Computers in Human Behavior 56 (2016) 93–102

Contents lists available at ScienceDirect

Computers in Human Behavior

journal homepage: www.elsevier.com/locate/comphumbeh

Research report

Investigating attitudes towards the use of mobile learning in higher education

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ARTICLE INFO

Article history:
Received 6 February 2015
Received in revised form
15 November 2015
Accepted 18 November 2015
Available online xxx

Keywords:
Mobile learning
Attitudes
Higher education

ABSTRACT

Mobile learning (M-learning) has become an important educational technology component in higher education. M-learning makes it possible for students to learn, collaborate, and share ideas among each other with the aid of internet and technology development. However, M-learning acceptance by learners and educators is critical to the employments of M-learning systems. Attitudes towards M-learning technology is an important factor that helps in determining whether or not learners and educators are ready to use M-learning. Such attitudes will serve to identify strengths and weaknesses and facilitate the development of the technology infrastructure. This paper aims at exploring students and educators' attitudes towards the use of M-learning in higher educational universities within Oman and UAE; two neighboring countries in the Arab Gulf region. To serve this purpose, two survey questionnaires were conducted: one for students and another for educators. The participants of this study are 383 students and 54 instructors from five universities. Different factors have been examined to test where there is a significant difference among students and educators' attitudes towards the use of M-learning, such as gender, age, country, level of study, smartphone ownership, major in terms of students and age, country, academic rank, academic experience and smartphone ownership in terms of educators. Findings revealed significant differences among the students' attitudes towards M-learning with regard to their smartphone ownership, country and age. Furthermore, results indicated that M-learning can be one of the promising pedagogical technologies to be employed in the higher educational environments within the Arab Gulf countries.

1. Introduction

Mobile learning (M-learning) is a new research trend that attracts many researchers to explore this technology, study its impacts on students and educators, and develop the required infrastructure. M-learning researchers attempt to maximize the utilities of mobile technologies in higher education institutions while maintaining the educational mission. M-learning has dealt with mobility from a number of dimensions: mobility of technology, mobility of learners, mobility of educators, and mobility of learning.

In the literature, researchers have defined M-learning from different perspectives. Mcconatha, Praul, and Lynch (2008) has defined M-learning as the learning that is employed through the use of small computing mobile devices. This definition includes smartphones and small handheld devices. Moreover, Mirski and Abfalter (2004) defined M-learning as a specific topic that is emerging form distance learning; whereas Alzaza and Yaakub (2011) stated that M-learning is the next generation of E-learning that uses mobile technology. More broadly, Homan and Wood (2003) specified M-learning as the technology that changed the way the students communicate, interact, and behave with each other and their perceptions towards their learning. In addition, Al Emran and Shaalan (2014) demonstrates that M-learning facilitates knowledge sharing among students and educators while interacting with each other. Matias and Wolf (2013) expressed that M-learning is not only the learning that is based on the use mobile devices but also the learning that is mediated across multiple contexts using portable mobile devices. Briefly, M-learning helps

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http://dx.doi.org/10.1016/j.chb.2015.11.033
0747-5632/

students and educators to perform their daily tasks in a short timely period using small technological devices (tablets or smartphones) in anytime anywhere.

Ardies, De Maeyer, Gijbels, and van Keulen (2014) argued that attitudes towards any educational technology could be used to measure into which extent the users of the technology (students and educators) have the ambition to use the technology and whether or not this technology has positive or negative impacts on the environment. In accordance with E-learning communities (Dascalu, Bodea, Lytras, De Pablos, & Burlacu, 2014), M-learning could enhance the collaboration among the learners and stimulate the interaction among them and their educators. Bagozzi, Davis, and Warshaw (1992) discussed the study by (Swanson, 1982, 1987) that pointed out the importance of attitude factor in the adoption of new computer technology. Bagozzi et al. (1992) argues that although both the Theory of Reasoned Actions (TRA), which is one of the well-known models in the social psychology literature, and the Technology Acceptance Model (TAM), from the information systems and management literature, perceive the intention of usage from the attitudes perspective towards technology usage. Legris, Ingham, and Collerette (2003) stated that TAM has been designed due to the reason that how users could accept or reject a particular technology. Moreover, it has been demonstrated that TAM affords the basis for finding the effects of particular variables on attitudes. Barki and Hartwick (1994) has empirically supported that users' attitudes lead to the intentions of use and the actual user of the new system. Thereby attitudes can provide a context for understanding the learner intention of usage and acceptance of new M-learning technology.

Higher education nature has been changed 360° due to the rapid development of mobile computing devices and internet capabilities (Liaw, Hatala, & Huang, 2010). A survey by the (Educause Center for Applied Research [ECAR] 2012) on the usage of mobile technology in the higher educational environments indicated that students are currently leading the implementation of mobile technological devices into their classrooms. Moreover, 67% of the surveyed students expressed that mobile technology is very essential into their academic achievements and activities. Gikas and Grant (2013) have indicated that mobile technology has become an integral part of the educational process at the higher educational institutions as it brings many opportunities and challenges to both students and academics.

Recently, the usage of mobile technology has become crucial for higher educational institutions worldwide due to the wide spectrum of its benefits. When M-learning is integrated with various universities systems, it provides learning in anytime anywhere settings. Generally, mobile technology helps students in raising their technological awareness, make conversations, join social media, find answers to their questions, facilitate team collaboration, allow knowledge sharing, and hence leverage their learning outcomes. In particular, M-learning assist students with disabilities and motivate them to attend classes remotely with the help of their mobile devices. M-learning has gradually penetrated the traditional teaching and learning by integrating the mobile technology Apps which could be the “new-breath” in almost all of the classrooms whether in direct or indirect ways. With the advent of such mobile technology Apps, higher education has getting enriched by extending the conventional educational platforms by encouraging the distance learning or what is called by “out-of-class” settings.

In the Arab Gulf region, UAE and Oman are taking leadership role in developing and conducting research for mobile learning in the institutions of learning. Nurseries are supplied with digital classrooms equipped by PCs and tablet devices for better early learning attraction. In the same direction, many schools have started using the mobile technology into their classrooms with the aim of promoting critical thinking, team collaboration and problem solving. However, in case of higher education, there is a need to explore the students and educators' attitudes towards M-learning, which is the main contribution of this study. This in turn will help the decision makers of the higher education institutions of the Arab Gulf region to take initiatives for adopting M-learning and to design the appropriate infrastructure, which is an important step towards applying M-learning. Without any prior investigation/exploration study, it is difficult to rely on M-learning technology as students and educators' attitudes are unknown. Our study indicated that these attitudes were not yet investigated sufficiently within the Arab Gulf countries. This is the main reason that motivates us to focus our study on this area and attempt to identify the gaps that have not yet been covered.

2. Literature review

M-learning has gained popularity among students and educators for performing the everyday tasks in more flexible and comfortable style. Various universities worldwide has implemented M-learning for delivering the learning anytime anywhere in different ways. In Canada College and San Francisco State University (SFSU), Interactive Learning Network (ILN) model which involves both tablet PCs and wireless technology has been implemented for pre- and post-tests to assess the students' performance (Enriquez, 2010). Erkollar and Oberer (2012) addressed the integration of M-learning with Geographic Information System (GIS) module in a pilot course within a Turkish university where each student has been provided with a tablet device equipped by Google+ and Hangout Apps in order to facilitate the students' communication. Gikas and Grant (2013) highlights the effects of mobile technologies on learning and teaching in accordance with social media in the form of Skype, Twitter, and Blogs for providing better learning. Glackin, Rodenhiser, and Herzog (2014) addressed the integration of mobile devices and E-Books in order to raise the students' familiarity with digital library. Azar and Nasiri (2014) pointed out the adoption of Mobile Assisted Language Learning (MALL) in listening classrooms in teaching English language and how that facilitates listening to the topics of interest using cellphones. In addition, mobile phones have been used as a learning tool for teaching French language at Princess Nora University, Saudi Arabia (Jaradat, 2014). De Pablos, Tennyson, and Lytras (2015) conducted two studies at the American University of Sharjah, UAE, for undergraduates' students in order to examine the usage of iPads during one semester in Mathematics course.

Sharples, Taylor, and Vavoula (2005) proposed a framework for theorising mobile learning adopted from Engeström's expansive activity model (see Fig. 1) considering learning process that occurs outside classrooms. The framework indicated that learning occurs as a socio-cultural system where educators and technology are the controls, Context is the communities of actors (people and technology), and Communication technology adaption drives the use of technology in M-learning. Liaw et al. (2010) proposed a mobile learning framework that is adapted from Sharples framework. The proposed framework is based on the activity theory which focuses on mobility of learning. It discusses how new technologies can support knowledge management, accessibility, exchangebility and delivery of both knowledge and learning materials. In accordance with Sharples et al. (2005), the implementation to any educational technology should consist of three parts: the learner, the educator and the technology itself. M-learning as an educational technology involve both the learners and educators to take part in its implementation strategy; the reason that motivated us to focus on the learners (students) and educators (faculty members) attitudes towards the use of such technology in this study.