International Journal of Information, Control and Computer Sciences
ISSN: 2517-9942
Vol:4, No:2, 2010

# Mobile Learning Implementation: Students' Perceptions in UTP

Ahmad Sobri bin Hashim, Wan Fatimah Bt. Wan Ahmad, and Rohiza Bt. Ahmad

***Abstract*—**Mobile Learning (M-Learning) is a new technology which is to enhance current learning practices and activities for all people especially students and academic practitioners UTP is currently, implemented two types of learning styles which are conventional and electronic learning. In order to improve current learning approaches, it is necessary for UTP to implement m-learning in UTP. This paper presents a study on the students' perceptions on mobile utilization in the learning practices in UTP. Besides, this paper also presents a survey that was conducted among 82 students from System Analysis and Design (SAD) course in UTP. The survey includes basic information of mobile devices that have been used by the students, opinions on current learning practices and also the opinions regarding the m-learning implementation in the current learning practices especially in SAD course. Based on the results of the survey, majority of the students are using the mobile devices that can support m-learning environment. Other than that, students also agreed that current learning practices are ineffective and they believe that m-learning utilization can improve the effectiveness of current learning practices.

***Keywords*—**m-learning, conventional learning, electronic learning, mobile devices.

## I. Introduction

MOBILE learning or M-Learning is learning process that can takes place anytime, anywhere with the utilizations of mobile computer devices. The devices should be able to present course materials and providing wireless communication between instructors and learners. Basically, an educational group manages both learning content and the communication services [1]. In article Guidelines for Learning in Mobile Environment, the authors give similar definition about M-Learning which is any types of learning those occur when the students are given freedom, or learning activities those happen with taking the advantages of the learning chances offered by mobile technologies [2].

Based on the definitions given, it can be concluded that mobile learning consists of several technologies which include mobile, network and computer devices. These technologies are working with each other to support M-Learning application in providing "anytime and anywhere" learning activities.

Currently in UTP, the learning systems used are conventional learning and electronic learning (e-learning). For conventional learning, students are attending lectures and lecture materials will be distributed. Students also can do the revision after lecture periods using books that are recommended by the lecturers. In order to enhance students' learning activities, UTP also provides the other learning approach which is e-learning. Through the e-learning, students can access learning materials from the Internet as long as there is an Internet access at that location. In order to give more enhancements in current learning practices used by UTP, UTP should implement m-learning approach. Using m-learning, students will be given a freedom in the learning process as it provides "at anytime and anywhere" way of studies [4]. By using m-learning, students' academic achievements also can be improved since the learning environment given to the students is more independent.

The main factor of M-Learning existence is because of the drastic increasing in number of mobile devices used nowadays. The Leonardo Da Vinci Project (2002) reported that more than 500 million people all over the world use Ericsson and Nokia mobile phones. Roughly, one billion mobile phones are used by six billion world populations nowadays. Based on the statistics produced by Ericsson in 2001, it shows that China is the biggest mobile phones users in the world with 170 million users. This project also concludes that mobile technology was booming and now is the time for this device to be implemented in mobile learning. This project also states other figures regarding mobile technologies: (i) More than 75% Internet applications were carried out utilizing wireless platform in year 2002, (ii) more than 525 million types of phones those can be used to surf web were produced in 2003 and (iii) there are more than 1 billion wireless Internet visitors around the world in year 2005 [3]. All figures given from this project illustrates the growth of mobile technologies which are very suitable to be implemented in learning activities.

The booming of mobile technologies nowadays give a big opportunities for people to utilize mobile application in learning activities as the mobile learning implementation has many advantages.

The availability of mobile devices nowadays really helps the implementation of mobile learning applications. There are many advantages of mobile learning. Saeddah Siraj [4] found out that mobile learning implementation can reduce illiteracy in developing countries. For the countries those have huge total number of citizens and poor countries, development of education requires high costs especially in infrastructure development, learning facilities and salary payment for educators. Since mobile devices are to be used in learning were much cheaper, this learning approach is more suitable to be applied in order to help in reducing the illiteracy.

Authors are with Computer and Information Sciences Department, Universiti Teknologi PETRONAS, 31750 Tronoh, Perak, Malaysia (e-mail: sob_87@yahoo.com, {fatimhd, rohiza_ahmad}@petronas.com.my).

Mobile learning also encourages the life time learning. Since mobile learning applications can be used at anytime and anywhere, the users of mobile learning applications can always use the applications to do whatever learning activities need to be done. For example, the tourists can use mobile learning application like dictionary to search the meaning of certain words during travelling at foreign countries. Other than that, users also can use mobile learning application to search any information that come across users' daily lives [4].

Saeddah Siraj [4] also pointed out that by implementing mobile learning, learning materials can be easily brought to anywhere. In other words, mobile learning reduces the place restrictions when learners want to have learning activities. This facility allows learners to have learning activities during free time. For examples, learners can do learning activities while waiting for the bus, while travelling and many other periods.

In more formal learning activities such as learning in lecture halls, mobile learning can overcome several problems. The problems include (i) lecturers need to come to class and deliver the course contents, (ii) specific period to deliver the course contents and (iii) limited contents presentation to limited number of students. By implementing mobile learning, all these three problems can be encountered [4].

Other advantage of mobile learning is it can remove some of the formality from the learning experience. By implementing mobile learning, learners can reduce the dependencies to the formal class period and dependencies to the lecturers. By reducing these dependencies, students can be given more freedom in choosing the way of studies. By giving freedom to students, self-esteem and confidence of the students can be increased [5].

Besides that, mobile learning also supports the collaborative learning. Collaborative learning is an educational approach to teaching and learning that involves groups of learners working together to solve a problem, complete a task, or create a product. Collaborative learning is based on the idea that learning is a naturally social act in which the participants talk among themselves. It is through the talk that learning occurs [6]. Collaborative learning allows learners to do the learning activities in group whereby it provides to the learners with the communication channels so that learners can discuss and sharing certain information during the learning activities [7].

Based on the advantages stated above, it can be concluded that mobile learning will help the learners in the learners' learning processes. It provides more efficient way of learning as compared to the existed learning approach such as conventional or traditional learning, computer-based learning and e-learning.

## II. Related Works

For a better understanding of mobile learning applications, there are several examples of developed mobile learning applications are presented below.

Brown [8] presented 10 Quick Mobile Learning Examples which includes Epocrates Mobile CME, Welcome to Hairdressing Training and C-Shock.

For Epocrates Mobile CME, CME stands for continuing medical education. This application was developed by faculty at top U.S medical schools and other educational institutions including University of Pennsylvia, Massachusetts Medical Society, the American College of Cardiology and the National Stroke Association. By 2008, there are 1 million courses completed through this application. This application also consists of an educational article which is easy to read and also provides short series of multiple choice questions. The mobile functionality of the application allows doctors to start CME courses on their own time and complete the course work at their own way, with no need to connect to any system [9].

The second example given by Brown [8] is Welcome to Hairdressing Training. This application is basically a set of web resources with photographic step-by-step guides combined with instructions and useful tips. Besides, it also provides user the choice to prepare learning materials from any places via Internet connection. Student can revise at anywhere. In term of resource, it also prepares a discussion space whereby users can communicate with each other by submitting and discussing questions regarding hairdressing [10].

C-Shock [11] stands for culture shock is a game-based learning application. It was developed by University of Portsmouth. The aim of this application is to help international students to cope with culture shock and to get accustomed to university life in United Kingdom. It also includes graphics of a student drinking and a couple displaying affection towards each other in public.

There are also other mobile learning application examples which were implemented by University of Malaga, Spain [12]. The architecture of the application is shown in Fig. 1.

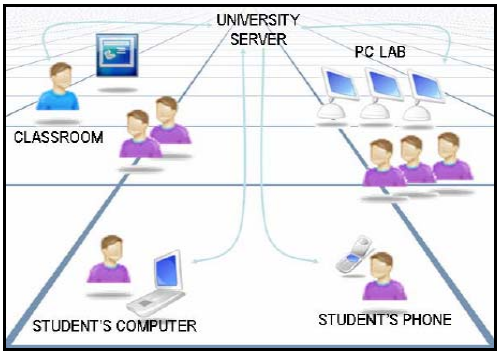


Fig. 1 Architecture of Learning System in University of Malaga, Spain [12]

This university developed mobile learning application using Java Micro Edition (J2ME). In J2ME, there is a midlet which is a very small application that can be installed in the mobile devices in order for mobile devices accessing the mobile learning application hosted by the university server. Learning through mobile devices is the alternative method of learning practices utilized by University of Malaga [12].

This paper presents a study on the students' perceptions regarding mobile learning implementation in UTP.

## III. Methodology

In this study, the quantitative method approach was used is questionnaire. A survey was conducted within 82 students (21 males and 61 females) of System Analysis and Design (SAD) course. The objectives of this questionnaire are to collect information on students' mobile devices and the opinions regarding current learning practices and mobile utilization in current learning practices.

There are two sections in the questionnaire. The first section is basically focusing on the information regarding students' mobile devices which includes brands of mobile phones, wireless devices or technologies those mobile phones provide operating systems (OS) of the mobile phones and wireless Internet protocols that the mobile phones provide.

The second section of the questionnaire is to get the opinions regarding the current learning practices and also the implementation of mobile learning in the current learning practices. For both questions, students are given with the answers and students need to rate it (1= strongly disagree at all, 2=disagree, 3=neutral, 4=agree, 5=strongly agree).

## IV. Results and Discussions

*A.. Results*

This section will discuss on the outcomes of the questionnaire. Fig. 2 shows the mobile phones used by the students from SAD class. It shows that Nokia and Sony Ericsson mobile phones users are the highest as compared to other mobile phones.

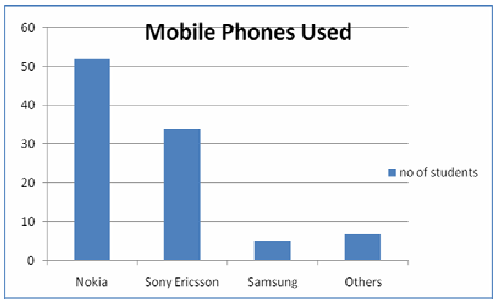


Fig. 2 Mobile Phones Used

Fig. 3 shows the wireless devices or technologies those students' mobile phones provide. Based on Fig. 3, it shows that most of students' mobile phones equipped with wireless devices which including GPRS, Bluetooth and 3G. Using these devices, it will ease UTP students in accessing mobile learning application which will be developed.

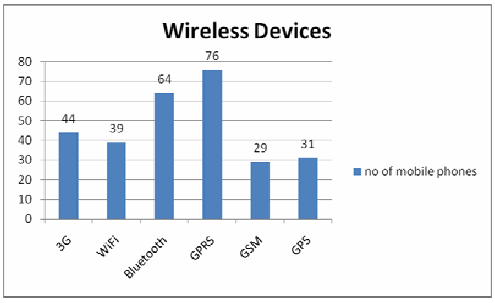


Fig. 3 Wireless Device(s) that Mobile Phones Provide

Fig. 4 will demonstrate the wireless Internet protocol supported by students' mobile phones. Based on Fig. 4, it shows that, majority of students' mobile phones equipped with Java platform for the mobile phones' wireless Internet protocol. By knowing the supported wireless protocol, mobile learning application will be developed using the programming language that suit the Java platform.

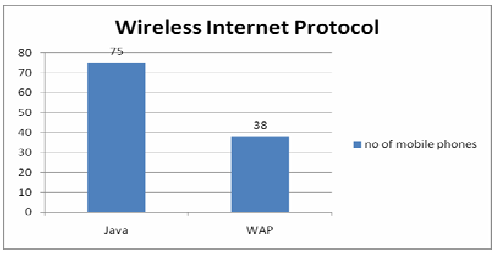


Fig. 4 Wireless Internet Protocols

For the questions regarding the opinions on current learning practices and mobile utilization in the existing learning styles, the results are summarized in the Table I below:

TABLE I
Opinion on Current Learning Practices and Mobile Utilization in the Existing Learning Styles

| Questions | Mean | |
|---|---|---|
| | Current Learning Practices | Mobile Learning Utilization |
| Give me freedom in my learning activities. | 3.3048 | 4.0122 |
| Provide me more effective way of learning. | 3.2439 | 4.8293 |
| Reduce my time to get learning materials. | 3.9146 | 4.6585 |
| Help me in doing revision for the examinations preparation. | 3.1146 | 3.7927 |
| Remove formality of current educational system. | 3.3170 | 4.6220 |
| Encourage study group practices. | 3.2317 | 3.3902 |

Based on Table I, it shows that the mean mobile learning utilization is higher for each question as compared to current learning practices.

### *B. Discussions*

Referring to the results above, the background information on mobile devices used by the students in SAD class shows that mobile learning is suitable to be implemented in UTP since majority of the mobile phones used by the students equipped with the suitable wireless communication devices or technologies which support the mobile learning application that will be developed.

Additionally, survey on the opinions of the current learning practices and mobile learning utilization in existing learning styles also support the implementation of mobile learning in the university. Majority of the students agreed that mobile learning utilization will give the freedom in learning activities, provide more effective way of learning, reduce the time to get learning materials, helping in doing revisions, remove the formality of current educational system and encourage study group practices.

## V. Conclusion

Mobile learning application will provide new and effective way of learning to the people especially students and instructors. Based on the survey conducted, students gave positive feedbacks whereby mobile learning can really enhance the current learning practices in many ways. Many advantages can be gained by the students and the instructors.

Future works:

1. Conducting interview with course instructor of System Analysis and Design (SAD) course regarding the opinions of implementing mobile learning approach into the course. During the interview, the functionalities of the mobile learning application can be identified.
2. Preparing all the models which include functional, structural and behavioural models.
3. Developing the mobile learning prototype based on the functionalities identified and the all the developed models.

## References

[1] Mobile Education (2003). A Glance at the Future. Retrieved 7th September 2009 http://www.dye.no/articles/aglance_aCthe_future!introduction.html

[2] O'Malley C., Vavoula G., Glew J.P., Taylor J., Sharples M., Lefrere P. (2003), *Guideline for Mobile Learning in A Mobile Environment*, MOBIlearn.

[3] Landers P (2002), *The Leonardo Da Vinci Project: The Future of Leaning: From el.earning to mLearning.* Retrieved 7th September 2009 from http://learning.ericsson.net/mlearning2/project_one/thebook/chapter1.html#stats

[4] Saedah Siraj, (2004) *Pembelajaran Mobile dalam Kurikulum Masa Depan. Masalah Pendidikan*, 27. pp. 128-142. ISSN 0126-5024.

[5] Attewell J. (2004), *Mobile Technologies and Learning, A Technology Updated and M-Learning Project*, Technology Enhanced Learning Research Centre.

[6] Srinivas H. (2009), *Collaborative Learning, What is Collaborative Learning?* Retrieved 7th September 2009 from http://www.gdrc.org/kmgmt/c-learn/what-is-cl.html

[7] Quality Improvement Agency, Mobile *Learning*, Retrieved 7th September 2009 from http://www.excellencegateway.org.uk/page.aspx?o=ferl.aclearn.page.id958

[8] Brown J. (2008), *10 Quick Mobile Learning Examples.*

[9] Epocrates Mobile CME (2008), *One Million Epocrates MobileCME Courses Completed - On-The-Go Learning Positively Impacts Physicians' Clinical Decisions.* Retrieved 6th August 2009 from http://www.epocrates.com/products/mcme/ and http://www.medicalnewstoday.com/articles/123461.php

[10] Welcome to Hairdressing Training (2009), Retrieved 10th August 2009 from http://hairdressing.ac.uk/description.html.

[11] *C-Shock* (2007), Retrieved 11th August 2009 from http://www.techshout.com/gaming/2007/30/c-shock-mobile-game-helping-students-to-deal-with-culture-shock-created-by-portsmouth-university/

[12] Toledano M.C.M (2006), *Learning Objects for Mobile Devices: A Case Study in Actuarial Sciences Degree,* University of Malaga, Spain.