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STUDY TOWARDS MOBILE LEARNING (M-LEARNING) IMPLEMENTATION

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12.1 INTRODUCTION

In the today's rapid changing word becoming aligns with technologies and fully uses of their benefits are key factors to success. We live in a complex networked planet so adopting our life and work with new technologies and make benefits of their advantages are critical issues. Some reasons cause big changes in the services of network both in the scale and pace, such as becoming universal, increasing automation, use of the Internet, and the mobile devices. The rapid advances of wireless technology and mobile devices leads us to this point that training and education cannot ignore the usage of mobile devices in the learning process. In a period of time main focus was on the development of examples and methods to deliver the educational materials on the personal computers that were located in the learner's home or office. These computers were very heavy and had large screens. However, nowadays there is a big motivation seen among students and lecturers to use mobile devices for educational purposes. Therefore we can have anytime and anywhere educational world [1]. Students and staff are willing to improve M-learning system in their educational processes.

There are many definitions given to M-learning, but in this research M-learning is defined as" the use of electronic learning (E-learning) materials on mobile devices such as personal digital

assistants (PDAs), Tablet PCs, mobile phones, Pocket PCs, palmtop computers and in general every devices that are small and autonomous enough to assist us in every moment of our life''[1]. Mobile learning is a new model of E-learning, which combines mobile computing and E-learning. With this new technology learning will become more learner-centered and informal, rather than teacher-centered and formal.

12.2 CHANGES FROM E-LEARNING TO M-LEARNING

Most of the researchers view M-learning as E-learning which has complementary features. There are some differences between these two environments. In term of terminology in E-learning we discuss about computer, bandwidth, interactive. But these vocabularies convert to mobile, GPRS, G3, Bluetooth, Objects, instinctive in M-learning. Table 12.1 shows some main differences between E-learning and M-learning environment.

Table 12.1 Differences between M-learning and E-learning [2]

Educational Changes	**E-learning**	**M-learning**
	Text and related to education	Voice, video, animation related to education
	Communicate with lecturers in classrooms and labs	Can communicate everywhere
Communication between Students and Lecturers	Delay to send or receive information (students need to check e-mails or web sites)	Instant delivery of e-mail or SMS
	Unresisting communication	Instant communication
	Asynchronous	Synchronous
	Scheduled	Instinctive and unplanned

Communication between Students cell	Face-to-Face	pliable and mobile
	Audio-teleconference common	Audio- and video-teleconference possible
	e-mail-to-e-mail	24/7 instantaneous
	Especial location	No boundaries in term of location
	Need to search for internet	Use wireless connectivity so no waste time
	Match time to meeting	Flexible timings on 24/7 basis
	Difficult communication because of group Consciousness	High level of communication due to one-to-one Communication, reduced inhibitions

12.3 PREVIOUS EXPERIENCE

Many studies have been conducted in universities to identify the impact of mobile devices usage on teaching and learning; here are two case studies that show these devices have significant effects on educational process.

12.3.1 Mobile Phone in Bangladesh for Education

This project was conducted to investigate the impact of mobile phones on problems of traditional distance education in Bangladesh. In this project 52 students were divided in to two groups. The control group that could have direct relationship with their lecturers in a room and another group that they could see the lecturer via a projection screen in another room. The students in second group could use SMS to answer to questions. Two groups had to attend to the same tests and the control group should answer the questions by pencil and the other group should answer via SMS.

A t-test of the post-test scores shows that learning via mobile has the same benefits as the traditional. Therefore, Mobile-based learning is a possible alternative in Bangladesh to improve the educational purposes and can encourage the students to be active in learning processes [3].

12.3.2 Use of Mobile Devices in Växjö University

The aim of this study was to explore the effects of smart phones to support learning and communication. Twenty two students from the course in the School of Humanities and 19 from the School of Mathematics were selected from Växjö University (VXU). Students and instructors were equipped with a Nokia 6600 smart phone and a MUSIS client had been installed in each phone. In addition to the common applications that each phones has, specific educational services such as receive course material, view their timetables, receive reminders were expanded for students. Students could use educational materials in the form of video, voice, assignment. In this study instructors used M-learning technology differently. One instructor (for MEA708, in the School of Mathematics and Engineering) had not been very active due to the use of this technology. The other instructor (for GIX 131, in the School of Humanities), fully used this technology in order to provide educational materials for his students and always sent SMSs to students. Finally, in both groups large number of students found out the educational mobile services as useful or very useful in week 5. However, for MEA708 the number of students who agree with ‘’very useful’’ increased approximately to 50% by week 10. And in this period the number of students in GIX131 who agree with “very useful ‘increased. Some students acclaimed that the messages which they got from lecturers were very practical [4].

12.4 RESEARCH METHODOLOGIES

In order to gather the needed information based on stratified sampling method about 360 questionnaires were distributed among the students of 2 faculties: Computer Science & Information Systems (FSKSM) and also Faculty of Built Environment (FAB). The number of under graduate and post graduate students had been chosen equally.

12.5 FINDINGS

12.5.1 Demographic Information

More than half of the participants (60%) were male and (40%) were female. Big part of participants had between 20 to 30 years old, (22%) more than 30 years old and only (18%) were under 20 years old. Almost (64%) of participants were from FSKSM faculty and (36%) were from FAB faculty. Summary of demographic information are shown in Table 12.2 as below:

Table 12.2 Demographic Information

Gender	
Female	40%
Male	60%
Age	
Under 20 years old	18%
Between 20 to 30 years old	60%
More than 30 years old	22%
Faculty	
FSKSM	64%
FAB	

12.5.2 Ownership of Mobile Devices and Their Functions

It can be seen in Figure 12.1 that most of the participants (300) own mobile devices with Bluetooth and also the number of participants who can access to web and wireless with their mobile devices is considerable. Therefore, most of the students have mobile devices with suitable functions for M-learning

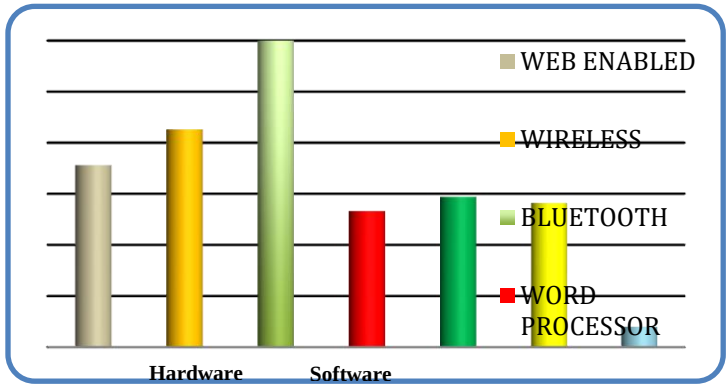

Figure 12.1 Mobile Devices' Functions

Most of the applications of mobile devices can be used by students for their learning processes. In Table 12.3 some of these applications and their usages are summarized: [5].

Table 12.3 Cell phone Applications

Application	Use of this application for educational contexts
Voice Call	• To listen and download the audio and video files and information which are recorded • Can be used for oral exams. Therefore, the heavy costs of examinations will decrease
SMS	• Very cheap and fast way to exchange didactic materials • Can be used for short written exams • Can be used for emergency announcements, important schedules, summary of lecturers and chapters

TV and Radio	• They are suitable for listening and watching broadcasted lecturers
Internet	• Can be used to register, browse in course websites, download course materials • Can be used to search in internet and obtain more information and knowledge about course materials.

12.5.3 Interested in M-learning

Based on data that was gained from this survey most of the students were interested in having M-learning experience for doing their educational learning. One exiting result of this survey was most of the students of FAB faculty which is one of the lowest usages of E-learning interested in implementing M-learning and they tend to use this technology.

A large proportion of students agreed to see and use learning materials and course content on their mobile devices such as: course description, references, grading policy, summary of chapters, question and answer of each chapter and also they preferred to use SMS for their learning purposes rather than other applications. These findings together can support that students are ready to use M-learning.

However, some students were worry about limitations of mobile devices for educational purposes. Respondents felt that small screen, small space, and not comfortable for long usage seemed to be the biggest barriers of mobile devices that discourage them. Furthermore, they worried about unfamiliarity with M-learning. The cost of the connection, service, and maintenance were another barrier which participants highlighted in their answers.

An interview had been conducted with CTL to identify the readiness of this center to implement M-learning. Result shows that this center has special group to study and survey the potential effects of mobile learning in UTM and they know about current problems of E-learning and ready to improve E-learning and make it better by implementing M-learning.

12.6 CONCLUSION

Analyzing the questionnaires shows that students have mixed attitudes towards M-learning usage in UTM. However, their enthusiasms to make benefits from countless features of this technology, like breaking the limitations of time and place for educational processes, are very considerable. Students have mobile devices with needed applications and most of them prefer to use SMS application for M-learning. From above discussion can be concluded that students are ready to use M-learning in UTM. However, the barriers to implementation of these technologies are also very important. Finally, it is clear that by doing more studies and solving the possible barriers, implementation of this new technology will be easier.

12.7 RECOMMENDATIONS

These are some recommendations that can help CTL to implement M-learning and improve teaching and learning processes:

(a) Clear Plans to implement M-learning in a full and maintainable approach within the next 2 years.
(b) Provide the needed devices for lecturers
(c) Improve the knowledge of students and lecturers to use M-learning
(d) Improve the network connection inside UTM campus
(e) Online relations between students and lecturers will be more effective
(f) CTL center has to have main responsibility in order to UTM M-learning implementation.
(g) CTL center should implement and encourage the lecturers to use M-learning as an important tool to support their teaching methods.

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