Future of M-Learning in Saudi Arabia

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Abstract. Mobile-learning, (or 'm-learning' as it will be referred to throughout this paper), due to a considerable number of technological advances (Prensky, 2006), plays a significant role in global education standards. Many education specialists believe that m-learning when combined with conventional classroom learning yields better results in class (Simonson, and Zvacek, 2014). Many studies have been conducted examining the viability of m-learning in the institutions of higher learning (Fozdar, and Kumar, 2007; El-Hussein, Osman, and Cronje, 2010; Simonson, and Zvacek, 2014); however, little is known about the social benefits m-learning presents to future education standards on a global basis. The future of m-learning is increasingly challenged by the initial high cost (Althunibat, 2015) involved in creating the infrastructure required to implement m-learning. Lack of goodwill and high Internet costs (Wang, Chen, and Khan, 2014) can be attributed to poor results in adopting m-learning. This paper identifies some of the benefits and challenges inherent to m-learning and the future it holds in Saudi Arabia. It is a result of a survey conducted using more than one hundred learners in Saudi Arabia institutions of higher learning.

Keywords: m-learning, mobile devices, institutions of higher education, learners and tutors, education, online learning.

1.   INTRODUCTION

Al-Hujran, Al-Lozi, and Al-Debei, (2014), observed that the importance of mobile devices has increased tremendously over the last ten years, with m-learning being defined (Gikas and Grant, 2013) as learning across multiple contexts through content and social interaction using mobile electronic devices. It is a form of long distance learning. Learners and tutors can share educational materials through their mobile devices at mutually convenient times. Some of m-learning technologies may include: mobile phones, tablets, notebooks and personal computers. Mobile devices have become important tools for informal learning with communication, coordination and identified collaboration forming the key components essential for the transfer from formal to informal learning (Lai, Khaddage and Knezek, 2013).

1.1   Definition

The term 'm-learning' is referring to any learning and teaching that occurs where the learner is not in a fixed and predetermined location (Alelaiwi, Alghamdi, Shorfuzzaman, Rawashdeh, Hossain, and Muhammad, 2015) and therefore, the student can take advantage of opportunities offered by mobile technologies which enhance the learning process. M-learning has evolved from distance learning (d-learning), which increasingly involved the employment of electronic technology and learning (e-learning). Some additional features such as the successful development of wireless application protocol (WAP), blue tooth connectivity, GPRS (General Packet Radio System) and UTMS (Universal Mobile Telecommunication systems), have all helped the further development of m-learning. Personal Digital Assistants (PDAs) for example, have been added to the m-learning system, enabling learners to create the wireless connections between their phones and personal computers. Alkhalaf (2014) observed that m-learning included learning modules ranging from job aids to course work downloads from the Internet, utilizing personal digital assistants, enabling m-learning to be a

convenient choice for learners and tutors, offering contact opportunities from any site, where the subsequent sharing of information between the two parties would be practically instantaneous.

1.2   M-Learning Infrastructure

M-learning is concerned with blending, digital, physical and diverse metrics, which can be used to evaluate whether learning has taken place. Increased collaboration between learners and tutors has obtained enabled the creation of 'cloud learning'. Smart mobility has become a reality because of 'cloud connectivity'. Students who have the access to the 'cloud' can access data, project materials and learning modules. Moreover, there has been an increase in the invention of new online revision models inherent to m-learning. Cloud connectivity has reduced the burden of data storage by incorporating data back-up systems in case of data collapse and corruption (Nuzhat, Salem, Hamdan, and Ashour, 2013).

   Direct interaction between online users has been made possible through the m-learning platform, a place where connectivity, mobility, and online collaboration yield transparency. Online communications platforms such as Twitter, Facebook, and LinkedIn, have enabled audience with both local and international communities furthering the scope of learning. Performance, reflection, and evaluation of learning modules have applications to online evaluation of teaching and tutoring.

   One of the major principles of m-learning is asynchronous learning access (Simonson and Zvacek, 2014). This allows an educational environment to be free from restrictions of geographical place, thus enabling it to move anytime and anywhere. One practical application for this is evident in entrepreneurial training. Through this learning, experience has just being personalized to suit each learner's needs. The learning process itself has been increased in speed, since a student is able to spend less time in learning a module online, than learning a module in class.

2.   M-LEARNING IN SAUDI ARABIA

According to global economics standard, Saudi Arabia is one of the fastest growing economies in the world. Its relative GDP was rough $23,000 in the year 2009, and this is expected to rise to $45,000 in the year 2023 (Chung, Chen, and Kuo, 2015). Education demand in Saudi Arabia is continuously increasing, in particular in the university sector. Due to the paradigm shift, education standards in Arabic countries are being tailored towards e-learning modules. Almost all Saudi Universities have already launched their m-learning educational platforms (Sarrab, Al-Shih, and Rehman, 2013). Mobile learning has enabled students in Saudi University students to interact socially with m-learning programs, which have been designed and promoted on the Internet by the institutions of higher education. To encourage the implementation of mobile and distance learning, the Saudi Government, in collaboration with universities has established some mobile-enabled platforms such as:

- Saudi Digital Library;
- JUSUR (Learning management system);
- Saudi Electronic University;
- The National Centre for d-learning and e-learning

   Qassim College of Medicine has been credited as the first institution of higher learning to implement a mobile learning platform. Moreover, King Khalid University has launched an initiative to implement mobile devices for assessment and learning. To achieve effectiveness, the university recognized the social networking prevailing amongst their students. Therefore, they linked their e-learning platforms Blackboard and Facebook. All Blackboard announcements were made through Facebook and Twitter accounts (Narayanasamy and Mohamed, 2013). In practically all Saudi universities, Wi-Fi network connectivity is also provided.

   Since the inception of m-learning applications in higher education, most student attitudes, including those of female students, towards particular subjects, have changed, and it could be

argued that this indicates that future mobile technologies in e-learning will continue to improve. Indeed, almost every Saudi student (Rhema, and Sztendur, 2013; Ezzi, Teal, and Izzo, 2014) owns a mobile phone fitted with the latest education materials.

   M-learning has increased factual and contextual knowledge. Since its inception enrolment levels in the institution of higher learning has increased but recent research has indicated that adequacy levels of m-learning is not sufficient (Ozdamli, and Uzunboylu, 2015) in many countries. Also, with regards to Internet connectivity, learners have expressed concerns. Saudi Arabia is a big country, covering over two million square kilometers, thus making it hard for mobile providers to provide fast and reliable Internet. To deal with this unreliability, students have resorted to using of Local Area Networks, rather than using Internet provided by service providers. Learners residing in the countryside do not use Internet services offered by mobile providers, but depend on home Internet makers who provide Internet services. The future for m-learning is being guaranteed in Saudi Arabia due to massive Internet coverage, which is now experiencing continued expansion (Nassuora, 2012). In most metropolitan areas faster mobile networks such as 3G and 4G networks are revitalizing m-learning.

3. RESEARCH METHODOLOGY

In undertaking this research, the researcher uploaded the research survey online and invited targeted respondents to fill in the questionnaire. The respondents were assured of privacy and confidentiality of their responses with a guarantee that their responses would only be used for the purpose of this research. Out of the 110 invited respondents, 106 successfully completed the questionnaire. According to Huang and Hsieh (2015), survey questionnaire is an inexpensive, easy efficient and effective tool to gather data in social and scientific investigations. The researcher designed this study with an aim of identifying the variant factors affecting M-learning deployment in Saudi Arabia in order to assess if its future is futile or utile.

3.1 Survey Design

The researcher adopted a five point Likert scale to undertake the research survey for a simplified but comprehensive data collection method. According to Coolican (2014), Likert scale is advantageous in that it offers highly reliable and valid responses and is effective in measuring variance in attitudes over time. In addition, the scale is more inherent to complete therefore ensuring that the respondents are involved directly. Indeed, the researcher owes a high response rate due to the choice of Likert scale.

Table 1Survey Questionnaires

No	Questionnaire
1	The m-learning's web portal helps me to determine the strength of the chosen password
2	I cannot access the m-learning's web portal without a matching personal learner id and password.
3	Learning how to use the new functions is easy because the steps are Consistent and logical in most functions
4	Using the m-learning's web portal

		has improved my understanding of academic content and boosted my school performance
	5	The display format and colors of the m-learning's web portal interface is uniform and consistent over all pages of the m-learning's web portal
	6	I can select my location within the m-learning's web portals and website pages and show the sequences of pages I visited to reach the final destination
	7	The m-learning's web portal is available for use by persons with visual, hearing and speaking disabilities

   The survey was designed in two parts, namely: part one and part two. Part one captured the personal details of the respondents such as age, sex, experience, computer skills, knowledge and prowess and level of education. The second part assessed the respondents' assessment of the m learning infrastructure covering areas such as security, learnability, usefulness, usability, accessibility, effectiveness and functionality.

4.0   DATA ANALYSIS

The researcher sort to apply descriptive statistics to offer elementary characteristics of the data presented. The measures of central tendency were also used to compare the personal characteristics of the respondents such as age, experience, level of education and computer knowledge.

4.1   Descriptive Statistics

Of the total respondents78.43% were male and 21.57% were female. The largest proportion of the respondents was aged between 26 and 35 years accounting for 45.10%. Still, the respondents are educated with most having a master's level of education at 44%. In addition, all the respondents exhibited adequate to advanced knowledge of computers, a trait that perhaps showed their quest for mobile learning. The table below summarizes the survey results of the respondents.

Table 2Survey Results

N0	Variable	Cronbach's Alpha	Mean
1	Security	0.775	0.816
2	Learnability	0.683	0.614
3	Usefulness	0.640	0.735
4	Usability	0.783	0.605
5	Accessibility	0.749	0.664
6	Effectiveness	0.821	0.621
7	Functionality	0.777	0.693

Still, the researcher sought to test the academic and measurement achievement, mobile communication and interaction resources as well as access to information. Standard deviations and mean value were calculated to determine the displacement of responses. The data was fed into SPSS software version 2.0 for data analysis and results presented.

4.2   Reliability and Validity of Data

The Cronbach's Alpha was also adopted to test the validity and reliability of questionnaire's responses. The Cronbach's Alpha was set at 0.829 and using 28 item. It was applied to assess the reliability of each of the 8 attributes. The result of the survey was found to be highly reliable because the value was above 0.5. Reliability coefficients less than 0.6 were considered very poor and coefficients larger than 0.7 were accepted while those greater 0.8 were considered very well. Surprisingly, all Cronbach's Alpha for all the 8 attributes was higher than 0.5 implying that the results of the survey questionnaire in each of the attributes were reliable.

The Cronbach's Alpha is a measurement model that exhibits the relationship between responses to each attribute and their underlying latent construct. The researcher further introduced composite reliability measure to assess the degree to which several attributes used to measure the same concept agree. In this case is considers convergent validity, factor loadings and average variance. Average variance values should be at least 0.50 for each construct for the responses to be varied.

5.0   ACKNOWLEDGMENTS

6.0   CONCLUSION

The researcher set to investigate the attitudes of students towards effectiveness, strength and perception towards m-learning and the position it holds in the future of Saudi Arabia. A majority of respondents supported the use of wireless networks in increasing flexibility of access to learning resources and the independence in use of variable resources such as library and lab PCs while undertaking their students. Still, it was observed that students are fascinated by instant messaging applications that kept them in touch with their instructors. In addition, it was notable that the students were enthusiasts of using m-learning resources access through their mobile phones, PDAs and laptops anywhere and anytime. Consequently, m-learning was observed to unlock multitasking, additional opportunities and simplified access to education and disbursement of knowledge and skills. Moreover, m-learning was

hailed for changing the scholars from passive learners to engaged students behaviorally, emotionally and intellectually in their tasks.

Mobile technologies are viewed as indispensable tools in transiting learning and communication to the next level. Mobile based technologies such as WAP and PDA, in developing countries such as Saudi Arabia are not popular as yet because they are expensive to own and use higher end mobile technologies in contrast to SMS based mobile technologies. However, continued innovation, subsidies and technological advancements are likely to push the prices down. This will unlock the tremendous potential of m-learning to developing countries. Therefore, the future of m learning in Saudi Arabia is not futile but a huge chunk of utility to the development of the nations.

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