

Student Perspectives About Using Mobile Devices in their Studies in the King Saud University, Kingdom of Saudi Arabia

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Abstract

The widespread use of mobile devices, particularly by young people, offer new and exciting possibilities for learning. The mobility and pervasiveness factors inherent in mobile technologies allow learning at any time and at any place. This had led to some new developments in educational pedagogy based on the advancement that mobile technology brings to learning. This is a pilot study that aims to investigate the introduction of mobile learning (m-learning) to higher education student in the Kingdom of Saudi Arabia. The result of this survey study has shown that students are ready to use new technological opportunities in higher education because they offer a different and more flexible scenario of learning.

Abstrak

Penggunaan alat mudah alih yang berleluasa terutamanya di kalangan remaja menawarkan kemungkinan pembelajaran yang baru dan teruja. Faktor mobiliti yang terdapat di dalam teknologi mudah alih membolehkan pembelajaran berlaku pada bila-bila masa dan tempat. Ini telah membolehkan beberapa pembangunan baru dalam pedagogi pendidikan berasaskan kepada kemajuan teknologi mudah alih yang boleh digunakan untuk pembelajaran. Ini adalah kajian rintis yang bertujuan untuk menyiasat pengenalan pada pembelajaran mudah alih (m-learning) kepada pelajar pendidikan tinggi di Saudi Arabia. Dapatan kajian ini menunjukkan bahawa pelajar bersedia untuk menggunakan peluang teknologi baru ini dalam pendidikan tinggi kerana ia memberikan beberapa senario yang berbeza dan lebih fleksibel untuk pembelajaran.

Introduction

The growing use of mobile devices and wireless communication technologies provide a new and flexible educational model for all types of education (formal, informal, non-formal), mobile learning, which is frequently referred to as m-learning. Brown (2005) suggested that m-learning is a form of e-learning that specifically employs wireless communication and mobile devices to deliver content and learning support. Additionally, Georgiev, T. (2006) suggested that m-learning enables access to contents at any place, and any time. According to Keegan (2002), m-learning has emerged as an educational application from the technological advances in mobile computing and mobile devices (phones, Tablet PCs, IPODs, Smart Phones, PDAs, etc.), intelligent user interfaces, context modeling, wireless communications and networking technologies, like WI-R, Bluetooth, GPS, GSM, and GPRS (Sharples, 2000). In a recent study, Sharples (2005), has identified mobile devices as PDAs, digital handheld devices and cell phones, or even better as any device that is small, autonomous and self-effacing enough to accompany everyone in everyday life. Additionally, mobile devices can also be used in learning setting of any type. These portable tools can be seen as instruments for accessing educational content, either stored locally on the device or accessed through the mobile network. Trifonova and Ronchetti (2003), suggested that handheld devices can enhance the educational process, due to their ability to support communication through voice, written messages, and still or moving images videos.

The mobile devices available today, such as portable computers, telephones, PDAs, etc., are equipped with all the necessary software and hardware for an appropriate m-learning application. These new devices have more memory capacity, as they make use of supplementary memory cards, and their screen size is larger with better resolution, compared to elderly devices. In addition, mobile providers in most countries worldwide offer nowadays high internet speed connection package in affordable cost. In the Kingdom of Saudi Arabia, recently, all major mobile network providers have announced commercial packages offering broadband internet connection for mobile devices in economical prices, making the necessary technology available and affordable. Precisely, nowadays mobile devices, available in Saudi Arabian market, are enhanced with technologies like GPRS and UMTs, presenting the user with the

opportunity to exploit all the advantages through actual internet connection. Additionally, the new technology announced by network providers, High Speed Packet Access (HSPA), offers a download speed of 7.2 Mbps.

Here, we refer to the experience of the Kingdom of Saudi Arabia (KSA) in the application of e-learning and distance education, which is one of the leading and promising experiments in Arabic language. Saudi Arabia has announced officially the application of distance learning, and to achieve its goal of leading towards the future, has launched initiatives to establish six infrastructure for higher education and distance education initiative to bridge (*Tajseer*), the e-learning educational portal system, bridges management, (Jusur LMS System) in e-learning, introduce the award in university for e-learning excellence, the national repository for learning objects. *Tajseer* service for e-learning and the establishment of Saudi National Center for e-learning, and distance education for university education, and functions circulated e-learning management system in harmony with needs of university education in the Kingdom of Saudi Arabia, and the training of the academic and administrative skills and management system. E-learning and distance education, building electronic curriculum contents and forms of digital and print for a number of university courses, and to build the educational portal for e-learning and distance learning and a wariness programmed for electronic education and distance education. For further details of the system proposed by the Ministry of Higher Education and National Center in KSA, you can visit the web site of the Ministry of Higher Education (www.eic.edu.sa). The aim of this survey study is to investigate the current situation in the KSA, concerning m-learning. We did not find any type of study in recent bibliography of the KSA concerning in-learning. This is the first survey studies concerning the m-learning in the KSA.

Objective

The objective of this study was to look at the undergraduate student's attitudes towards mobile learning and their requirements for any future mobile learning systems. The study was based on a survey of students, and their use of mobile devices. One thing that was highlighted by the survey was the extensive use of mobile devices to make phone calls, to SMS, to listen to music, to download e-mails, to play games, to read news and to

browse the internet. The survey, also concentrated on the students positive and negative attitudes toward the use of mobile technology in education.

Literature Review

M-learning is the facilitation of learning and access to educational materials for students using mobile devices via a wireless medium. There has been an increase in the number of investigative studies of m-learning over the last few years, mostly in the USA, Asia, Scandinavia, and Australia. In a recent review of the literature, Naismith, Lonsdale, Vavoula, and Sharpies (2005), reported that mobile technologies do provide strong support to underpin different types of learning. In their literature review, these scholars examined case studies of project like Ambient Wood, which was part of Engineering and Physical Sciences Research Council (EPSR) funded project focusing on the integration of physical and digital interactions (Rogers, et al., 2002). They also looked at natural science learning in Taiwan (Chen, Kao, Yu, & Sheu, 2004); the MOBILearn project (Lonsdale et al., 2003; 2004), a “world wide European-led research and development project exploring context-sensitive approaches to informal, problem-based and workplace learning by using key advances in mobile technologies” (MOBILearn, n.d.1). Chile’s mobile computer support collaborative learning (Cortez et al., 2004); European research and development programme (Attewell and SavillSmith, 2003; Colley & Stead, 2003; Mitchell & Doherty, 2003; Traxler, 2003); and mobile devices for breast cancer care (Wood et al., 2003). According to these researchers, mobile learning via mobile technologies can effectively support a wide range of activities for learners of all ages. They also concluded that a blended approach would probably be more successful. In a similar type of literature review, Keegan (2002) analysed 30 initiatives that assessed mobile technologies potential use in learning. He also discussed the potentials and limitations of different mobile devices such as screen phones, PDAs, smart phones, and wireless (WAP) telephones. Four surveys determining students’ experiences of the effectiveness of mobile learning were also reported by Keegan (2002). Results of this survey examining learning support using PDAs indicated that some students were enthusiastic, while others were apprehensive; some also indicated that they did not appreciate reading long texts on PDA because of its small screen size (Rekkedal, 2002a; 2002b). Another important research study on mobile learning indicated that 62 percent of

learners were enthusiastic about mobile learning and were keen to take part in future learning after they had tried mobile learning (Attewell, 2005). In terms of access it is clear that many learners might never be able to afford a personal computer but they are very likely to afford to own a mobile phone which in turn will become their 'digital life'. Vavoula (2005), in his recent study carried out as part of the MOBILearn project, concluded that "mobile learning is more interactive, involves more 'bustle', more contact, communication and collaboration with people" (p. 17). Vavoula also demonstrated a task model for mobile learning (Taylor et al., 2006). Some researchers have even used mobile technologies for enriching visitors' experience of a museum (Boehner, Gay & Larkin, 2005).

However there is an increase in the number of colleges and universities adopting mobile wireless technologies as teaching and learning tools. According to Swett (2002), more than 90% of public universities and 80% of private universities in the US have some level of mobile wireless technologies, such as mobile wireless devices and networks. One such institution is Louisiana State University (LSU), which implemented Cisco CTE 1400, an application enabling the transformation of web page into a format appropriate for mobile wireless devices. This application enables LSU to deliver its web content and applications to mobile wireless devices mainly because of the increasing number of mobile devices users; 76% used mobile phone, 14% used PDAs, and 9% having devices enabled for wireless connectivity (Cisco System, 2003). Other universities, such as the University of Minnesota and the University of South Dakota even require students to have mobile wireless devices for their school assignments (Oliver & Wright, 2002).

Several researchers have used surveys of students and university lectures as their starting point for investigation in m-learning. Their objective has been to ascertain the extent of m-learning in university education and also to investigate the potential for leveraging mobile educational practice from existing mobile use. Interviews of professors at eight universities in Australia, New Zealand and the USA conducted by Al-Khamaysah, Zmijewska, Lawrence & Culjak (2007), showed that none had adopted m-learning despite widespread use of e-learning. Most surveys of students show that few students use their mobile phones for learning – 1 in 6 according to Pettit & Kukulska-Hulme (2007). M-learning is currently in

an exploratory phase with universities unclear about the case for investing in a new set of expensive technologies, and educators still testing different delivery applications. Other surveys have concentrated on the issue of ‘threading innovative uses of technology into the existing fabric of behavior’ (Pettit & Kukulska-Hume, 2007). These user-centered studies have focused on uncovering students’ existing patterns of use and making these the basis for mobile education (Kennedy et al., 2006). Kennedy et al. (2006), observe that in excess of 90% of students agree that a computer is useful for general study with special emphasis on document creation and searching for information (e.g. Google). They also note that a mobile phone is useful to assist with university studies to send or receive text messages (84%) and as a personal organiser (60%). However, they also caution that “we cannot assume that being a member of the “Net Generation” is synonymous with knowing how to employ technology-based tools strategically to optimise learning experiences and outcomes in university settings”. Caruso and Kvavik (2006), note that, “from the student perspective, technology is most useful for the convenience and control it affords rather than something associated with learning per se”. We suggest that this particularly applies in the case of deep learning (Biggs, 2003).

From these literature reviews, one can conclude that mobile learning can be an effective tool for learning or enhancing the teaching-learning process, because it increases access. Moreover, it can be harnessed anywhere, anytime. Similar to e-learning, mobile technologies can also be interfaced with many other media like audio, video, the internet, and so forth. In terms of usability of new technologies, there are two viewpoints that must be considered: one ‘in support’ and other ‘against it’. In case of mobile learning technologies, some users may find it not very conducive to learning (i.e., screen too small; physical environment like being outside in the bright sunlight), while for others, the benefits of being able to learn on-the-move at a convenient location outweigh its optical disadvantages. Clearly, student’s individual perceptions of mobile learning do matter.

Methodology

In order to study the attitudes and perceptions of students on the effectiveness of mobile learning, a questionnaire was developed consisting of 12 items designed to measure students’ attitudes and perceptions of the effectiveness of mobile learning.

The study was conducted in the King Saud University, Riyadh, Saudi Arabia. A random sample of undergraduate female college students (N = 186) age range (18–26) years old filled in a questionnaire. All participants were asked to complete a questionnaire that included all type of using mobile devices. Twelve key questions were adopted from this stage as shown in Table 1.

Table 1 Main Uses of Mobiles

No.	Item	Answer
a)	<i>What are your main uses of mobile devices? (more than one answer allowed)</i>	
A 1	To make phone calls	
A2	To SMS	
A3	To listen to music	
A4	To download emails	
A5	To play games	
A6	To read news	
A7	To browse the internet	
b)	<i>Additional answers included</i>	
B 1	To use as an organizer	
B2	To watch movies	
B3	To use as an alarm clock	
B4	To use as portable storage	
B5	To make video	

The questionnaires, including a cover letter, were distributed to participants during the class. All subjects were asked to respond to the questionnaire and their responses were guaranteed for confidentiality. The data for this study was gathered by means of a paper and pencil survey.

The questionnaire included seven major components:

- to make phone calls,
- to SMS,
- to listen to music,
- to download email,
- to play games,
- to read news, and
- to browse the internet.

In addition, there were five questionnaires as voluntary answers included:

- to use as an organiser,
- to watch movies,
- to use as an alarm,
- to use as portable storage, and
- to make video.

Respondents of the survey were undergraduate students from different colleges; Applied Studies and Community Service (Group 1); undertaking 5 selected courses, these courses are in different areas, in specific: (1) Introduction to Islamic culture (IS 101); (2) Islam and building society (IS 102); (3) Arabic language skill (AL 101); (4) Arabic writing (AL 103); (5) English (Eng. 101); Educational Kindergartens (Group 2); and Medicine (Group 3).

They were of the age between 18–26 years. Every course contains approximately 30–40 students. The total number of respondents is 186. The questionnaires were distributed and collected at the end of semester in May, 2008, which were then processed to statistical analysis procedures. The collected data was coded using SPSS Statistical Application.

Results and Discussions

The data collected was processed and statistically analysed through SPSS V.10. In our first study on the main uses of mobile devices in the KSA, the questionnaires were distributed to 186 students (female) in different colleges; college of Applied Studies and Community Service (represented group 1, 37.6%), Department of Educational Kindergartens (represented group 2, 34.9%), and College of Medicine (represented group 3, 27.4%). Respondents of the survey were college students undertaking different selected courses. All the students participated in this survey, owned cellular phone. Other type of mobile devices such as PDAs, iPods, and MP3 players were owned by fewer than half of the respondents. This leads to an important issue to consider in any future mobile learning implementation. Mobile phones seem the best device to use in terms of high student ownership, yet, a requirement to use them in a course would deprive a small percentage of students who do not own or use a mobile phone. Table 2 shows that 98.9% are using these phones to make phone calls and 98.9% send and receive SMS.

The majority of these cell phones present advanced characteristics like receiving and displaying photos (96.8%), to use as alarm (79.6%), and to use as an organiser (78.5%). Concerning downloading e-mails (19.4%), reading news (22.0%), and watching movies (15.1%) the students' do not use too much, the mobile devices in these applications.

The descriptive statistics give the mean and standard deviation of the sample population for each group on each decision variable (A1–A2) of the main uses of mobile devices, and the overall student perceptions, (A1–A7). The descriptive statistics are presented in Table 3. There is simple and clear evidence that “to make phone calls” and “to SMS” in the overall groups was rated as the highest variable for the most use of mobile devices, as it has the highest mean (.99). “To download e-mail” and “to read news”, on the other hand seems to be the least important variables affecting the use of mobile devices, as it has the least mean (.19) and (.22) respectively.

The descriptive statistics for the additional answer survey on the use of mobile devices and the overall student perceptions B1–B5 are presented, in Table 4. From this table, there is a simple and clear evidence that “to make photos, B3”, “to use as an alarm, B4” and “to use as an organiser, B1” was rated as the highest variable that affect the use of mobile devices (B3, M = .97, B4, M = .80 and B1, M = .78, respectively). “To watch movies, B2” on the other hand seems to be the least important variable affecting the use of mobile devices (M = .15).

Table 2 Percentage of respondents for each response category

(a)	Main uses of mobile devices	Total No. Students (186)	%
A1.	To make phone calls	184	98.9
A2.	To SMS	184	98.9
A3.	To listen to music	117	62.9
A4.	To download emails	36	19.4
A5.	To play games	92	49.4
A6.	To read news	41	22.0
A7.	To browse the internet	76	40.9
b)	Additional answers:		
B1.	To use as an organizer	146	78.5
B2.	To watch movies	28	15.1
B3.	To make photos	180	96.8
B4.	To use as an alarm	148	79.6
B5.	To make video	91	48.9

Table 3 Descriptive Statistics

Group		Analysis No.	%	Mean (M)	Std. Deviation (SD)
1	A1	70	36.5	.99	.12
	A2	70	38.0	1.00	.00
	A3	70	40.2	.67	.47
	A4	70	63.9	.33	.47
	A5	70	41.3	.54	.50
	A6	70	56.1	.33	.47
	A7	70	44.7	.49	.50
2	A1	65	34.8	.98	.12
	A2	65	34.2	.97	.17
	A3	65	34.2	.62	.49
	A4	65	19.4	.11	.31
	A5	65	35.9	.51	.50
	A6	65	34.1	.22	.41
	A7	65	36.8	.43	.50
3	A1	51	27.7	1.00	.00
	A2	51	27.7	1.00	.00
	A3	51	25.6	.59	.50
	A4	51	16.7	.12	.33
	A5	51	22.8	.41	.50
	A6	51	9.8	.10	.27
	A7	51	18.4	.27	.45
Overall (Groups)					
1, 2 & 3					
	A1	186	100%	0.99	.10
	A2	186	100%	0.99	.10
	A3	186	100%	0.63	.48
	A4	186	100%	0.19	.40
	A5	186	100%	0.49	.50
	A6	186	100%	0.22	.42
	A7	186	100%	0.41	.49

Table 4 Descriptive Statistics

Group		Analysis No.	%	Mean (M)	Std. Deviation (SD)
1	B 1	70	40.4	.84	.37
	B2	70	50.0	.20	.40
	B3	70	37.8	.97	.17
	B4	70	39.2	.83	.38
	B5	70	38.5	.50	.50
2	B1	65	34.9	.78	.41
	B2	65	39.3	.17	.38
	B3	65	34.4	.95	.21
	B4	65	36.5	.83	.38
	B5	65	40.7	.57	.50

(Continued on next page)

Table 4 (continued)

Group	Analysis No.	%	Mean (M)	Std. Deviation (SD)	
3	B1	51	24.7	.71	.46
	B2	51	10.7	.10	.24
	B3	51	27.8	.98	.14
	B4	51	24.3	.71	.46
	B5	51	20.9	.37	.49
Overall (groups)					
1, 2 & 3					
B1	186	100%	0.78	.41	
B2	186	100%	0.15	.36	
B3	186	100%	0.97	.18	
B4	186	100%	0.80	.40	
B5	186	100%	0.49	.50	

Conclusions

This paper investigates attitudes of 186 university students from different colleges toward the use of mobile devices in their studies.

The author has analysed the answers to the qualitative questions in the surveys in an attempt to gain an understanding of how current students view the use of mobile devices in a learning environment. The respondents have shown positive feelings to the use of mobile devices in learning environments, such as phone calls, photos, and SMS messages. The results of this study show the extensive use of mobile devices amongst students and the fact that very many are willing to use their mobile devices to meet a learning objective. The potential of mobile technologies in education is enormous. More research is needed in complex teaching – learning scenarios by mobile devices that cast light on the right interaction between the different aspects involved.

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