Mobile Learning as a Method of Ubiquitous Learning: Students' Attitudes, Readiness, and Possible Barriers to Implementation in Higher Education

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Abstract

The purpose of this study was to explore the attitudes and level of readiness, and possible barriers to implementing Mobile Learning as a part of ubiquitous learning. In addition, the study attempted to find out to what extent students are interested in mobile learning. It also aimed to answer the question regarding the readiness of college students to use mobile learning technologies. Furthermore, the level of students experience in electronic learning was examined. The study was conducted to gather valuable data about are the possible advantages and disadvantages of mobile learning, and the barriers do students expect facing when implementing the mobile learning technologies. To answer the research questions, a questionnaire was administered to 1000 college students, with some of them being interviewed for in-depth information. The findings of the study showed that students had highly positive attitudes toward mobile learning, and they had the necessary technical knowledge to implement mobile learning. However, students were found to have very little experience in electronic and mobile learning. Students have mentioned some advantages of mobile learning among which was the possibility of learning outside the classroom and at any time. Some disadvantages were mentioned such as the fact that students might become annoyed with receiving too many text messages per day. Finally, students listed some barriers they expect to face the implementation of mobile learning. The study concluded with suggestions for future research and recommendations to university officials to better implement mobile learning.

Keywords: mobile learning, ubiquitous learning, educational technology, teaching methods

1. Introduction

The revolution in communication and information technology field has led to the multiplicity of settings where university learners can get the knowledge (Wagner, 2005). The integration of mobile phones for learning has become well-known and is broadly adopted in numerous language teaching schools (Suwantarathip & Orawiwatnakul, 2015). The term "mobile learning" or m-learning is, consequently, defined as the type of that could be done by the use of mobile technologies. It is as a novel form of learning which permits learners to access learning materials anywhere and anytime through wireless network and the Internet (Lan & Sie, 2010). This is type of learning is seen as one kind of the "ubiquitous learning". The topic of mobile learning is of interest to decision makers in higher education institutions, due to several reasons: the increasing pressure of students to make use of the means of wireless communication such as mobile phones in order to obtain educational opportunities that are not limited to the classroom (Prensky, 2004). Rushby (2005) encouraged educators to explore the educational benefits that could be provided by mobile phones. According to Kee and Samsudin (2014) the young learners in this mobiletechnology era can practice ubiquitous learning effortlessly. They can get full access to the required material from diverse resources in the web. Thus, they have more alternatives to acquire knowledge and information. According to Kim and Onq (2005), the rapid development of information and communication technologies has led to the increased use of those technologies in teaching and learning, and that the convergence between the mobile devices and the current educational techniques gives students greater flexibility in terms of availability of knowledge and its accessibility. Accordingly, the mobile learning term has been used to describe the convergence between mobile technologies and e-learning. It is expected that the development in the mobile education field to increase in the near future, and to provide learning opportunities through these new technologies.

Although it is expected that mobile learning approaches may increase student performance through facilitating the access to educational resources from anywhere (Kim & Ong, 2005), there are a very limited number of Arabic studies that explored the students views, attitudes and their readiness for this type of learning. Most previous studies in this area focused on technical aspects and the necessary infrastructure for mobile learning. In the other hand, studying students' attitudes toward mobile learning could inform decision makers and curriculum developers about the students' level of acceptance for these technologies. The results of this study would help decision-makers make thoughtful decisions, according to data collected from the field about the expected gains of investment in this type of educational techniques.

1.1 Statement of the Problem

Communication companies have expanded in Saudi Arabia and the Arab world in recent years to provide third generation services (3G), or high-speed electronic content available on the Internet connection. Similarly, many Saudi universities invested this, where this study was conducted in the field of providing students wireless Internet. The wireless connectivity has become available in many hot spots, which are deployed in cafes, airports and areas with a high incidence of human movement. In spite of this expansion in wireless information services, there is no data collected, from independent views, about the extent of students' acceptance and their attitudes towards the use of mobile learning technologies for the decision-makers at local universities. Besides, there is a lack of the availability of data regarding the extent of their readiness for this new style of learning, their knowledge of the services that can be provided, and obstacles that may prevent its use available.

At present time, there are three dominant technical trends on the use of technology in higher education institutions thus; it may require that the decision-makers in those institutions take additional steps in order to incorporate the latest technology to cope with changes in the tendencies of the students about the use of technology (Croop, 2008). These trends include the growing demand for wireless access to information and communicate with others; the widespread use of mobile phones in all sectors of society, and the integration of self-organizing tools such as the calendar and notepad in mobile phones (Medoff & Kay, 2005; Park, Nam, & Cha, 2012). Among various mobile technologies, mobile phones have a high potential of improving the teaching and learning processes. Learners in this century are in the digital era; consequently, their lifestyle has been changeded (Chanprasert & Han, 2013). Their everyday lives heavily rely on mobile phones which are largely used for communication and entertainment. Perhaps mobile phone will soon become a major educational tool in higher education, to the point that it will become difficult to abandon it as an educational tool, such as the difficulty of abandoning the use of the pen (Prensky, 2004). When that happens, students will insist on getting mobile learning opportunities within the classroom, or in classes that adopt blended learning strategies, and those courses that are offered via distance learning. Therefore, scientific research in this area is critical in order to give a clearer picture for the decision-makers in higher education institutions about the change that would be introduced in the field of education, communication technologies and methods of learning in general.

In a review of literature conducted by Kim, Mims, and Holes (2006), about how mobile learning technologies can contribute in the restructuring of teaching and learning methods in higher education institutions, the researchers found that there were few studies in the field of mobile learning, and in particular, students readiness for this type of learning and their attitudes toward it. Despite the importance of decision-makers' awareness about the extent of students' acceptance of mobile learning techniques, in order to better planning to build the necessary infrastructure for this type of technology, and to ensure the success of mobile education experience, there is a shortage of studies that provide decision-makers with the necessary information (Croop, 2008). Furthermore, Park, Nam, and Cha (2012) argued that m-learning is rather a new research topic and the effectiveness of m-learning has not been fully explored.

As could be seen that the students' attitudes toward mobile learning technologies and their perceptions about the use of those technologies play an important role for decision-makers and curriculum designers. Therefore, this study aimed to assess the level of students' interest and readiness to participate in mobile learning activities, and to explore their views about the contribution of mobile learning in teaching and learning processes and its barriers. Moreover, the study identified what students view as the barriers to the use of mobile learning technologies.

1.2 Study Questions

Some observers of the future trends in educational technologies believe that mobile learning is the next revolution in higher education institutions (Wagner, 2005; Croop, 2008). The following questions concerning the mobile education that the current study tried to answer:

1) What is the readiness level of the university students to study while they are roving outside the classroom?

2) To what extent are the college students able to get the technologies that are used in mobile learning?

3) How much experience in e-learning do the university students have, as a prerequisite for mobile learning?

4) What are the advantages of mobile learning do the university students expect to have?

5) What are the disadvantages of mobile learning do the university students expect to have?

6) What are the obstacles do the university students expect to have when applying mobile learning?

1.3 Significance of the Study

Individuals are showing a considerable interest to move toward using wireless communication devices, such as the massive increase in the sales of laptops and iPads that have the wireless feature, as well as the widespread use of laptops (Croop, 2008). In Saudi Arabia, where this study was conducted, several universities (e.g., Imam Muhammad bin Saud Islamic University, and King Saud University) distributed laptops to faculty members. Regarding the use of mobile phones, in the United States , the number of mobile phones users was more than 200 million in 2005 (Leo, 2006). M-learning is in an early period of its implementation in the Saudi Arabia, with the decision to formally adopt m-learning in Saudi universities being a very recent one (Alfarani, 2015). People around the globe have integrated mobile technology into their daily lives. The United Nations Educational, Scientific and Cultural Organization (2011) declared that mobile networks serve 90% of the world and 80% of individuals living in rural areas. In America, the mobile technologies have become commonplace in the lives of people. The Pew Research Center's Internet & American Life Project (2012) stated that about half of all adults of the nation posesses a smartphone and smartphone users are more than, those with basic phones. In Saudi Arabia, the number of the users of one of the three mobile phone companies reached more than 20 million (STC, 2010). Furthermore, in MILID Yearbook (2015) Singh, Grizzle, Yee and Culver stated that in 2012, revenues generated in the Middle East for mobile learning products have reached $88.3 million. He further estimated that in 2017, these revenues would be more than double, to reach $205.4 million, with a proximate growth rate of 18.4 %. Alfarani (2015) argued that the number of students who uses mobile devices as educational resources will continue to rise sharply in Saudi Arabia.

One manifestation of the increasing reliance on mobile phones technologies is the mating between personal electronic Notepad devices and mobile phones, resulting in so-called "smart phone". Higher education institutions should not overlook the opportunities that could be provided via this type of learning for students. The need for learner-centered opportunities to meet the requirements of today's learners is increasing the scope of mobile learning (Irby & Strong, 2015). Thus, the decision-makers in higher education institutions and curriculum designers are supposed to invest these opportunities, and plan to use them effectively.

Wagner (2005) believes that the demand for mobile learning will inevitably increase in the future. In the other hand, he believes that the academic community in higher education institutions does not have sufficient background about teaching and learning capabilities provided by this type of learning, as well as the requirements needed to apply this type of educational technologies. This actual transition to a wireless world could be seen in a study conducted with the students in the University of Wisconsin, US. The results showed that a large number of students have abandoned the use of desktop PCs in favor of the use of laptops, and a very high percentage of the students was found to have smart mobile phones (Mattmiller, 2005).

Baran (2014) argues that the greatest added value of mobile learning lies in the features that encompass classroom interaction to other settings via communication networks. A study by Oblenger (2006) showed that 80% of university students have mobile phones. Thus, the importance of this study is based on the need to identify ways to achieve educational goals through mobile communication technologies, as well as the necessity to identify the perceptions of the users of these techniques towards the use of educational technology in the field of mobile learning.

In addition, the present study was conducted to gather information that might be required by decision-makers, and designers of curricula in institutions of higher education, for the pre-planning to use this technology. Broskoske and Harvey (2000) have found that one of the biggest difficulties that face the application of the e-learning programs, in a number of universities, is the lack of pre-preparation and careful planning based on field data. Another reason for conducting the current study was to provide critical information from the mobile technology education users about the extent of their readiness to use this technology, and attitudes towards it.

2. Theoretical Framework and Previous Studies

The diversity of the research on mobile learning has made it hard to come up with a single definition (Baran, 2014). According to Winters (2007), there is no agreed-upon definition of the mobile learning, since it is an example of one of the phenomena that may mean many things to several people. The researchers have studied various technologies that can be considered as examples of mobile learning. The following are examples of mobile learning forms that explored in the previous literature.

1) The use of a mobile phone for the teaching of foreign languages, such as teaching English to Japanese people (Thornton & Houser, 2005) or the teaching of Italian language to Australians (Levy & Kennedy, 2005), through the teachers' request of students to exchange text messages using the target language.

2) The use of smart phones in order to preview the PowerPoint slides prepared by the teachers, exchange e-mail messages, or participate in discussion forums (Ramsden, 2005).

3) The use of SMS text messages in order to ask students questions and receive their responses and evaluate their daily performance.

4) The use of Personal Digital Assistant (PDA) for classroom management such as registering students' attendance, grades, participation, and urgent notes (Sharpie et al., 2005).

6) Distributing lectures to students in the form of audio files that students can listen to, using their smart phones (Lee & Chan, 2005).

7) Surveying students' views through SMS (Fisher & Baird, 2006).

Despite the lack of an agreed-upon mobile learning definition so far, there is an agreement among some researchers that mobile learning is the learning activities that occur when the learner is outside the classroom, using one of the of mobile communication means (Traxler, 2007). According to Clark and Flaherty (2002), the most important feature of the definition of the mobile learning is the learner's ability to understand and build knowledge through communication and cooperation activities offered by mobile technologies. Balasundarm and Ramadoss (2007) added that the characteristic that must be available in the mobile learning definition is the student's ability to overcome the limits of time and place associated with traditional learning methods and techniques.

2.1 The Use of a Mobile Phone as a Tool for Mobile Learning

Smartphones, tablets and other mobile devices are increasingly becoming ubiquitous and replacing desktop PCs in attractiveness, especially with younger users (Pelleg, Savenkov, & Agichtein, 2013). Many researchers believe that the mobile phone is one of the most powerful mobile learning tools (Peters, 2007; Prensky, 2004). According to Prensky, the individuals who have mobile phones outnumber those who use any other means of telecommunication. Pegrum, Oakley and Faulkner (2013) aregued that a key advantage of smartphones is that many young learners today already own these devices and carry hem wherever they go. Traxler (2007) believes that those who are interested in mobile learning style should focus on the communication tools used by the largest number of people in order to have an effective learning. Furthermore, he believes that the development of mobile phone technology and its lower prices will lead to a revolution in the world of mobile learning; students will have mobile phone as an indispensable tool. In a study carried out by Corbeil and Valdes (2007), the researchers distributed a questionnaire in to more than one hundred college students. The findings showed that the researchers focus the most on mobile phone as a means of mobile learning.

Mobile phone, in its simplest form, provides voice dialing and text capabilities. Mobile phone capabilities can be used for voice communication in the teaching of foreign languages (Chinnery, 2006). The most important voice dialing advantages offered by mobile phone, is the ability to interact and cooperate with peers (Fisher & Bierd, 2006). Mobile phones have evolved in recent decades to contain many functions such as Internet connectivity, sending multimedia messages, information storage, and displaying audio and video files, and other functions. Alqahtani and Mohammad (2015) argue that Internet-enabled mobile devices can help students to access learning resources and online courses, anywhere and at any time.The mobile phones that contain these properties are called Smart Phones. You can use this type of phones to enrich the educational environment with educational activities that are not provided by mobile phones. Some examples include the ability to browse the Internet, and to participate in discussions simultaneously (Corbeil & Valdes, 2007).

2.2 Obstacles and Challenges Facing the Mobile Learning

Previous studies have shown a number of obstacles that face may higher education institutions and students in the adoption of mobile learning technologies and the most important ones of these obstacles and challenges include the limited input and output functions in mobile devices. Messinger (2012) stated a group of obstacles that limit the widespread adoption of mobile learning, including the distractions that mobile devices can cause within a teaching classroom; lack of research support regarding their effectiveness in the teaching class that could inspire teachers to integrate them in their own classrooms; the lack of efficient models in m-learning for accomplishing the aims of the todays learner; and resistance of some teachers to educational innovations. Heath, Herman, Lugo, Reeves, Vetter, and Ward (2005) state that many of the mobile phone users for the purpose of learning, find it difficult to send messages they receive to the printer. The largest obstacles from the standpoint of Croop (2008) in the use of mobile phone for learning are the limited screen size in many mobile devices, as well as the difficulty of reading the screen in daylight. There is a difficulty in the navigation of web pages using smart phones due to the large page sizes, and, as they are not prepared to be displayed on screens of those small phones (Fozdar & Kumar, 2007; Harrison, Flood, & Duce, 2013).

Obstacles related to the speed and storage capacity is one of the factors that negatively affect the use of mobile phones in the mobile learning. The slow devices and difficulty in connecting them to the Internet compared to or laptops desktop computers, is an obvious obstacle (Croop, 2008; Harrison et al., 2013). However, with the spread of third-generation data transmission services, surfing the Internet using smart phones became reasonable. The increase in storage sizes of these phones enables students to store large amounts of multimedia (Rakkidal & Dye, 2007).

Some of the obstacles of using some mobile learning technologies that were stated in the literature are short battery life, the lack of a unified operation system of mobile phone, some interfaces of bad design to use, and the difficulty of making some basic operations such as cut and paste (Yarnell et al., 2007). In addition, there are some obstacles related to teaching and learning. Some obstacles that prevent the use of mobile learning technologies related to education and learning are the lack of student attention in spelling when writing SMS messages, or writing abbreviated words, and the possibility of students' confusion because of the vast amount of information that they can receive. Besides, the use of mobile learning technologies improperly may cause deficiency in the learning process; therefore, the effective application of mobile learning activities requires reliance on instructional design fits this kind of technology (Fozdar & Kumar, 2007).

Regarding the infrastructure obstacles, Peters (2007) states a number of factors relating to the infrastructure, which may prevent the application of mobile learning in higher education as quickly as required. Some of those factors are the lack of enough technical support and the lack of adequate training for faculty members in this field. Other factors include the high cost of infrastructure construction in the universities, the fact that it has not been taken into account when designing mobile technology that it will be used for educational purposes, the lack of faculty members' necessary technical expertise, and the slow movement of change in higher education systems in general (Hackemer & Peterson, 2005).

In a study conducted by Kim et al. (2006), the findings showed that mobile learning is still in the initial stages of adoption in the United States, and that the studies in this field are still scarce, compared to the countries of Southeast Asia such as Taiwan, where many of the studies conducted in this field. However, most of those studies revolved around the application of mobile learning systems in the intermediate and secondary stages. Besides, kukulska (2005) believes that the most important tasks that must be completed before proceeding with the design of curricula and instruction environments that rely on mobile learning techniques are: to identify the nature and characteristics and the tendencies of the audience of these technologies.

3. Methodology

This study made use of the descriptive analytical methodology, in order to describe students' attitudes and the extent of their readiness to use mobile learning systems. The questionnaire and personal interviews have been used with a sample of the study population to gather data for this research.

3.1 Population and Sampling

The population of the study includes all male students studying at King Saud University in Riyadh. The sample has been selected randomly from the colleges of education, literature, and business management's students. One thousand questionnaires were distributed to the three college students, and 638 of them were collected back, which is equivalent to 63.8% of the questionnaires that have been distributed.

3.2 The Procedures of the Study

The data of the study was collected within two phases. In the first phase the questionnaires were distributed to the study sample (n = 1000), and the quantitative data was collected and analyzed. In the second phase, a number of students has been interviewed based on their consent to participate in the study in order to explore the obstacles they may face in the adoption of mobile learning technologies, and attitudes towards this type of learning.

3.3 Instruments of the Study

To answer the questions of the study, a questionnaire has been developed, taking into consideration to have a brief design in order to get reliable responses from the sample, and to ensure collecting back as much as possible of the completed questionnaires. The term mobile learning was clarified within the questionnaire, because the term was not used in the academic environment in which they are studying.

The first four items of the questionnaire include a preview of some of the technologies, and students were required to determine whether they think they are among the mobile learning technologies or not. These questions have been included with a purpose of making sure about students' understanding of the mobile learning definition, and enhance this understanding by providing some examples. To response to the fifth item of the questionnaire, students used Likert scale. This item explored the extent of students' willingness to use mobile learning in some educational activities. In the sixth item, the students pointed out the extent of their belief that mobile learning will be suitable for the rest of the students.

The eighth, ninth and tenth items of the questionnaire require the student to write down about the advantages, disadvantages and the expected obstacles that might face the application of this type of technology. In the last item of the questionnaire, the students were inquired about the extent of their use of some technologies that can be classified as one of the mobile learning ones.

3.3.1 The Validity of the Instrument

In order to ensure the validity, the questionnaire was reviewed by three faculty members in the computer stream, in order to provide feedback about the questionnaire items and the extent of its efficiency to measure what it has been prepared for. The questionnaire was also administered to ten undergraduate students to ensure readability and clarity of its items.

Regarding the interview, a limited sample of students was interviewed and asked open-ended questions about their attitudes towards the use of mobile learning technologies. They were asked also about the benefits they expect to get from this kind of technology. Besides, they were inquired about the obstacles they expect to face during the application of these technologies from their point of view. The purpose of this interview was to ensure the reliability of the data obtained through the questionnaire.

3.4 Statistical Procedures

In this study, frequencies and percentages of student responses to the questionnaire's items were accounted, in order to identify the attitudes and the extent of their readiness to use mobile learning technologies. There was also interviews data analysis by identifying ideas that were repeated during the interviews, and collecting those ideas into groups they represent.

4. Results

Via the distributed questionnaires to undergraduates, quantitative data was gathered to explore their interest about the opportunities of learning through mobile learning technologies, attitudes towards various mobile learning types, and mobile learning technologies' availability and use.

The first three questionnaire items required students to state the extent of their agreement to increase the educational opportunities or activities for classroom learning through the means of mobile learning. The first item required students to show the extent of their agreement to complete the optional educational activities through mobile learning. The item was "To what extent do you agree with the following statement: I am interested in conducting some classroom activities using the laptop linked wireless Internet, mobile phone, or handheld assistance device". Table 1 shows the responses of respondents to this item.

Table 1. The sample's responses for the first item of the questionnaire

Responses	Frequencies	Percentages
Strongly agree	273	43%
Agree	235	37%
Neutral	82	13%
Disagree	27	4%
Strongly disagree	18	3%

As could be seen in Table 1 that 43% of students state strong agreement and 37% agre to get courses include the option of using mobile learning, and only 7% of them have no desire at this option. In general, the respondents' responses support using mobile learning optionally in the curriculum. There is also more students' support for opening the use of mobile learning more broadly in higher education. This was evident through their responses for the second item of the questionnaire: "To what extent do you agree with the following statement: what do you think of giving all students the option to get mobile learning opportunities in some classroom activities using a laptop linked to the Internet wirelessly, mobile phone, or handheld personal assistant. It could be noticed through Table 2 that 43% of respondents strongly agree and 39% agree with this statement, and only 3% of them disagree and 1% strongly disagree.

Table 2. Sample's responses for the second item of the questionnaire

Responses	Frequencies	Percentages
Strongly agree	271	43%
Agree	248	39%
Neutral	93	15%
Disagree	19	3%
Strongly disagree	4	1%

The third item in the questionnaire was: "All students must participate in classroom activities using mobile learning technologies via the use of laptops connected wirelessly to the Internet, mobile phone, PDA or handheld". This item measured the students' sensitivity toward forcing them to use mobile learning technologies. Table 3 shows their responses.

Table 3. Sample's responses for the third item of the questionnaire

Responses	Frequencies	Percentages
Strongly agree	59	9%
Agree	93	15%
Neutral	201	32%
Disagree	208	33%
Strongly disagree	74	12%

It could be noted from Table 3, that less than half of respondents are opposed to the imposition of the use of mobile learning technologies, while about 25% of the students are consistent with this idea. While almost a third of the students have neutral opinion towards the statement.

An overview of mobile learning was provided within the questionnaire, and the students were asked to identify the mobile learning tools. This request was stated in the questionnaire as follows: Based on your understanding of the definition of mobile learning, which one of the following activities is an example of mobile learning:

1) Using a laptop connected wirelessly to the Internet outside the classroom in order to complete the homework, that includes writing a research paper.

2) Using a mobile phone that can be connected to the Internet in order to read the students' posts in the course forum, and writing your own.

3) Using of handheld electronic assistant for taking notes in the classroom or during fieldwork.

4) Receiving a foreign language text message on the mobile phone from foreign language teacher regarding a course being studied, and respond to them in a foreign language.

Table 4 shows that only 8% of respondents did not recognize that the use of laptop connected wirelessly to the Internet, to do research in order to write a short paper, is one of the mobile learning styles.

Table 4. Students' level of agreement about considering the use of wireless laptop as a form of mobile learning

Responses	Frequencies	Percentages
Yes	582	91%
No	34	5%
Not sure	20	3%
No answer	2	0%

As could be seen in the table, among the technologies that can be used in mobile learning, more than 90% of respondents have owned a mobile phone able to communicate using text messages SMS. While 75% of them owned a mobile phone able to connect to the Internet.

Table 5. Students' level of agreement about considering the use of mobile connected to Internet as a form of a mobile learning

Responses	Frequencies	Percentages
Yes	450	71%
No	123	19%
Not sure	53	8%
No answer	12	2%

While 27% of the participating sample did not believe that using mobile phones linked to the Internet, to participate in classroom discussions, is one of the of mobile learning forms (Table 5). This percentage has increased regarding the use of text messaging for learning a foreign language. 45% of the students believed that the use of text messages in order to learn foreign languages is not an example of mobile learning (Table 6).

Table 6. Students' level of agreement about considering the use a handheld PDA mobile as a form of learning

Responses	Frequencies	Percentages
Yes	450	71%
No	97	19%
Not sure	75	8%
No answer	14	2%

Table 7. Students' level of agreement about considering the use of SMS text messages as a form of mobile learning

Responses	Frequencies	Percentages
Yes	326	51%
No	217	34%
Not sure	72	11%
No answer	22	3%

The questionnaire results in Table 7 showed that students, who have mobile phones to send and receive text messages, had a greater interest in participating in the optional mobile learning. In addition, participants who have wireless devices showed greater desire for mobile learning.

The results also showed that the use of SMS messages is common between students. More than 96% of the participants stated that they are using SMS text messaging services, 88% of them send or receive text messages on a daily basis, and 62% of them receive 10 letters or more daily (Table 8).

Table 8. Students' use of SMS text messages

Responses	Frequencies	Percentages
Weekly	65	12%
Less than ten messages daily	144	26%
More than ten messages daily	336	62%

Table 9 shows the students use of the Internet services (JAWALNet, and Multimedia Messaging Services MMS). It shows that 66% of students, who own smart mobile phones that enable them to connect to the Internet, do so at least once a week.

Table 9. Students' use of Internet services via mobile phone (JAWALNet, Multimedia Messages MMS)

Responses	Frequencies	Percentages
Weekly	65	12%
Less than ten messages daily	144	26%
More than ten messages daily	336	62%

Overall, the survey results showed that a very high percentage of the participants have enough knowledge level of technology to participate in the mobile learning activities. The findings also showed that students who own mobile phones that enable them to connect to the Internet, had access to information from the World Wide Web, however, that information was not directly related to the educational process. Besides, it became clear from the interviews that most of the students do not need extensive training in the use of mobile learning technologies, as they are aware of these technologies provided in their mobile phones.

The questionnaire included one question exploring the level of students' use of the e-learning services, whatever their way of using them: "How many times do you participate in e-learning activities, such as: participation in discussion forums, searching for information in the Internet, using e-mail, using conversation services?". Table 10 shows the responses of the participants for this question.

Table 10. Number of times the students' use of e-learning services per a week

Responses	Frequencies	Percentages
I do not use them	295	46.5%
Less than 5 hours a week	275	43.5%
5-10 hours a week	51	8%
More than 10 hours a week	1	0%
No response	13	2%

As shown in Table 10, 50% of respondents do not participate in e-learning activities or similar activities at all, which indicates that there might be a difficulty in the transition of students from the traditional methods of learning to e-learning methods. This may require the university to do more efforts to prepare students for the use of this kind of teaching methods.

5. Discussion

To answer the first question: "What is the interest level of the university students in using mobile learning outside the classroom?" The participating sample showed high desire to learn using mobile technology outside the classroom. 82% of the students agreed that university students are given the opportunity to learn using mobile technologies. Only 4% of the students were against this idea. In spite of that, and through personal interviews, the perception of the students towards the mobile learning was based on the use of laptops linked to the Internet, and a few of them have the perception that they can learn through text messages that could be sent and received via mobile phones. At present, it seems that students' interest in learning is focused on the use of laptops, rather than mobile phones.

As shown in the interviews that most of the students who prefer mobile learning style, are those who are living away from the university compared with their colleagues who live in university housing or university neighborhoods. These findings are in line with what Traxler (2005) stated. Students who live away from the University Center prefer the use of electronic distance learning methods, including mobile learning technologies. Most of the students prefer to get courses ads via SMS instead of e-mail.

The second question was intended to explore the extent the university students are able to have an access to technologies used in mobile learning. The results showed that nearly 75% of the surveyed students have the ability to access to Internet services through their mobile phones. In addition, more than 90% of the students participating in the study have the ability to send and receive SMS text messages via mobile phones. More than 88% of the students used SMS services provided by their phone, however, less than this proportion of students took advantage of the access to the Internet available in their smart phones services. Overall, the survey results showed that the majority of the students have enough technical and financial readiness to participate in the mobile learning services. However, some students indicated that connecting to the Internet services known as "JAWALNet" is rather expensive.

Regarding the third question, that addresses the university students experience in e-learning. The results of the questionnaire and interviews showed that there was little use among surveyed students of e-learning services (electronic discussion, forums, search services, etc.). Fifty percent of students indicated that they do not use e-learning services at all, and these include services provided by the university via the e-learning portal. During the interviews, it became clear that students who use these services are searching the Internet for articles and topics that may help them in their study courses. In spite of the university tendency and its encouragement for teaching staff to use their websites at the university gate to communicate with the students, few students stated that they communicate with their classmates or teachers using e-mail for academic purposes. Perhaps the reluctance of students on the use of communication methods and e-learning can be attributed to the lack of their teachers encouragement to do so.

"What are the advantages of mobile learning that university students expect to have?" was the fourth question in this current study. Many previous studies showed several advantages to using mobile learning technologies. Those advantages have been discovered either by empirical studies, or via what advocates of these technologies believe to have (Croop, 2008; Shih & Mills, 2007; Kim et al., 2005). In this study, the benefits of mobile learning were surveyed through interviewing and inquiring students about them. The students stated five unexpected advantages of mobile learning: availability of facilities, increasing motivation and interaction among

students, preparing them for technical future, enhancing the effectiveness of learning through access to information and contacting with peers, and the high reputation of the university for using this advanced learning methods.

The availability of facilities refers to the possibility of learning outside the classroom when they are in a condition allows them to learn, and that they can learn in places where there were not possible for them to learn in the past. This feature is the most important advantages that more students agreed about for mobile learning. Regarding the increase of motivation among students because of their use of mobile learning technologies could be justified as the students learn using technologies that interact with in a daily basis.

The fifth question explored the disadvantages of mobile learning that students expected to have. Through the questionnaire and personal interviews, students showed that there are a number of disadvantages of mobile learning technologies. The most important ones were: the current state of mobile technologies is not suitable for higher education, the interaction between students and teachers through those technologies do not seem natural or human such as that in the same room, and the probability that the faculty members at the university use mobile learning technologies seems weak compared to their use of e-learning technologies in general.

With respect to the factor of the current state of mobile technology, students have elaborated that:

1) The use of mobile learning technologies, especially the complex ones; might be impractical for students, especially as they might be distraction tools rather than learning tools.

2) Mobile learning technologies-except of laptops-cannot be relied upon heavily, especially as they work at slow speed, and their batteries' life does not last for long hours, as well as the multiple operating systems used by smartphones (Windows, Simpian, Mac).

3) The use of mobile learning technologies, especially mobile phones tempts students to engage in conversations distract them from the core subject matter.

4) The abundance of information that students can obtain through mobile learning technologies may lead students to obtain information exceeding their capacity.

Participants in this study believe that the use of laptops in the classroom may act as a distractor to the students to follow-up their lessons; however, its use outside the classroom does not create distraction of the students as much as that of mobile phones. Among the most important results that have emerged through the students' interview and survey, the fact that there are no defects in the use of laptops connected to the Internet in mobile learning, compared to the numerous flaws that students mentioned in the use of mobile phones as tools for mobile learning. Nevertheless, some researchers believe that the mobile phones are considered the future of mobile learning (Prensky, 2004).

On the other hand, some of the participants believe that the possibility of receiving text messages from their teachers at any time of day and outside school hours is annoying. Unlike laptops, which students regularly use at any time for mobile learning activities, the mobile phones stay with the student during the whole day. Thus, students stated that there should be a group of rules regulating how to use the mobile phone text messages, especially in mobile learning.

The sixth study question undertakes the obstacles that students expect to face when applying mobile learning. The findings showed that the students like to expand wireless Internet coverage within the university, to be able to use their laptops. On the other hand, the students expressed a lack of interest to use a mobile phone linked to the Internet wirelessly, unlike that interest they have shown towards the use of laptops. The students suggested several potential barriers to the use of mobile learning technologies such as the cost of using mobile phone in mobile learning; the students or faculty members opposition towards the use of mobile learning style that the university may face; the lack of readiness to use various mobile phones in mobile learning; and what students believe about the unsuitability of the existing infrastructure for the use of mobile learning technologies, especially outside the big cities. A number of students have suggested that there should be a cooperation between the university and telecommunication companies to reduce the cost of the fast 3G internet connection for students in general, as well as to reduce the cost of SMS service. At the moment, the cost of these services does not encourage the use of mobile technologies for learning.

The students highlighted that there may be a reluctance from faculty and students alike towards the use of mobile learning technologies. Students pointed out that their teachers did not take the initiative to direct them to use e-learning services provided by the university, nor benefit from the teaching staff personal sites to get special educational resources of the courses. Thus, it is not expected to see a big leap towards mobile learning in the

near future, and this result is consistent with the findings of Motwilla (2007) as he stated that mobile learning is still in its initial stages. At the beginning, faculty members at the University should be enlightened about the importance of the use of electronic educational resources provided by the university, and later the use of mobile learning technologies.

5.1 Recommendations

According to the results of the questionnaire, which was distributed to university students, and personal interviews, and after discussing the questions of the study, the following recommendations could be made:

1) The need to urge universities to activate their e-learning portals, in order to be a starting point in the future to use more advanced technologies in education such as the mobile learning technologies.

2) Working to intensify the university wireless network coverage to cover all the university parts, so that the students could be able to access Internet resources anywhere in the university.

3) Seeking to create a partnership between the university and local telecommunications companies to provide high-speed internet services; short messaging services for students at a reasonable cost.

4) The need to educate faculty members at the University of the importance and effectiveness of the use of electronic gate of the university for learning process, and the need to upload the e-content of their courses on their personal websites provided by the university.

5) To conduct a similar study to identify the readiness of faculty members and their attitudes and obstacles to the use mobile learning methods from their point of view, in order to make sure that the reason behind the lack of progress in this type of learning might be the personal tendencies of faculty members about mobile learning.

6) The need for a similar study, but with a sample from female university students, as there might be a difference between the tendencies of the students towards this style of learning.

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