Merging Mobile Learning into Traditional Education

Mudasser F. Wyne
School of Engineering and Computing
Technology and Health Sciences Center
National University, San Diego, CA

Abstract—Rapid development in digital and multimedia technologies is leading to a transition from traditional (face to face) education to a new level of distance as well as mobile education and learning. Mobile Learning refers to the use of mobile and handheld devices in learning activities, these devices when employed in diverse learning settings are generally considered to support learning. In the last few years mobile devices and educational technologies have significantly advanced in terms of their functionality and mobility for significantly lesser prices. Moreover, the extreme competition among the manufacturers of these technologies is compelling them to constantly strive for new functionalities that can give them a competitive edge over others. Therefore, it can easily be concluded that hardware and functionality of mobile devices will never be a problem since everyday there is a better and faster technology available in the market for users.

The rapidly growing influx and use of mobile devices in our culture have infused these device with new meanings and purpose in higher education. The use of new technology enables educators to execute their classes in a more continued and collaborating way. It is important and necessary to study the consequences on learning and teaching of ever growing and rapidly spreading mobile devices as one of the ways of delivering higher education. Researchers and practitioners are unable to comprehend the crucial result of the propagation of this medium, the uses and applications of mobile learning have grown in different platforms. The researchers and educators need to study the impact of this medium on the current instructional design concepts.

I. INTRODUCTION

In the last few years both mobile devices and other educational technologies have significantly advanced in terms of their functionality and mobility for significantly lesser prices. Moreover, the extreme competition among the manufacturers of these technologies and demand for innovation is the driving force behind that is compelling manufacturers to constantly strive for new functionalities that can give them a competitive edge over others. Therefore, it can easily be concluded that hardware and functionality of mobile devices will never be a problem since everyday there is a better and faster technology available in the market for users.

The rapidly growing influx and use of mobile devices in our culture have infused these device with new meanings and purpose in higher education. The use of new technology enables educators to execute their classes in a more continued and collaborating way. It is important and necessary to study the consequences on learning and teaching of ever growing and rapidly spreading mobile devices as one of the ways of delivering higher education. Researchers and practitioners are unable to comprehend the crucial result of the propagation of this medium, the uses and applications of mobile learning have grown in different platforms. The researchers and educators need to study the impact of this medium on the current instructional design concepts.

A. Mobile Learning

Mobile learning (a.k.a. “m-learning”) refers to the use of mobile and handheld information technology devices, such as personal digital assistants (PDA), cellular telephones, MP3 players, laptops, tablet PCs, and wearable computers, in teaching and learning activities. Essentially, it is learning and knowledge sharing that takes place when a person is using a mobile device. However, it is important to note that, in the newest generation of mobile learning, the actual device may or may not be the focal point of the learning experience. Learning applications that use mobile devices have expanded to the point that the device may be there only as a tool, with the educational experience taking place in a much larger context. With the emergence of Web 2.0 technologies, online learning, including mobile learning, has become much more participative, learner centered, and networked.

B. Mobile Technology

It is amazing to notice that just within last decade, educational technologies have greatly progressed in terms of functionality and mobility for considerably lower prices [1]. Considering fast developing technology, it can be concluded that the availability of efficient hardware
and not having sufficient hardware will not cause any problems since better and faster technology is being designed, developed and made available every day. We realize that there is a need for research and more support with new detailed work on pedagogy, hardware and software, however, this is not in the scope of this paper.

The rapid development in digital and multimedia technologies is leading to a transition from traditional face to face education to a new level of distance as well as mobile education. Changes to curriculum, educational methodology, mode of delivery and every other aspect of education have been brought about by this sea of change in technology. In response, for the last many years educators have been working on establishing personalized learning for students. To successfully provide personalized learning environment in the classroom we need to use many educational technology applications to support our teaching approach. Looking at today’s student, and their interest, seems like mobile devices are the best available technology as a tool to establish a learning environment to enhance learning environment and their educational learning.

II. SPECIAL FOCUS

The consequences of the explosion of mobile devices in the higher education setup needs to be studied and analyzed by the faculty and research community. It is important that the design of the mobile technology used for mobile teaching and learning be efficient and very effective.

The mobile devices that are popular and in use now a days are mostly wireless and provide the required portability. The device with portability allows users to communicate while on the move as well as function at numerous levels. The manufacturers of the mobile devices compete with each other to design and produce devices with new features. The educator with a vision of the future as well as designer and developers of the new mobile devices have to consider how teaching and learning will be impacted as a consequence of these advancements in mobile devices. The use of mobile devices by new age students forces the delivery of course contents and other information in the form that is compatible with wireless mobile devices. This requirement adds another layer of technology support and change in the traditional teaching and learning. Faculty, who want to embrace use of advanced information and communication technology in the classroom is opening up to the idea of extending their students with services, course contents and information in way that is outside the old-fashioned teaching and learning. This approach makes learning to be in an environment that is drastically different than the traditional.

We need to explore the possibility of use of mobile devices by students in a class setting for science and engineering courses. Like any other subject, to support learning in science and engineering classes mobile devices are implemented in a diverse learning environment. It is always hoped that use of these devices will support the usefulness of many instructional activities that may be very specific to these type of classes. These activities include and are not limited to document sharing, assessment related activities, homework distribution and collection, and other class teaching activities [2, 3, 4]. It is also possible that mobile learning is not so successful here because of many factors that are beyond the control of the instructor teaching the class.

Literature review on implementation of mobile learning brings out many factors that would need clarification. Authors in [1, 5] developed a survey to collect data regarding student’s requirements and opinions, similarly a survey was also conducted for science teachers teaching in science. The results shown in [5] of their study reveals their findings regarding when post school students were exposed to the important features and concepts of mobile learning. The articles emphasis that in order to define and understand what mobile learning is all about we need to pay attention to three other related concepts. These concepts are linked to mobile technology, mobility of the learner and information flow and the ever changing learning process.

III. DELIVERY OF CONTENTS

Some of the articles reviewed and analyzed on the research on the mobile learning [6] see the issues around mobile learning. However, the good point about mobile learning is that it is by no means a competition with the existing program offering but rather would complement their program offerings with additional capabilities [7]. It is generally felt that Mobile learning devices bring enthusiasm into the classroom and help to encourage students. In addition, these devices are relatively inexpensive and easily available, and they appeal to students as they represent everyday life communication devices been acquainted and used to. Authors in [8, 9] present a case study of student experiences with using mobile devices, phones, wikis, and other mobile learning approaches such as podcasts and walking tours as educational tools.

The way the course contents and information is accessed using smart devices has changed drastically. Because of these devices we can have unlimited access to number of online resources on any topic as well as lectures and other course material from a course. These smart devices provide additional capability to its users to receive (download) or deliver (upload) the course material while they are on the go or taking a break from their busy schedule, therefore taking the classroom wherever they go. However, academic institutions are still struggling with the concept of exploiting this new avenue for lectures, course content delivery and other class activities.
Mobile learning also expand the horizon for high quality education and provide more flexibility to that gender of students who because of some cultural limitations may not able to actively participate and be part of traditional education. In addition, mobile learning also can help to provide additional capabilities for students with some kind of disabilities that stops them to come to campus or make use of the traditional online class platforms. In each of these situations, novel avenues and options can be uncovered thus enabling these group of students to fulfill their dreams and take charge of their educational and professional goal.

For better understanding of mobile learning we need to divide it into three separate concepts [10]. The first one is the mobile technology that refers to advanced cellular telephones, second one is increased learner mobility meaning that user is not tied to personal computer that is bound to location with no wireless tool and the last one is the link between learning process and the flow of information, as shown in figure #1.

![Figure 1: Three concepts of mobile learning](image)

IV. MERGING INTO TRADITIONAL EDUCATION

Use of mobile devices in some cases can be considered to provide additional support to the traditional education. Authors in [12] report an App for learning concepts in mathematics and engineering. Most of the articles review and analysis of the research on the mobile learning [6] to see the issues around mobile learning. In [11] authors reports opinion of pre-service teachers and students towards the use of mobile learning in higher education institutions. The survey result reported that students are performing various educational and other social task using mobile devices. Some of these activities are performed in the classroom and some are outside the classroom. The paper also reports that students would like that the material for the course as well as the learning management system itself should be easily accessible and formatted to the needs of the mobile devices.

In addition to providing new features mobile technology also exposes us to certain limitations such the size and resolution of the screen. Because of the rise in the number of SMSs (Short Message Services) triggered a new language with different ways of communication. This and other limitations made design of the course material and layout of course contents more challenging, as compared to the layout for a traditional offering of the course.

V. CONCLUSION

In this paper we tried to recognize the impact of mobile learning on the higher education. In addition we made an attempt to come up with concise definition of mobile learning in reference to higher education. Mobile learning, being a new paradigm, unwraps the opportunity and also inspires us to move away from the traditional ways of thinking, learning, communicating, designing and reacting in order to fully utilize capabilities of mobile learning technologies. The review and analysis of the research on the mobile learning also made us to realize some of the issues around mobile learning. We all understand that changes and development of the mobile technology is very rapid and at the same time not uniform across countries and regions. We would like to conclude that the use of new technology in these days has revolutionized higher education as well as the society.

REFERENCES


The International Conference on E-Learning in the Workplace 2015, www.icelw.org


AUTHORS

Mudasser F. Wyne is with the National University, School of Engineering and Computing, San Diego, CA 92123, USA (mwyne@nu.edu).

Manuscript received 06 April 2015.

Published as submitted by Mudasser F. Wyne.