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Students' Perception of Their M-Learning Readiness

Sulaiman Almutairy, Trevor Davies, Yota Dimitriadi

Abstract**—**The following paper presents the results of a study aimed at achieving a better understanding of the psychological readiness for mobile learning (m-learning) among Saudi students, while also evaluating m-learning readiness as a whole in Saudi Arabia - a topic that has not yet received adequate attention from researchers. Data was acquired via a questionnaire administered to 131 Saudi students at UK universities, in July 2013. The study confirmed that students are confident about using mobile devices in their daily lives, and that they would welcome more opportunities for mobile learning. The findings also indicated that Saudi higher education students are very familiar with, and psychologically ready for, m-learning.

Keywords**—**M-learning, Mobile Technologies, Psychological Readiness.

I. Introduction

THE process of learning and accessing information has undergone rapid changes in the preceding decade. A global technology revolution has taken place; marked by a transition from desktop computing to widespread use of mobile technology. Technology is changing the way people learn, work, conduct business, access information, and interact [1]. The learning process no longer relies on traditional teaching methods, but has instead expanded to include new technologies and forms of learning; such as mobile learning (m-learning). Mobile technologies offer diverse opportunities to deliver innovative and interesting modes of learning, both inside and outside the classroom.

M-learning incorporates the ability to acquire information anywhere, at any time, using mobile devices such as mobile phones and personal digital assistants (PDAs). Mobile phones have developed into mini-personal computers (PCs) that can be carried easily in a student's pocket [2] and can 'embed learning into daily life' p. 29, [3]. M-learning is defined as:

> '*Any sort of learning that happens when the learner is not at a fixed, predetermined location, or learning that happens when the learner takes advantage of the learning opportunities offered by mobile technologies'*, p. 6, [4].

New figures released in 2014, by the International Telecommunications Union (ITU), predict that the number of mobile-phone subscriptions will reach seven billion by the end of the year. By the end of 2014, there will be almost three billion Internet users, two-thirds of whom will be located in the developing world. The Information and Communication Technology (ICT) Commission reported that, at the end of 2013, in Saudi Arabia (which is classified as a developing country) the number of mobile phone subscribers had reached almost 51 million, out of an approximate population of 30 million. The majority of these users connect to the Internet using a wireless connection, or via a third generation (3G) or a 4G mobile phone network [5], [6].

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II. The Saudi Arabian Context and M-Learning

Saudi Arabia is currently experiencing a comprehensive developmental renaissance, in various aspects of life. The government has established an infrastructure that will ensure optimal use of information and communications technology in education. At present, the average age of Saudi Arabians is now 25.3 years, and the total population is 29,994,272. The estimated number of graduates from public education institutions is 360,000 students (2013) [7], all of whom subsequently attempt to secure a place at one of the country's 25 public universities; thereby creating a demand for places that cannot currently be met.

If an m-learning environment were to be adopted in higher education, the issue of large numbers of students applying to universities could be addressed, particularly with regard to the new generation born after 1980, which has grown up in the digital age – the so-called 'digital natives' [8].

A clear definition of m-learning needs to be established before a review of the literature on m-learning in the context of Saudi Arabia can be undertaken. As mentioned previously, m-learning can take place at any time, and anywhere. M-learning is:

> '*the process of coming to know through conversations across multiple contexts amongst people and personal interactive technologies'*, p.225, [9].

Many universities and institutions in Saudi Arabia have begun to implement facilities to support m-learning. For example, King Saud University has launched a new service affording users the opportunity to send text messages to the mobile phones of individuals, or groups of students, directly from their PCs. These messages allow schools, faculty managers and administrative divisions to deliver timely and relevant information to students [10].

In addition, a study conducted by [11] concluded that wireless networks facilitate effective access to resources at anytime, anywhere, using mobile devices. In addition, he asserted that SMS can be used to support and improve student relationships. However, m-learning in Saudi Arabia is still in the developmental stages [12].

III. M-Learning Readiness

Psychology is the study of human behaviour. In order to design and develop a mobile technology that is effective,

human behaviour toward use of that technology must be first understood [13]. Positive attitudes toward mobile technology lead to the behavioural intention to use m-learning, and the expectation that it will be perceived as user-friendly [14]. Therefore, m-learning systems should be appropriately matched with students' perceptions. Students' positive perceptions, which are an essential psychological factor, have led to a successful m-learning system.

From this standpoint, researchers must take into account technical aspects to ensure psychological readiness for m-learning. Technology readiness denotes 'people's propensity to embrace and use new technologies for accomplishing goals in home life and at work' [15]. The greatest advantage of m-learning is its constant availability. In summary; 'mobile learning offers another way to deliver content and to embed learning into daily life' [3].

IV. Methodology

The research method adopted for any study relates to the means by which a researcher intends to gather data. A survey-based methodology is commonly used to analyse the results obtained from interviews and questionnaires. This is a specific approach that seeks to establish the relationship between variables, and influential factors and trends.

This study acquired initial data during two weeks in July 2013, using an online survey comprising 30 questions. The data collection phase took place with 131 Saudi Arabian students at UK universities. The questionnaire collected information to provide greater understanding of the psychological readiness for m-learning among Saudi students of higher education, whilst also evaluating the status of m-learning in Saudi Arabia - a topic that, as previously noted, has not yet received adequate attention from researchers. The survey also provided general information regarding Saudi students' mobile technology use in different settings. The research took the form of a descriptive study. The questionnaire was divided into four sections, namely: (1) demographic data, (2) personal attitudes, (3) the definition of m-learning and (4) m-learning opportunities. A five-point Likert scale was used to measure responses to the main questions, with ratings of 'strongly disagree', 'disagree', 'and agree', 'strongly agree' and 'not sure'.

As mentioned previously, there are currently 51 million mobile phone subscribers in Saudi Arabia. Moreover, between 110,000 and 125,000 male and female Saudi students are studying abroad [16]. The majority of these are able to connect to the Internet. Therefore, a survey was decided upon as an appropriate research tool for the study.

Demographic Information

The participants in this research are Saudi Arabian higher education students studying at UK universities. The sample comprised students of both genders, aged 18 to 45 years.

The quality of a piece of research stands or falls not only by the appropriateness of methodology and instrumentation, but also by the suitability of the sampling strategy adopted (p. 92) [17].

The sample, therefore, was selected randomly from different institutions and students at different levels of study, in order to cover a diverse group of Saudi Arabian students using mobile devices for learning purposes.

TABLE I
The Description of Demographic Information from the Study Sample

	Gender	Age	Educational Level
Female	42		
Male	89		
18-23		3	
24-28		25	
29-33		49	
34-38		37	
39-44		15	
45+		2	
Bachelor			14
Masters			57
PhD			58
Vocational Training			1
Professional Training			1
Total	131	131	131

Table I presents the distribution of the study sample according to demographic variables. The data reveals that out of a sample of 131 students, 42 were female and 89 were male. It also reveals that the age distribution of the sample ranged from 18-33 years. In addition, most were educated to either Masters' or PhD level.

V. Findings

This study initially sought to investigate the extent of Saudi students' understanding of, and their psychological readiness to engage with a formal m-learning environment. It investigated the students' habits of use, their preferred use of mobile technologies, and the daily activities, which they believed mobile technologies could benefit.

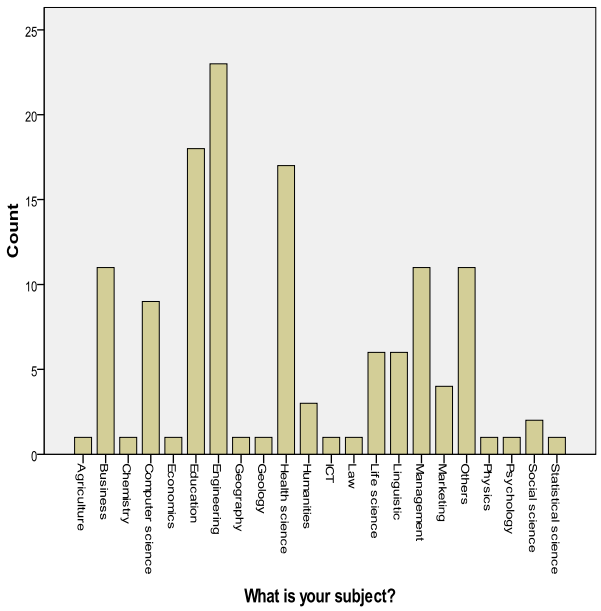

Fig. 1 Subject distribution

Fig. 1 reveals that Engineering, Education and Health Science are the three most popular disciplines among Saudi Arabian students at universities in the UK.

Basic Readiness

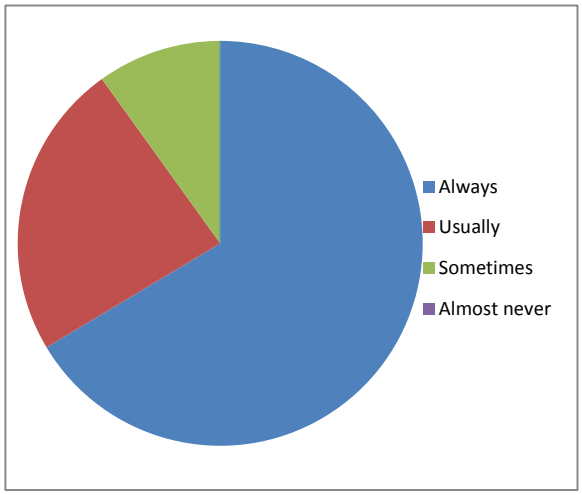

Fig. 2 How often do you carry your mobile phone?

All of the Saudi students surveyed had mobile phones. Of the 131 students, 130 had access to a 3G mobile phone network. Fig. 2 shows that the majority of the students (119) 'always' or 'usually' carry their mobile phones with them, and that only 12 students carry their phones with them 'sometimes'. Based on answers to the question 'Does your mobile phone have a 3G mobile phone network?', 130 students answered in the affirmative, which means that they are able to use their mobile phone as a tool to gain knowledge and access information online.

Psychological Readiness

TABLE II
DESCRIPTIVE ANALYSIS OF PSYCHOLOGICAL READINESS FOR M-LEARNING

Statement	Positive Responses
I like to use my own mobile phone in my own learning processes.	97 (74%)
I am confident when using my mobile phone for learning.	90 (69%)
M-learning provides me with new methods to learn.	102 (78%)
I would be interested in owning a new mobile device with advanced features if it would improve my learning and performance at university?	123 (94%)
M-learning will bring new opportunities for learning.	105 (80%)
M-learning can save my time.	103 (79%)
I find m-learning easy, as it is possible to learn what I want.	96 (73%)
M-learning meets my needs and interests.	82 (63%)
M-learning enables me to get feedback from lecturers more quickly than before.	78 (60%)
M-learning is more flexible than traditional learning; it can be carried out at any time, and anywhere.	113 (86%)
It is possible to achieve personal educational aims through m-learning.	82 (63%)
I would be happy if I could use my mobile phone in the classroom to support my learning.	92(70%)

The information given in Table II indicates that Saudi students are willing to accept m-learning as a formal method for use in future study, and have positive perceptions of their m-learning readiness. The majority of the students prefers to use mobile phones for learning, and is confident about this use. A full 78% of the students believe that m-learning can provide new methods of acquiring knowledge.

A large proportion (94%) of the students was interested in owning a new mobile device with advanced features, if this could improve their learning and performance at university.

This is an important point, as m-learning requires use of advanced mobile devices to assist the learning process. In total, 80% of students believed that m-learning would increase their opportunities for learning, and would save them time.

According to these results, it is evident that a majority of students think that m-learning is useful, as it makes it possible to learn, to meet needs and interests, and to gain feedback from lecturers, more quickly than through traditional methods. Therefore, these findings suggest that most of the participants are quite familiar with m-learning. A unique feature of m-learning is that learning can occur when learners are not in a fixed location, as can be seen in Table II; with rates of remote mobile device use reaching 86%. Thus, m-learning is not bound by location or time constraints.

VI. Conclusion

This paper has presented the findings of a pilot study to examine psychological readiness for m-learning among Saudi higher education students. The results provide evidence of students' positive perceptions toward m-learning. This study has also highlighted the unique opportunities m-learning provides from the perspective of Saudi students. The analysis of their responses reveals that the students are ready to use mobile phones for their studies.

They believe that they can achieve personal educational aims through m-learning, and that they can use mobile phones in the classroom to expedite their learning. The participants pointed out that the use of mobile phones inside the classroom brings positive outcomes, by enhancing study skills and knowledge acquisition.

References

[1] Ally, M. "State of Mobile Learning in Canada and Future Directions." Athabasca University, 2011.
[2] Soleimani, E., Ismail, K., & Mustaffa, R. "The Acceptance of Mobile Assisted Language Learning (MALL) among Post Graduate ESL Students in UKM". Procedia - Social and Behavioral Sciences, 457–462, 2014.
[3] Saxena, S. & Kumar, M. "A Study of Attitudes and Psychological Readiness of Students While Using Mobile Technology in the Teaching/Learning Process" IJCEM International Journal of Computational Engineering & Management, Vol. 17, No. 2, 29-33, March 2014.
[4] O'Malley, C., Vavoula, G., Glew, J.P., Taylor, J., Sharples, M., & Lefrere, P. "WP4 – Guidelines for learning/teaching/tutoring in a mobile environment" MOBIlearn deliverable. 2004, Available: http://www.mobilearn.org/download/results/guidelines.pdf
[5] International Telecommunication Union. Retrieved from: http://www.itu.int/net/pressoffice/press_releases/2014/23.aspx#.U5W8fvmwKkE
[6] Communication and Information Technology Commission. Retrieved from: http://www.citc.gov.sa/English/Reportsandstudies/Indicators/Pages/CITCICTIndicators.aspx

[7] www.mohe.gov.sa/ 2013.
[8] Gssser, U. "What companies should know about digital native" 2009. Retrieved from: http://www.web-strategist.com/blog/2009/05/14/what-companies-shouldknowabout-digital-native/
[9] Sharples, M., Taylor, J., & Vavoula, G. "A theory of learning for the mobile age." The Sage Handbook of eLearning Research. London: Sage, 2007.
[10] Altameem, T. "Contextual Mobile Learning Systems for Saudi Arabian Universities," International Journal of Computer Applications, vol. 21, no. 4, pp. 21-26, May 2011.
[11] Al-Fahad, F. "Students' attitudes and perception s towards the effectiveness of mobile learning in King Saud Universit y, Saudi Arabia," The Turkish Online Journal of Educational Technology – TOJET, vol. 8, no. 2, pp. 111-119, April 2009.
[12] F. Chanchary & S. Islam. "Mobile learning in Saudi Arabia – Prospects and challenges." The International Arab Conference on Information Technology, Zarga University, Jordan, 2011.
[13] Terras, M. & Ramsay, J. "The five central psychological challenges face effective mobile learning". British Journal of Educational Technology, Vol. 43, No. 5, 2012
[14] Jairak, K., Praneetpolgrang, P. & Mekhabunchakij, K. "An Acceptance of Mobile Learning for Higher Education Students in Thailand". The Sixth International Conference on e Learning for Knowledge-Based Society, 17-18 December 2009.
[15] Parasuraman, A. "Technology-Readiness Index (TRI): A Multiple-Item Scale to Measure Readiness to Embrace New Technologies". Journal of Service Research, Vol. 2, No. 4, pp. 307-320, 2000.
[16] Pavan, A. "A new perspective on the quest for education: The Saudi Arabian way to knowledge society." Higher Education Studies, vol. 3, pp. 25-34, 2013.
[17] Cohen, L., Manion, L. & Morrison, K. "Research methods in education." 5th ed., Abingdon: Routledge, 2000.