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E-LEARNING SYSTEMS' ACCEPTANCE: THE CASE OF EDUWAVE IN JORDAN

Emad Abu-SHANAB, Noor ABABNEH, Alaa MOMANI
IT College, MIS Department, Yarmouk University, Jordan
E-mail: abushanab@yu.edu.jo, mubest_day@yahoo.com, almomani.alaa86@gmail.com

Abstract: *E-learning is the new picture of education in the 21st century. Schools and universities are adopting e-learning systems to improve education processes, reduce costs, make teaching and learning more convenient, provide new tools for the new educational methods. EduWave is a system implemented by Jordan, like many Arab countries, to be used by teachers, students and other stakeholders in public schools in the country. This study tried to measure the level of usage of such system and the obstacles facing its adoption and full utilization. The study utilized a multi method, with 2 surveys applied to both teachers and students to probe their opinions regarding the obstacles facing EduWave utilization, the advantages and disadvantages of the system, the functionalities used, and the factors influencing its adoption. Results indicated that……..*

Keywords*: E-learning, Jordan, EduWave*

I. INTRODUCTION

1.1. E-Learning System

Electronic learning (e-learning) became a necessity for the success and prosperity of education. Although e-learning became a necessity, still many universities and schools are not adopting it fully. Education depends on face-to-face interaction between teachers and students, where technology became a channel for interaction and rich communication. Also, the Internet bridged the place and time gap and facilitated the teaching/learning process. E-learning is the utilization of computing technology in universities and schools to facilitate education. Some modes of integrating technology into learning are becoming more popular like: information exploration, coordination, mental tools integration, web-based cooperative learning, problem-oriented integration strategies, information technology (IT) integration and learning assessment, and a technology integrated education (named energy education), where students are adaptive learners (Liao & Chen, 2010).

E-learning refers to distributing learning materials and lectures by teachers to students through a communication channel (Vlahovic *et al.,* 2011) to execute all required tasks by teachers as well as learners through supporting the interaction among them easily, which results in a better usability of the e-learning system (Muhammad *et al.*, 2011). Many learning theories were used, in the context of e-learning, in physical classroom situations and have been adopted and validated like: learning in an adaptive community, collaborative learning, scaffolding, and scenario learning (Tsai, 2011)

Adopting e-learning systems is related to the extent to which users are willing to use e-learning system for the purposes it was designed for. Timothy Teo developed an E-learning Acceptance Measure (ELAM) which presents an alternative to existing measures of e-learning or online learning by emphasizing on students' perception of web quality, self-efficacy, or attitude towards the Internet (Teo, 2011).

Mbarek proposes a theoretical model that includes factors proposed as antecedents of e-learning effectiveness, grouped under two major factors; individual antecedents (motivation to learn and computer self-efficacy); and perceptual antecedents (perceived ease of use and perceived

usefulness). The model is based on the social cognitive theory, and technology acceptance model (Mbarek, 2011). Liu and Hwang (as cited in Crawford & McKenzie, 2011), mentioned that E-learning has various advantages and disadvantages. Advantages are: increased flexibility and ability to overcome great physical distances between students and educational institutions, and the possible self-determination of student learning. Also, other research reported that it increases the speed and degree of dissemination of knowledge, facilitates the acquisition of knowledge and skills and provides flexible learning opportunities to students (Sunhaloo *et al.*, 2009). However, certain disadvantages are reported and include decreased face-to-face interaction, as well as differential access between students based on their socioeconomic status, gender, age, and other factors. Therefore it is important to consider how global, local, historical, cultural, social, and individual factors could impact e-learning (Crawford & McKenzie, 2011).

1.2. Cases Of E-Learning System From The World

E-learning is attracting much research, where many aspects are discussed and explored specially technical and behavioral issues. In a study conducted in India related to the evaluation of e-learning platforms for students and teachers, researchers found that little e-courses were offered online, and mostly by younger teachers. The study found that students prefer to take face-to-face courses more than online courses. Data utilized (17900) answers from students, where they emphasized the major reasons behind this choice to be as a result of: evaluation of online courses (46%), quality of teachers (40%), the level of interaction with teachers (35.2%), the adequacy and clarity of the material (25.7%), and the degree of flexibility of courses (21.2%). Also, students did not emphasize the importance of interaction with other students (Singh & Pasha, 2011). The research concluded that their acceptance of e-learning within the education community in India is favored when it is combined with traditional teaching.

The Saudi Ministry of Higher Education introduced e-learning systems in Saudi Arabia in universities utilizing their capabilities in information and communication technology (ICT). The Research found that students are unwilling to use e-learning tools and participate in the online mode. The study utilized 408 questionnaires in five universities to test the technology acceptance model (TAM) and concluded that both TAM predictors (usefulness and ease of use) had significant impact on students' e-learning acceptance. Also, stronger influence was estimated between usefulness and students' intention to use e-learning (Alenezi *et al.*, 2011).

In the Silesian University of Technology in Poland, a study was conducted to explore the extent that teachers accept and use learning management systems (LMS) and identified the barriers to LMS development. The study used a survey distributed in two divisions of the faculty; the results of the survey found that (66%) of teachers used the LMS tools for teaching, (38%-45%) of teachers prepare power point presentations, and less than (10%) use LMS tools to support testing and assessment The paper concluded that teachers in general accept e-learning systems but are not attracted to use LMS that need more advanced skills especially from less- experienced teachers (Moscinska & Rutkowski, 2010).

Other research focused more on the barriers of using e-learning for teachers and students, where results indicated that the major barriers were: lack of time (78%), lack of resources (60%), poor recourses (47%), and poor of delivery of resources (30%). Students data indicated the following barriers: lack of time (59%), lack of recourses (64%), poor recourses (45%), and poor delivery of recourses (88%) (Munyangeyo, 2009).

In a survey conducted by the University of Extremadura in Spain about the role of teachers in e-learning and face-to-face learning, two types of learning systems were compared based on activities, interaction and design. The study concluded that the structure and the design of e-learning programs were more effective and satisfactory than face-to-face programs, where teachers need to develop courses with oral discussion and need mental structure of content (Diaz & Entonado, 2009).

On the other hand, controlling access to the e-learning environment is necessary for ensuring the availability and integrity of material and information which requires security management framework that acts as a guide for e-learning providers and to overcome the illegal usage of application by the students and teachers (Alwi & Fan, 2010). Also, in a research conducted in Tanzania related to the acceptance of e-learning systems, the role of trust, quality and certification of

e-learning were explored. Results indicated that only (40%) valued e-learning certification the same as traditional program certifications, (37%) did not accept such argument, and (23%) remained undecided. Such results indicate that people still have doubts about the certification process of e-learning courses; reasons may include security and quality assurance, dishonesty and possibility of cheating on online examinations (Ndume, Tilya & Twaakyondo, 2008)

Table 1. Selected literature related to e-learning system acceptance

Article	Antecedents of e-learning adoption	Context
Rhema & Miliszewska, (2011)	Student ability to face challenges, student willing-ness to accept changes, well-equipped laboratories, availability of computer based infrastructure, motivation and dedication	The information was obtained through individual interviews with eight students, four academics, two administrators, and two technical staff.
Ndume, Tilya & Twaakyondo (2008)	Management support, methodology, technology, resource accessibility, availability, culture of education and learning styles, design of assistive tools, intellectual investment & global business.	Data are collected by interviews and questioners
Broadley (2007)	ICT Leadership, ICT Infrastructure, Teachers ICT Capacity(skills), Support/Training Initiatives for students and teachers	Data was collected by observation and interviews from three schools
Mbarek (2011)	Motivation to learn, computer self-efficacy, perceived ease of use & perceived usefulness	The empirical study l has been conducted on 410 employees of nine Tunisian enterprises by using a semi- structured interview format method.

1.3. EduWave as an E-learning System

EduWave, is an e-learning platform designed by Integrated Technology Group Company (ITG) and implemented by the Ministry of Education in Jordan. It can be described as comprehensive user-friendly e-learning and educational management platform, which includes a group of systems integrated seamlessly to enable educational elements to work in an effective way. These systems are Learning Management System (LMS), Content Management System (CMS), Instructional Management System (IMS), and Student Information System (SIS). It can be described as multilingual, flexible and customizable solution, which is based on centralized deployment with localized functionalities. Their robust architecture enables the process of central administration, tracking, reporting and record keeping. Also, it makes learning management flexible, with the ability of localization of functionalities and content of learning resources. Its architecture removes all inefficiencies produced by multiple systems and provides the ability to produce and harness accurate data and impact learning on a larger scale.

Like many other Arab countries, the EduWave was launched in Jordan in the year 2003 as an educational initiative for advancing education in the country and especially rural areas (Tareif, 2009). The system stakeholders include: students, teachers, administrators, parents, and the community. The system enables them to engage in virtually every aspect of the teaching and learning process in Jordanian schools, and improves students' educational levels by offering new and compelling educational ways. The following is an elaboration on the cited stakeholders.

Students: EduWave helps students track their progress, improves their performance, and makes their learning experience enjoyable through a number of comprehensive tools and learning resources. Such tools enable them to get access to personalized learning material and textbooks and in a rich media formats from any computer, anytime and anywhere. Also, the system enables students to interact with each other through multiple communication and collaboration tools and perform online

tests and access assignments, grades and learning materials at all times. Finally, the system enables them to interact with their teachers and the school administration at any time and from any place.

Teachers: EduWave helps teachers to better manage and utilize their time leading to higher efficiency, and better chances for innovation and creativity through administrative and educational tools that provide extensive collection of instructional design, authoring, and professional development tools and resources aimed to support the role of educators. Teachers are able to provide effective guidance and support, and to interact with their students and colleagues through communication channels provided by the system. Also, the system includes the necessary assessment and evaluation tools that help teachers to measure individual students' performance and progress.

Parents: EduWave enables parents to keep track of their children's progress and their development at school by accessing their assignments, attendance records, grades, and their school activities. Also parents can interact and follow-up with teachers and administrators through the various communication tools when needed.

The Community: EduWave has an important role in enhancing the educational sector productivity and setting the ground for creativity, innovation and building a collaborative learning community through integrating innovation, technology and advanced educational practices (www.itgsolutions.com).

1.4. Using EduWave in Jordanian Schools

Trying to explore teachers' and students' tendencies towards the use of e-learning in public schools, Shank and Bane-Domi (2010) conducted a study with a sample of 28 teachers who taught a computerized science course and 118 students divided into groups; some of these groups learned through electronic means, and other groups have used traditional methods. To achieve the objectives of their study, the researchers measured the attitudes of teachers and students towards e-learning, and found that it was positive on both sides (Shank & Bane-Domi, 2010). Another study categorized the major obstacles that hinder the application of e-learning systems in public schools are related to the following: teachers, administration, infrastructure and equipment, and student related obstacles (El-Hersh ,*et al.*, 2010). The authors concluded that avoiding these obstacles through training courses and improved infrastructure of schools will improve the adoption of e-learning systems.

A study, that explored the success stories of applying EduWave system in private schools in Jordan emphasized the importance of technological and information infrastructure capacity to improve the schools' electronic environment inside and outside classrooms. Also, the study emphasized the importance of training and qualifying administrators, teachers and students in using the e-learning system (AL-khozahe & Badah , 2011).

In Jordan, Al-Wesam Private School applied the Eduwave the year (2008) to benefit from the features provided by the system and support the educational process. The school began to hold training sessions for school staff and teachers on the system, how to benefit from its functionalities and how to use them in the process of teaching. They were interspersed with practical training on the properties associated with the roles of students and parents, to identify the presentation of curriculum and take advantage of them .The training of students on the system through the allocation of time and the shares of the computer to learn about the system and help the students follow up their scores and school follow-up ads and other benefits provided by the system for students. The school has prepared an explanatory bulletins and training sessions on the system to make it easier for parents to see the advantages of the system and how to deal with them to determine the academic level of their children. The application of the system in the school was good in terms of supporting the educational process with new features and to view the curriculum for students (Al-Wesam school, 2008**)**

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