التوزيع الطبيعي لم يتحقق في كلا متغيري الضبط، لذلك يمكن القول بأنه يوجد انتهاك في افتراض التوزيع الطبيعي في حالة متغيري العمر والمرحلة الدراسية، لذلك تم استخدام اختبار مان ويتنى (Mann-Whitney) اللبارومتري للتحقق من تكافؤ المجموعتين في متغيرات الضبط, وقد بينت نتائج التحليل كما في الجدول رقم (4–3), بأنه

لا توجد فروق دالة بين المجموعتين التجريبية والضابطة في متغيرات الضبط, إذ بلغت قيم Z لكلا المتغيرين (0.637- 0.976-) على الترتيب, وهي غير داله عند مستوى (0.05), الأمر الذي يعني أن المجموعتين كانتا متكافئتين في هذه المتغيرات.

جدول (4-3)
نتائج اختبار مان- ويتني (Mann-Whitney) للفروق بين
المجموعة التجريبية والمجموعة الضابطة في متغيرات الضبط

المتغير	المجموعة	متوسط الرتب	مجموع الرتب	قيمة Z	الدلالة المشاهدة
العمر	التجريبية	**16.08**	**209.00**	0.637-	0.559
	الضابطة	14.13	226.00		
المرحلة الدراسية	التجريبية	**13.73**	**178.50**	0.976-	0.475
	الضابطة	16.03	256.50		

النتائج المتعلقة بالفرض الأول الذي نصه:" يؤدي استخدام التعلم الالكتروني إلى تحسين مهارات إنتاج الوسائل التعليمية لدى طالبات تكنولوجيا التعليم بكلية التربية الأساسية".

للإجابة عن فرض الدراسة الأول تم التحقق أولاً من افتراض التوزيع الطبيعي لبطاقات تقييم الشفافيات التعليمية من قبل طالبات المجموعتين التجريبية والضابطة, وذلك باستخدام اختبار شابيرو– ويلك (Shapiro-Wilk), ويبين الجدول رقم (4-4) نتائج هذا التحليل, ويتضح من هذا الجدول بأنه لا يوجد اختلاف دال عند مستوى (0.05) عن التوزيع الطبيعي لجميع بطاقات تقييم طالبات المجموعتين التجريبية والضابطة للشفافيات التعليمية

جدول (4-4)
اختبار شابيرو- ويلك (Shapiro-Wilk) للتوزيع الطبيعي
لتقييم طالبات المجموعتين التجريبية والضابطة للشفافيات التعليمية

أنواع الشفافيات التعليمية	المجموعة	الإحصاء	درجات الحرية	الدلالة المشاهدة
الشفافيات الأحادية	**التجريبية**	**0.951**	**13**	**0.608**
	الضابطة	0.950	16	0.492
الشفافيات التراكمية	**التجريبية**	**0.905**	**13**	**0.156**
	الضابطة	0.888	16	0.052
شفافيات العرض التقديمي	**التجريبية**	**0.926**	**13**	**0.298**
	الضابطة	0.951	16	0.502
المجموع الكلي	**التجريبية**	**0.942**	**13**	**0.483**
	الضابطة	0.936	16	0.304

وبناء على نتائج الجدول السابق والمتعلقة بعدم وجود انتهاك لافتراض التوزيع الطبيعي, تم استخدام اختبار ت للمجموعات المستقلة (Independent-Samples T test) للتحقق من فرض الدراسة, والجدول (4-5) يبين قيم المتوسطات الحسابية والانحرافات المعيارية لتقييمات طالبات المجموعتين التجريبية والضابطة, بالإضافة إلى قيم "ت", ومستوى الدلالة, وكشفت نتائج التحليل بأنه توجد فروق دالة إحصائيا بين متوسط تقييمات طالبات المجموعة التجريبية, ومتوسط تقييمات طالبات المجموعة الضابطة للشفافيات التعليمية (الأحادية, التراكمية, العرض

التقديمي) بالإضافة إلى المجموع الكلي, وجاءت هذه الفروق لصالح طالبات المجموعة التجريبية, حيث بلغت قيم "ت" (2.627-, 2.149-, 3.825-, 3.400-) وجميعها دال عند مستوى (0.05).

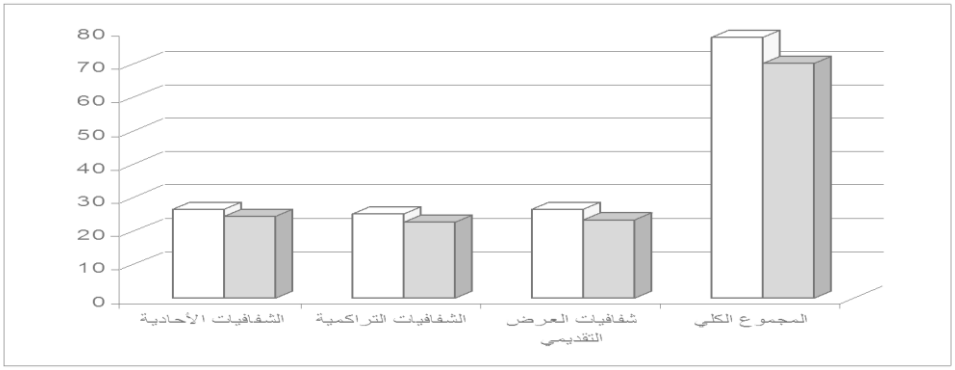
جدول (4-5)

نتائج اختبار ت للمجموعات المستقلة (Independent-Samples T test) لدلالة الفرق بين متوسط تقييمات طالبات المجموعتين التجريبية والضابطة للشفافيات التعليمية

المتغير التابع	المجموعة	العدد	المتوسط الحسابي	الانحراف المعياري	قيمة ت	الدلالة المشاهدة
الشفافيات الأحادية	الضابطة	16	24.31	2.10	2.627-	0.014
	التجريبية	**13**	**26.38**	**2.18**		
الشفافيات التراكمية	الضابطة	16	22.56	1.93	2.149-	0.041
	التجريبية	**13**	**25.15**	**4.34**		
شفافيات العرض التقديمي	الضابطة	16	23.25	1.81	3.825-	0.001
	التجريبية	**13**	**26.38**	**2.60**		
المجموع الكلي	الضابطة	16	70.13	5.10	3.400-	0.002
	التجريبية	13	77.92	7.27		

وبناء على ما سبق يتضح أن بيانات الدراسة جاءت لتؤكد صحة الفرض الأول, وعليه يمكن القول بان استخدام التعلم الالكتروني يؤدي إلى تحسين مهارة إنتاج وتصميم الشفافيات التعليمية(الوسائل التعليمية) لدى طالبات المجموعة التجريبية مقارنتاً بالتعلم التقليدي.

ولتوضيح الفروق بين متوسط تقييمات طالبات المجموعتين التجريبية والضابطة للشفافيات التعليمية, قامت الباحثة بتمثيل تلك المتوسطات, والشكل رقم(1) يبين نتائج التمثيل.



شكل(3)

المتوسطات الحسابية لتقييم طالبات المجموعتين التجريبية والضابطة للشفافيات التعليمية

النتائج المتعلقة بالفرض الثاني الذي نصه:" يؤدي استخدام التعلم الالكتروني إلى تحسين اتجاه طالبات قسم تكنولوجيا التعليم بكلية التربية الأساسية نحو التعلم الالكتروني".

للإجابة عن فرض الدراسة الثاني تم التحقق أولاً من افتراض التوزيع الطبيعي لاتجاهات طالبات المجموعتين التجريبية والضابطة نحو التعلم الالكتروني, وذلك باستخدام اختبار شابيرو– ويلك (Shapiro-Wilk), ويبين الجدول رقم (4–6) نتائج هذا التحليل, ويتضح من هذا الجدول وجود اختلاف دال عند مستوى (0.05) عن التوزيع الطبيعي في درجات بعد فوائد التعلم الالكتروني فيما يتعلق باتجاهات طالبات المجموعة الضابطة, مما يشير إلى وجود انتهاك لافتراض التوزيع الطبيعي.

جدول (4-6)
اختبار شابيرو- ويلك (Shapiro-Wilk) للتوزيع الطبيعي لاتجاهات طلبة المجموعتين التجريبية والضابطة

أبعاد مقياس الاتجاه نحو التعلم الالكتروني	المجموعة	الإحصاء	درجات الحرية	الدلالة المشاهدة
فوائد التعلم الالكتروني	التجريبية	0.969	13	0.883
	الضابطة	0.869	16	0.026
حب التعلم الالكتروني	التجريبية	0.943	13	0.498
	الضابطة	0.972	16	0.867
قلق التعلم الالكتروني	التجريبية	0.946	13	0.542
	الضابطة	0.980	16	0.962
المجموع الكلي	التجريبية	0.953	13	0.652
	الضابطة	0.967	16	0.787

وبناء على توفر مؤشر لانتهاك افتراض التوزيع الطبيعي لبعد فوائد التعلم الالكتروني لاتجاهات طالبات المجموعة الضابطة, فقد لجاءت الباحثة إلى اختبار لابارامتري وهو اختبار مان ويتني, وعلى الرغم من أن هذا الاختبار يقوم على رتب الدرجات وليس على الدرجات نفسها, فقد كان من المفيد النظر في متوسط الدرجات وانحرافاتها المعيارية, ويبين الجدول (4–7) قيم هذه الإحصائيات, وكما يشير الجدول فإنه يوجد فروق ظاهرة بين اتجاهات طالبات المجموعة التجريبية واتجاهات طالبات المجموعة الضابطة على جميع أبعاد مقياس الاتجاهات والدرجة الكلية قبل تطبيق أسلوب التعلّم.

جدول(4–7)
المتوسطات الحسابية والانحرافات المعيارية لاتجاهات طالبات المجموعتين التجريبية والضابطة نحو أبعاد مقياس الاتجاهات قبل تطبيق أسلوب التعلم

أبعاد مقياس الاتجاه نحو التعلم الالكتروني	المجموعة	المتوسط الحسابي	الانحراف المعياري
فوائد التعلم الالكتروني	الضابطة	34.69	3.00
	التجريبية	35.85	2.27
حب التعلم الالكتروني	الضابطة	32.00	1.50
	التجريبية	32.46	1.71
قلق التعلم الالكتروني	الضابطة	32.81	3.52
	التجريبية	34.85	3.02

المجموع الكلي	الضابطة	99.50	6.29
	التجريبية	103.15	5.05

ولمعرفة دلالة هذه الفروق الظاهرة, قامت الباحثة باستخدام مان ويتني الابارامتري ويبين الجدول رقم (4-8) نتائج اختبار مان ويتني, والذي يحتوي على قيم متوسط الرتب لكل من المجموعتين التجريبية والضابطة, وقيم إحصائي الاختبار (ز) والدلالة المشاهدة, وكشفت نتائج التحليل عن عدم جود فروق دالة إحصائياً عند مستوى(0.05), بين متوسط رتب اتجاهات طالبات المجموعة التجريبية, ومتوسط رتب اتجاهات طالبات المجموعة الضابطة نحو جميع أبعاد مقياس الاتجاهات قبل تطبيق أسلوب التعلم

جدول(4-8)

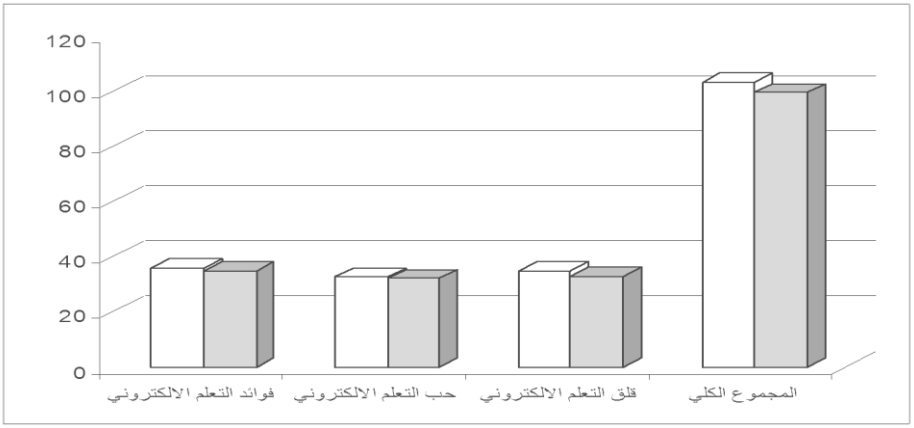
نتائج اختبار مان- ويتني (Mann-Witney) للفرق بين متوسط رتب المجموعة التجريبية والمجموعة الضابطة على أبعاد مقياس الاتجاهات للقياس القبلي

أبعاد مقياس الاتجاه نحو التعلم الالكتروني	المجموعة	العدد	متوسط الرتب	مجموع الرتب	قيمة Z	الدلالة المشاهدة
فوائد التعلم الالكتروني	الضابطة	16	13.63	218.00	0.974-	0.351
	التجريبية	13	16.69	217.00		
حب التعلم الالكتروني	الضابطة	16	14.09	225.50	0.650-	0.515
	التجريبية	13	16.12	209.50		
قلق التعلم الالكتروني	الضابطة	16	13.25	212.00	1.234-	0.217
	التجريبية	13	17.15	223.00		
المجموع الكلي	الضابطة	16	13.28	212.50	1.208-	0.227
	التجريبية	13	17.12	222.50		

ولتوضيح الفروق بين متوسط درجة اتجاه طالبات المجموعتين التجريبية والضابطة نحو أبعاد مقياس التعلم الالكتروني قبل تطبيق أسلوب التعلّم, قامت الباحثة بتمثيل تلك المتوسطات, والشكل رقم(2) يبين نتائج التمثيل.

شكل(4)

المتوسطات الحسابية لدرجة اتجاه طالبات المجموعتين التجريبية والضابطة نحو التعلم الالكتروني قبل تطبيق أسلوب التعلم



وللتحقـق مـن فاعليـة استـخدام الـتعلم الالكتروني, قامت الباحثة بإيجاد المتوسطات الحسابية, والانحرافات المعيارية, لاتجاهات طالبات المجموعتين التجريبية والضابطة نحو جميع أبعاد مقياس الاتجاهات بعد تطبيق أسلوب التعلم, والجدول رقم(4-9) يبين نتائج تلك المتوسطات.

جدول(4–9)

المتوسطات الحسابية والانحرافات المعيارية لاتجاهات طالبات المجموعتين التجريبية والضابطة نحو أبعاد مقياس الاتجاهات بعد تطبيق أسلوب التعلّم

أبعاد مقياس الاتجاه نحو التعلم الالكتروني	المجموعة	المتوسط الحسابي	الانحراف المعياري
فوائد التعلم الالكتروني	الضابطة	35.06	2.02
	التجريبية	37.15	2.03
حب التعلم الالكتروني	الضابطة	35.81	2.48
	التجريبية	38.15	2.34
قلق التعلم الالكتروني	الضابطة	34.13	2.42
	التجريبية	37.46	2.67
المجموع الكلي	الضابطة	106.00	36.50
	التجريبية	111.69	3.92

يتضح من نتائج التحليل للجدول السابق, بأن المتوسط الحسابي لاتجاهات طالبات المجموعة التجريبية نحو جميع أبعاد مقياس الاتجاهات, يفوق المتوسط الحسابي لاتجاهات طالبات المجموعة الضابطة, ولمعرفة دلالة هذه الفروق بين رتب المتوسطات, قامت الباحثة باستخدام مان ويتني اللابارامتري (Mann-Witney), والجدول رقم (4–10) يبين نتائج التحليل.

جدول(4–10)

نتائج اختبار مان– ويتني (Mann-Witney) للفرق بين متوسط رتب المجموعة التجريبية والمجموعة الضابطة على أبعاد مقياس الاتجاهات بعد تطبيق أسلوب التعلم

أبعاد مقياس الاتجاه نحو التعلم الالكتروني	المجموعة	العدد	متوسط الرتب	مجموع الرتب	قيمة Z	الدلالة المشاهدة
فوائد التعلم الالكتروني	الضابطة	16	11.75	188.00	2.322–	0.022
	التجريبية	13	19.00	247.00		
حب التعلم الالكتروني	الضابطة	16	11.81	189.00	2.257–	0.025
	التجريبية	13	18.92	246.00		
قلق التعلم الالكتروني	الضابطة	16	11.34	181.50	2.576–	0.009
	التجريبية	13	19.50	253.50		
المجموع الكلي	الضابطة	16	11.44	183.00	2.503–	0.012
	التجريبية	13	19.38	252.00		

يتضح من نتائج التحليل للجدول السابق بأنه توجد فروق دالة إحصائياً عند مستوى(0.05), بين متوسط رتب اتجاهات طالبات المجموعة التجريبية, ومتوسط رتب اتجاهات طالبات المجموعة الضابطة نحو جميع أبعاد المقياس, وجاءت هذه الفروق لصالح اتجاهات طالبات المجموعة التجريبية

المتوسطات الحسابية لدرجة اتجاه طالبات المجموعتين التجريبية والضابطة نحو التعلم الالكتروني بعد تطبيق أسلوب التعلم

ولتوضيح الفروق بين متوسط درجة اتجاه طالبات المجموعتين التجريبية والضابطة نحو أبعاد مقياس التعلم الالكتروني بعد تطبيق أسلوب التعلّم, قامت الباحثة بتمثيل تلك المتوسطات, والشكل رقم(5) يبين نتائج التمثيل.

ولمعرفة الفرق بين درجة اتجاه الطالبات في التطبيقين القبلي والبعدي لكل من المجموعتين التجريبية والضابطة, قامت الباحثة بإيجاد المتوسطات الحسابية والانحرافات المعيارية لاتجاهات طالبات المجموعة التجريبية, واتجاهات المجموعة الضابطة نحو جميع أبعاد مقياس الاتجاهات لكل من مرتي التطبيق, والجدول رقم (4–11) يبين نتائج تلك المتوسطات الحسابية والانحرافات المعيارية.

جدول (4–11)

المتوسطات الحسابية والانحرافات المعيارية لاتجاهات طالبات المجموعتين التجريبية والضابطة على جميع أبعاد مقياس الاتجاهات لكل من مرتي التطبيق

المجموعة	أبعاد مقياس الاتجاه نحو التعلم الالكتروني	التطبيق القبلي		التطبيق البعدي	
		المتوسط الحسابي	الانحراف المعياري	المتوسط الحسابي	الانحراف المعياري
الضابطة (ن=16)	فوائد التعلم الالكتروني	34.69	3.01	35.06	2.02
	حب التعلم الالكتروني	32.00	1.51	35.81	2.48
	قلق التعلم الالكتروني	32.81	3.53	34.13	3.42
	المجموع الكلي	99.50	6.29	106.00	6.50
التجريبية (ن=13)	فوائد التعلم الالكتروني	35.85	2.27	37.15	2.03
	حب التعلم الالكتروني	32.46	1.71	38.15	2.34
	قلق التعلم الالكتروني	34.85	3.02	37.46	2.66
	المجموع الكلي	103.15	5.05	111.69	3.92

يتضح من نتائج التحليل للجدول السابق, إلى وجود فروق ظاهرة بين متوسط اتجاهات طالبات المجموعة التجريبية, واتجاهات طالبات المجموعة الضابطة, للقياسين القبلي والبعدي, ويلاحظ بان المتوسطات الحسابية المتعلقة باتجاهات المجموعة التجريبية, تفوق المتوسطات الحسابية المتعلقة باتجاهات المجموعة الضابطة نحو جميع أبعاد المقياس في التطبيق البعدي, وهذا مؤشر قوي على فاعلية أسلوب التعلم باستخدام الوحدة الالكترونية الذي تم تقديمه لطالبات المجموعة التجريبية, ولمعرفة دلالة الفرق بين اتجاه الطالبات في مرتي التطبيق لكل من المجموعتين التجريبية والضابطة, قامت الباحثة باستخدام اختبار ويلكوكسون(Wilcoxon) اللابارامتري للتعرف على دلالة الفروق بين رتب المتوسطات, والجدول رقم(4–12) يبين نتائج التحليل.

جدول(4–12)

نتائج اختبار ويلكوكسون(Wilcoxon) للفرق بين متوسط رتب اتجاهات طالبات المجموعتين التجريبية والضابطة نحو أبعاد مقياس الاتجاهات لمرتي التطبيق القبلي والبعدي

المجموعة	أبعاد مقياس الاتجاه نحو التعلم الالكتروني	متوسط الرتب (السالبةالموجبة)	مجموع الرتب السالبة W-	مجموع الرتب السالبة W+	قيمة Z	الدلالة المشاهدة
الضابطة	فوائد التعلم الالكتروني	8.39 8.64	75.50	60.50	0.390-	0.697

	حب التعلم الالكتروني	8.00 0.00	120.00	0.00	3.415-	0.001
	قلق التعلم الالكتروني	8.61 5.50	77.50	27.50	1.582-	0.114
	المجموع الكلي	9.96 2.17	129.50	6.50	3.184-	0.001
التجريبية	فوائد التعلم الالكتروني	5.83 3.33	35.00	10.00	1.487-	0.137
	حب التعلم الالكتروني	7.00 0.00	91.00	0.00	3.192-	0.001
	قلق التعلم الالكتروني	6.06 3.25	48.50	6.50	2.145-	0.032
	المجموع الكلي	7.29 3.50	87.50	3.50	2.938-	0.003

يتضح من نتائج التحليل للجدول السابق بوجود فروق دالة إحصائياً بين متوسط رتب اتجاهات طالبات المجموعة التجريبية في مرتي التطبيق نحو جميع أبعاد المقياس والمجموع الكلي للأبعاد, باستثناء البعد المتعلق بفوائد التعلم الالكتروني, ويلاحظ من الجدول أيضا بأن مجموع الرتب الموجبة يزيد على مجموع الرتب السالبة في جميع أبعاد المقياس, الأمر الذي يعني أن اتجاه الطالبات في التطبيق البعدي جاء بشكل أفضل من اتجاههن في التطبيق القبلي, كذلك أظهرت النتائج بأنه لا توجد فروق دالة إحصائيا بين متوسط رتب اتجاهات طالبات المجموعة الضابطة في مرتي التطبيق(القبلي والبعدي) نحو كل من بعدي فوائد التعلم الالكتروني, وقلق التعلم الالكتروني.

خاتمة الدارسة والتوصيات

خاتمة الدراسة

بعد تطبيق البحث والذي يهدف إلي معرفة أثر التعلم الإلكتروني على مهارات تصميم وإنتاج الوسائل التعليمية، عن طريق استخدام بيئة إلكترونية، واتجاهات الطلبة نحو التعلم الإلكتروني.

التوصيات التربوية

في ضوء ما توصلت إليه الباحثة من نتائج توصي الباحثة بما يلي:

1- إعداد برامج تعليمية حاسوبية في كليات التربية الأساسية .
2- توفير المزيد من بيئات التعلم الالكترونية لكافة المراحل الدراسية.
3- تدريب المعلمين علي البرامج الحاسوبية (التعلم الإلكتروني) قبل تدريسها.
4- ضرورة إنشاء قسم في كليات التربية لإعداد معلم تكنولوجيا أو إضافة بعض المقررات الإلكترونية.

5- ضرورة وضع نظام يتم العمل خلاله على توفير الخامات والأدوات والمعدات اللازمة لتنفيذ دروس التكنولوجيا بصورة علمية مع توفير مكان لحفظ المنتجات.

6- تفعيل أسلوب التعلم الالكتروني، واستخداماته في تنمية مهارات التصميم والإنتاج الوسائل التعليمية.

7- التوسع في البنية الأساسية لتكنولوجيا التعليم والحواسيب بكليات التربية داخل قاعات الدرس ولأعضاء الهيئة الأكاديمية، مما يساهم في خفض نسبة قلق استخدام الوسائل التعليمية وبيئات التعلم الالكترونية.

8- رفع مستوى أداء أعضاء الهيئة التدريسية في مجال تكنولوجيا التعليم ومستجدياتها، خاصة في مجال البرامج التطبيقية ذات الاستخدامات الأساسية في عمليات التعلم والتعليم.

9- عمل دورات تدريبية للمعلمين أثناء الخدمة لتدريبهم على كيفية استخدام أسلوب التعلم الإلكتروني في التدريس وكيفية إعداد البرامج وفقاً له.

10- تشجيع الهيئة التدريسية بكليات التربية الأساسية على استخدام البيئات الإلكترونية في التدريس.

معايير تصميم الكتاب الإلكتروني وأثره على مخرجات التعلم

E-Book Standers and its Effect on Learning Outcomes

إعداد

د. أحمد محمد نوبي

أستاذ تكنولوجيا التعليم والتعلم الإلكتروني المشارك

نائب العميد للدراسات التربوية ورئيس قسم التعلم عن بعد – جامعة الخليج العربي

الكتاب الالكتروني E-Book هو أحد أشكال أوعية المعرفة الرقمية ومن المصادر الرئيسية للتعلم الإلكتروني والتي نالت الاهتمام بشكل ملحوظ في الآونة الأخيرة خاصة مع استكمال العديد من المؤسسات التربوية والتعليمية للبيئة التحيتية التكنولوجية مما جعلها قادرة على استخدام العديد من اشكال المعرفة الرقمية ومنها الكتب الالكترونية وهنا ظهرت قضية تصميم هذه النوعية من الكتب وكيف يتم تناولها وتداولها خاصة أن لها العديد من الأشكال والأنواع ودخلت في تصميمها حميع اشكال وانواع الوسائط المتعددة وارتبط بمفهوم الملكية الفكرية وحقوق الطبع والنشر الرقمي، وهل يتم تصميمها يشبه تصميم الكتب المعتادة أم يختلف عنها وما هي النظريات التي يعتمد عليها المصمم التعليمي لهذه النوعية من مصادر التعلم الالكتروني، وقد أكدت العديد من الدراسات مثل دراسة المبارز (2008) وهورتون (Horton, 2010) أن الأفضل استخدام الصور والكلمات بدلاً من الكلمات فقط، ويجب ألا تكون المعلومات معروضة بشكل متزامن بأكثر من قالب مثلاً: كلمات أي منطوقة ومكتوبة، يجب عزل المعلومات غير المرتبطة، إذا لم يمكنك عزل المعلومات غير المرتبط يجب أن تحدد وتُؤكد على المعلومات الضرورية صوتياً أو مرئياً، المعلومات المرتبطة توضع جنباً إلى جنب ولا تفصل بشكل مادي أو زمني، يفضل استخدام الكلمات المنطوقة بدلاً من الكلمات المطبوعة في الشرح على الصور، يقسم الموضوع أو المهارات المعقدة مثلاً إلى خطوات متسلسلة. وتوجد العديد من المعايير التي لابد من الالتزام بها عند تصميم وانتاج الكتاب الالكتروني واستخدامه في عملية التعلم.

أثر الألعاب إلكترونية في تنمية مهارات التفكير الرياضي والتحصيل لدى تلميذات المرحلة الابتدائية بالمملكة العربية السعودية

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هدف البحث إلى الكشف عن فاعلية تصميم برنامج ألعاب إلكترونية – وفق نظرية جانييه – في تنمية مهارات التفكير الرياضي، والتحصيل في الرياضيات لدى تلميذات المرحلة الابتدائية بالمملكة العربية السعودية، لذا تم تبني منهج البحث التطويري، واختيار عينة البحث من (69) تلميذةً من تلميذات الصف الخامس الابتدائي بمدارس جامعة الملك فهد للبترول والمعادن، بطريقةٍ قصدية عنقودية من ثلاثة فصول (شعب), وتم استخدام التصميم شبه التجريبي المكون من مجموعتين تجريبيتين ومجموعة ضابطة مع القياس القبلي والبعدي، وتم تقسيم عينة البحث إلى ثلاث مجموعاتٍ متساوية ، وتم تخصيصها عشوائياً لثلاث مجموعات: المجموعة التجريبية الأولى والتي درست عن طريق برنامج ألعاب إلكترونية وفق نظرية جانييه، والمجموعة التجريبية الثانية والتي درست عن طريق برنامج ألعاب إلكترونية بدون نظرية جانييه، والمجموعةٍ الضابطة؛ بواقع (23) تلميذةً لكل مجموعة. وقد تم اختيار وحدة من مقرر الرياضيات، وتحليل محتواها لاشتقاق مهارات التفكير الرياضي ، وجوانب التحصيل فيها، وتم اشتقاق قائمة لمعايير التصميم التعليمي لبرنامج الألعاب الإلكترونية, وتم تطوير برنامجَين للألعاب الإلكترونية: الأول وفق نظرية جانييه ، والآخر من دونها بنموذج الجزار(2002). وتم التحكيم على مطابقتها لتلك المعايير. وتم تطوير أداتي البحث: اختبار مهارات التفكير الرياضي، واختبار التحصيل في الرياضيات، والتأكيد على صدقهما وثباتهما؛ وتم تنفيذ تجربة البحث وفق التصميم التجريبي، بحيث تعلمت المجموعة التجريبية الأولى ببرنامج الألعاب الإلكترونية وفق نظرية جانييه, وتعلمت المجموعة التجريبية الثانية ببرنامج الألعاب الإلكترونية من دون نظرية جانييه، وتعلمت المجموعة الضابطة بالطريقة المعتادة, وتم تطبيق أداتي البحث قبلياً وبعدياً؛ وقد كشفت نتائج البحث عن فاعلية برنامج الألعاب الإلكترونية (وفق نظرية جانييه) في تنمية مهارات التفكير الرياضي، وعن الإجابة عن السؤال الرئيسي للبحث بأنه يوجد أثر لاستخدام برنامج الألعاب الالكترونية وفق نظرية جانييه في تنمية مهارات التفكير الرياضي لدى تلميذات المرحلة الابتدائية في مادة الرياضيات, بينما لا يوجد أثر له في التحصيل في الرياضيات. وأشار البحث إلى

ضـرورة تشـجيع اسـتخدام الألعـاب التعليميـة الإلكترونيـة فـي عمليـة الـتعلم داخـل المؤسسـات التعليميـة، بحيـث تغطـي جميـعَ منـاهجِ المقـررات التعليميـة فـي التعلـيم العـام والخـاص وتطبيـق موجهـات نظريـة جانييـه فـي تصـميم البـرامج التعليميـة عامـةً، والألعـاب الإلكترونيـة خاصـة، والاهتمـام بتنميـة التفكيـر الرياضـي عبـر تكنولوجيـا الألعـاب الإلكترونيـة التفاعليـة وفـق نظريـة جانييه، وذلك لتنمية التفكير الرياضي، كما يمكن الاستفادة من قائمة معايير التصميم التعليمي للألعاب التعليمية الإلكترونية.

استراتيجية لتصميم التعلم المدمج وأثرها في تنمية التحصيل والدافعية لدى طلبة المرحلة الثانوية بدولة الكويت

Designing a Strategy for Blended Learning and its Effect on Developing Achievement and Motivation among Kuwaiti Secondary School Students

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هدف البحث إلى تصميم استراتيجية لبيئة للتعلم المدمج والكشف عن أثرها على تنمية التحصيل والدافعية لدى طلبة المرحلة الثانوية بدولة الكويت، لذا تم استخدام منهج البحث التطويري (Development Research Method)، وقام باشتقاق قائمة جوانب التحصيل لمقرر قضايا البيئة والتنمية المعاصرة بحيث اشتملت على جوانب معرفية (24)، وجوانب المهارات العقلية (2)، وجوانب تنمية الدافعية (12)، كما قام باشتقاق قائمة معايير التصميم التعليمي لبيئة التعلم المدمج بحيث اشتملت على (11) معياراً وعدد (53) مؤشراً، وقام باشتقاق استراتيجية مقترحة للتعلم المدمج حيث اشتملت على (4) مراحل، وقام بتطبيق نموذج الجزار (Elgazzar,2014) لتطوير بيئة التعلم المدمج حتى تم التحكيم عليها للتأكد من مطابقتها لمعايير التصميم التعليمي، وتم إعداد أداتين: اختبار التحصيل، ومقياس الدافعية نحو التعلم وتأكد من الصدق والثبات، وتكونت عينة البحث من (30) طالباً من طلبة المرحلة الثانوية بدولة الكويت، واستخدم التصميم شبه التجريبي للمجموعة التجريبية الواحدة مع القياس القبلي والبعدي، وقام بتطبيق تجربة البحث وتطبيق أدوات البحث قبل وبعد التجربة، وجمع البيانات لاختبار عدد (6) فرضية بحثية، وتوصل البحث إلى أنه يوجد أثر لتطبيق بيئة التعلم المدمج في تنمية التحصيل والدافعية نحو التعلم المدمج، ودرجة التمكن النهائية لها 85%، وكان حجم التأثير كبير للتحصيل والدافعية نحو التعلم المدمج، وأوصى البحث استخدام استراتيجية التعلم المدمج في هذا البحث في تطوير وتحسين تعليم مقرر قضايا البيئة والتنمية المعاصرة للصف الثاني عشر أدبي. الاستفادة من معايير التصميم التعليمي التي تم التوصل إليها في تصميم التعلم المدمج. إعداد وتدريب معلمي المرحلة الثانوية لتوظيف التعلم المدمج، حيث الدمج يجمع بين التعلم الإلكتروني ودور المعلم في التعليم المباشر وجهاً لوجه. الاستفادة من الأدوات المستخدمة في هذا البحث وهي: اختبار التحصيل للجانب المعرفي لمقرر قضايا البيئة والتنمية المعاصرة – مقياس الدافعية نحو التعلم، وذلك لاستخدامها في دراسات مشابهة.

كلية الدراسات العليا

قسم التعلم عن بعد

تصميم المحتوى الإلكتروني القائم على كائنات التعلم وأثره على تنمية بعض مفاهيم الرياضيات لدى أطفال الروضة في دولة الكويت

رسالة مقدمة كجزء من متطلبات الحصول على درجة الماجستير في التعلم عن بُعد
(تخصص التعليم والتدريب عن بُعد)

إعـداد

فاطمة يوسف أحمد الحساوي

بكالريوس تربية في رياض الأطفال، كلية التربية الأساسية، دولة الكويت، 2005

إشـــــراف

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تصميم المحتوى الإلكتروني القائم على كائنات التعلم وأثره على تنمية بعض مفاهيم الرياضيات لدى أطفال الروضة في دولة الكويت

فاطمة يوسف الحساوي

إشراف

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الملخص

هدف البحث الحالي إلى تصميم المحتوى الإلكتروني القائم على كائنات التعلم وأثره وفاعليته في تنمية بعض مفاهيم الرياضيات لدى أطفال الروضة في دولة الكويت، وصاغت الباحثة عدد(6) فروض بحثية، حيث استخدمت الباحثة منهج البحث التطويري نظراً لطبيعة البحث التطويري، لذا قامت بتحليل المحتوى لبرنامج ادخال المواد (الرياضيات) لمرحلة رياض الأطفال المستوى الثاني ومن ثم قامت باشتقاق قائمة مفاهيم الرياضيات لأطفال مرحلة رياض الأطفال تتوصلت إلى عدد (12) مفهوم، وفقا لمحددات البحث خبرتان من خبرات الفترة الأولى، وقامت باشتقاق قائمة معايير التصميم التعليمي للمحتوى الإلكتروني القائم على كائنات التعلم وتوصلت إلى (12) معياراً و(71) مؤشراً، وقامت بتصميم بيئة المحتوى الإلكتروني القائم على كائنات التعلم وفق نموذج الجزار(Elgazzar, 2014) للتصميم التعليمي لبيئات التعلم الإلكتروني، حيث تم مطابقتها مع معايير التصميم التعليمي التي تم اشتقاقها من إجراءات البحث، وقامت بتطوير أداة البحث وهي اختبار تحصيلي لمفاهيم الرياضيات التي تم إشتقاقها وتأكدت من صدقه وثباته إحصائياً، واختارت عينة البحث المكونة من (38) طفلاً وطفلة من رياض دولة الكويت وقسمتها إلى مجموعتين، تم تخصيصهما عشوائيا في تصميم تجريبي ذو المجموعة الضابطة مع القياس القبلي والبعدي، وقامت بإجراء تجربة البحث خلال شهر في القصل الدراسي الأول (2015-2016)، حيث تعلمت المجموعة التجريبية بيئة المحتوى الإلكتروني القائم على كائنات التعلم، أما المجموعة الضابطة فدرست بالطرق المعتادة بالروضات، وطبقت أداة البحث على الأطفال قبلياً وبعدياً، وقامت بتحليل النتائج باستخدام الطرق الإحصائية المناسبة واختبار الفروض السته، وكشفت نتائج البحث عن وجود فروق دالة إحصائياً بين المجموعتين في التطبيق البعدي

لاختبار تحصيل مفاهيم الرياضيات، وكذلك بينهما عند الضبط لأثر التطبيق القبلي، وفي متوسط الكسب لصالح المجموعة التجريبية، كما حققت المجموعة التجريبية درجة تمكن 90%، وبذلك يكون تصميم المحتوى الإلكتروني القائم على كائنات التعلم ذو فاعلية على مفاهيم الرياضيات لدى أطفال الروضة، وضمن البحث قائمة من التوصيات بالاضافة الى قائمة من البحوث اللاحقة.

الكلمات المفتاحية: تصميم المحتوى الإلكتروني، كائنات التعلم، تنمية مفاهيم الرياضيات، أطفال الروضة، منهج البحث التطويري، نموذج الجزار(Elgazzar,2014)، التصميم التعليمي، دولة الكويت.