Enhancing Learning Process by Implementing M-learning Paradigm in Open University Education

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Abstract

This fast growing technological era every individual uses mobile devices, as it is the fastest means for communication. The latest mobile and wireless technologies offer a wide range of possibilities in academic sectors especially in higher education sector most of the learners depend on smart devices to gain information related to their studies. In the expanding distance and open learning world mobile learning also known as m-learning is a useful tool for an objective of learning while on the move to the learner as well as academicians. Educational researches show that mobile learning is a rapidly growing method of learning that utilizes mobile devices to deliver course contents. Recently many technologically advanced universities provide their services through mobile devices in order to help their learners with the required information to be accessible and available to them at anytime and anywhere. This research work highlights the concept and pedagogical advantages of m-learning. The researcher presented an infrastructure supporting m-learning and also demonstrates a mobile application prototype which provides an instant and direct access to the services to learners. The suggested mobile application can offer customized m-learning experiences to fit with smart devices such as the provision of accessing course content, learner support services and learner-to-learner-instructor interactivity.

Keywords: m-learning, open education, blended learning, pedagogy, collaborative learning

INTRODUCTION

The development of mobile technologies is rapidly increasing on a global scale. As a result, m-learning is gaining popularity in the domain of both learning and teaching. The evolution of handheld portable devices and wireless technology has resulted in major changes in the social and economic lifestyles of people. Today, many technological devices are produced in portable form and all generations have become familiar to them. These smart devices are reshaping daily life of people in different ways. Unlike education by correspondence, whose main drawback is the lack of instructor-learner interaction open learning education using a blended learning methodology provides provision of learning materials, a dedicated instructor and other forms of support. Main objective of this research work is to highlights the concept and pedagogical advantages of m-learning in open education. To demonstrate the enhancement of m-learning in open education the researcher presented an infrastructure supporting m-learning and depicted a mobile application prototype which provides an instant and direct access to the services to learners. The functional and nun functional requirements of the suggested mobile application are presented along with a use case diagram.

LITERATURE REVIEW

Mobile devices are increasingly becoming the first go-to device for communications and content consumption, according to Gartner, Inc. In the emerging economies, users are adopting smart phones as their exclusive mobile devices while in developed economies, multi-device households are becoming the norm, with tablets growing at the fastest rate of any computing device. As such, Gartner predicts that, by 2018, more than 50 percent of users will go to a tablet or smart phone first for all online activities [4]. As smart phones and tablets become more user-friendly and powerful, they will tend to replace desktop and notebook computers: it is estimated that the number of smart phones and tablets sold in 2016 will be 1.34 billion and 384 million respectively. M-learning is a new stage of e-learning in education [2]. According to Attewell, J., & Savill-Smith, C. and Hilton, J. m-learning has the ability to learn everywhere at every time through use of mobile and portable devices [1][5]. According to Motiwalla, L. F. and Hilton, J. the ongoing challenge remains as to how best improve learning and teaching methods for tomorrow's workforce [7][5]. M-learning is a new stage of e-learning having the ability to learn everywhere at every time through use of mobile and portable devices. There is now little doubt that the World Wide Web is the most successful educational tool to have appeared in a long time. It combines and integrates text, audio and video with interaction amongst participants. In the educational context, ubiquitous connectivity and the portable nature of these devices facilitates access to collaborative and contextualised learning experiences which translate into greater ownership of learning processes.[12]

CONCEPT OF M-LEARNING

M-Learning is a technique that uses mobile and wireless technologies for learning and education. The open learning platform is a form of distance education with added enhancements to ensure a quality learning experience for learners. The term m-learning or mobile learning refers to any sort of learning that happens when the is not at a fixed, predetermined location, or learning that happens when the takes advantage of the learning opportunities offered by mobile technologies such as mobile phones and hand-held computers to enhance the learning process. The hand held devices such as smart phones and PDAs with their ability of connect to wireless networks facilitate m-learning.

M-learning provides academicians and learners a different experience from the traditional classroom concept. The portable smart devices provide academicians and learners flexibility in leaning methodologies with more communication as well as interaction opportunities. According to Sharma, S., F.Kitchens the change from e-learning to m-learning will excite the change in the educational Paradigm [8]. The term m-learning or "Mobile Learning", has different meanings for different communities, that refer to a subset of E-Learning, educational technology and distance education, that focuses on learning across contexts and learning with mobile devices.

Mobile learning has many different definitions and is known by many different names, like m-learning, u-learning, personalized learning, learning while mobile, ubiquitous learning, anytime / anywhere learning, and handheld learning [9]. M-learning is e-learning through mobile computational devices: Palms, Windows CE machines, even your digital cell phone [10]. Mobile learning is considered to be the ability to use mobile devices to support teaching and learning. Thus the term M-learning can be summarized as a new stage of e-learning having the ability to learn everywhere at every time through use of mobile and portable devices.

SUGGESTED M-LEARNING INFRASTRUCTURE AND PROTOTYPE

The purpose of this study was to assess the effectiveness of the M-Learning mode of education against Face-to-Face mode. Figure (1) shows the Information Technology infrastructure which supports the mobile learning.

Figure (2) shows the suggested model of the mobile application prototype. The suggested advantages of the m-learning application prototype are "provide instant access to university resources for learners and instructors", "easy to handle" and "access data without delay".
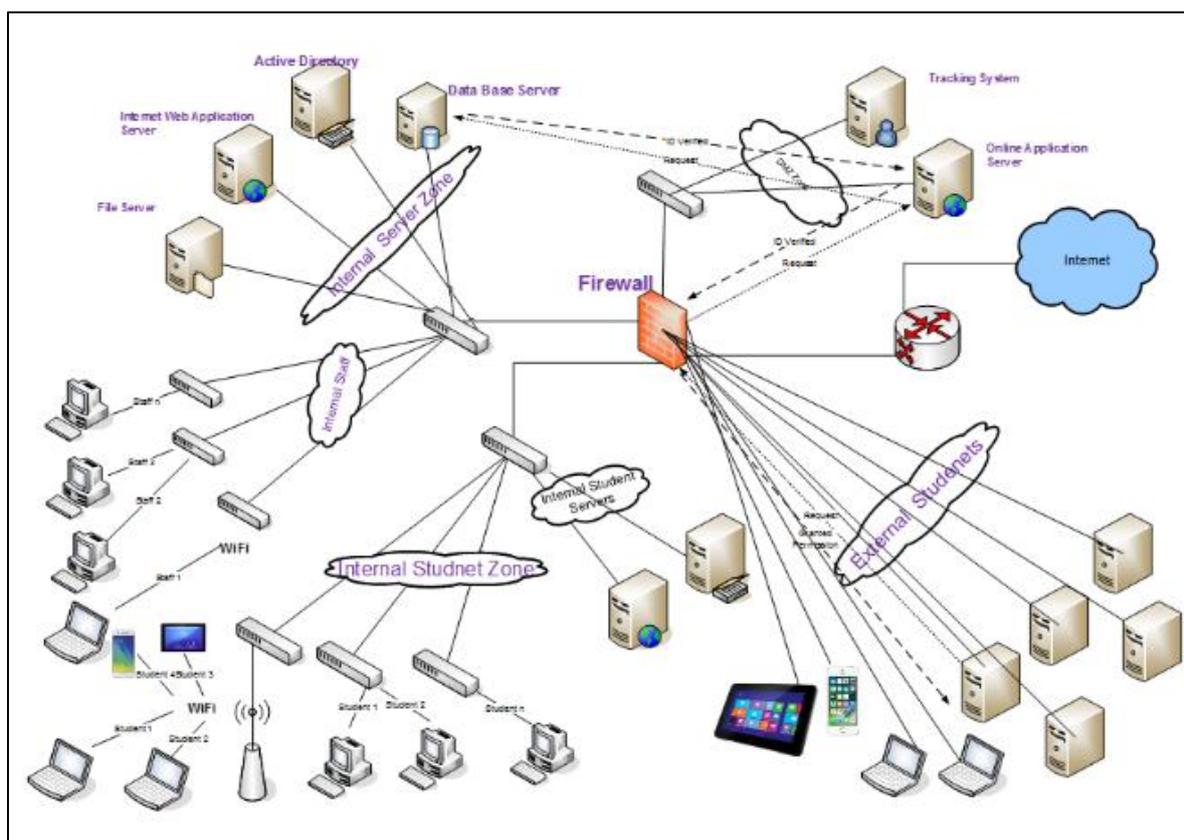

Figure 1: IT Infrastructure for a blended learning system (including m-learning)
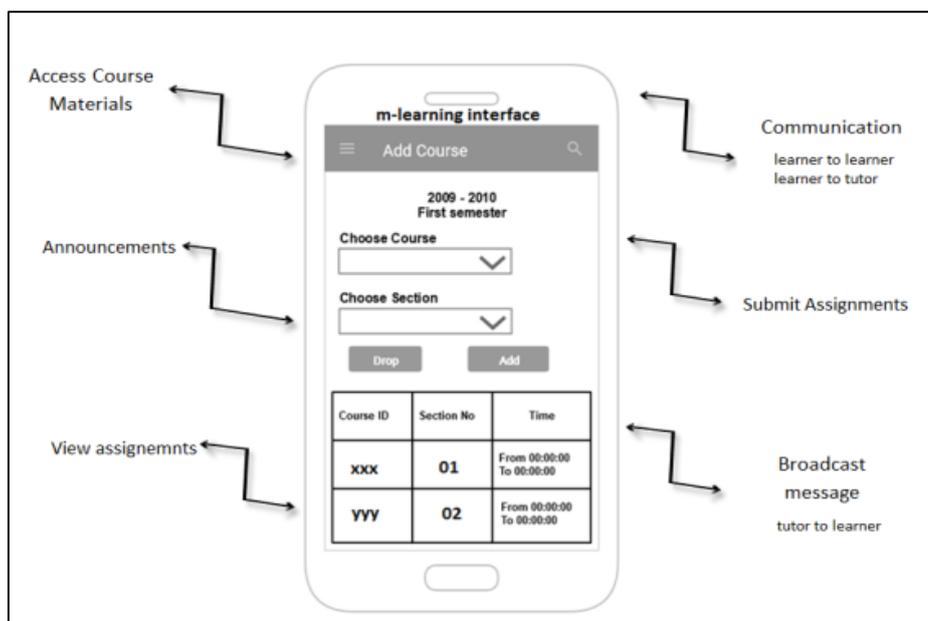
Figure 2: Suggested model for M-learning using mobile application prototype

Suggested features of the Mobile Application prototype

- The interactive events will enable learners to look at any updates published by instructors to learners.

- An alert will be sent in case of any announcements or notifications that concern learners.

- The learners will be able to participate in collaborative activities

- The learners will be able to view any assignment requirements from the sessions

- The learners will be able to solve and submit assignments.

- The instructors will be able to disseminate broadcast message for learners involved with them in the specific course.

Communication between instructors and learners will be faster and easier and the application will be including a side bar that holds links for main features such as learner profile, learner schedule and notifications.

Based on the requirements findings the researcher designed a use case diagram for the proposed mobile application to specify the basic scenarios that describe the users and the tasks they need to perform as well as the expected functional requirements.
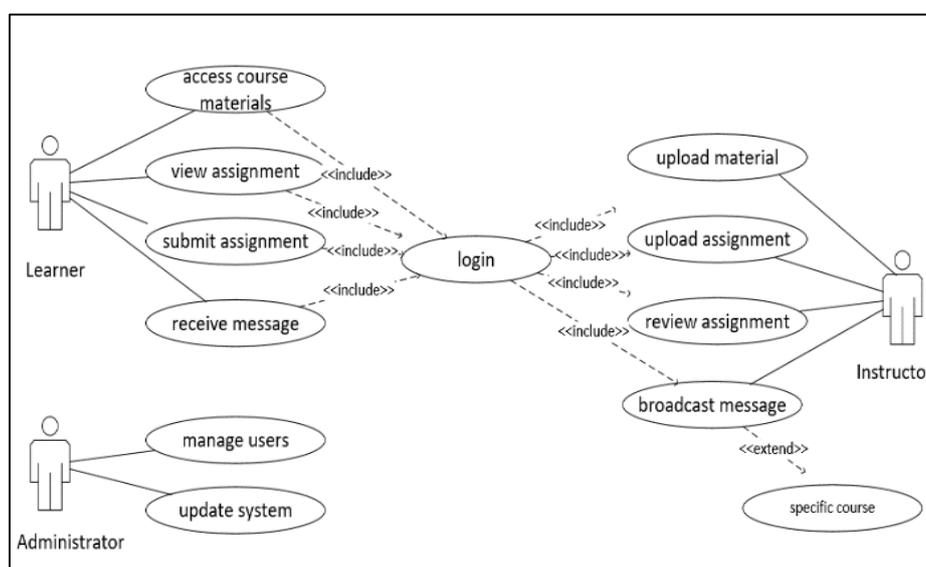
Figure 3: Use case diagram showing the functions with actors of the proposed system
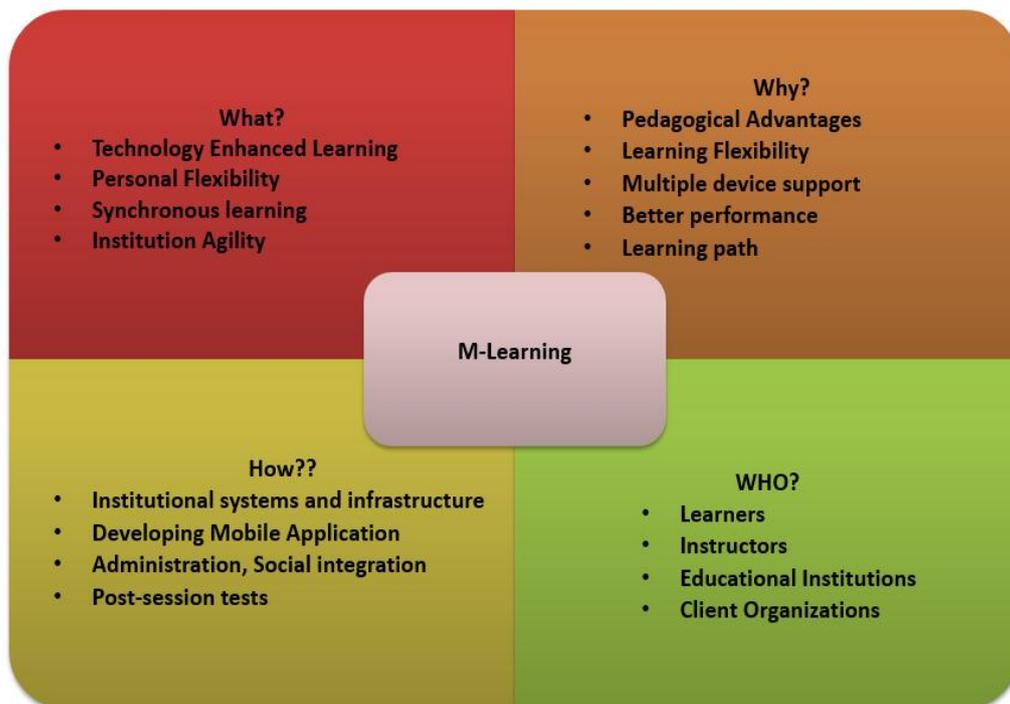
Figure 4: m-learning in Open Education

The suggested non-functional requirements for mobile application are integrity, usability and security.

To ensure integrity the researcher suggests that the system shall make sure that user should have strong passwords. To ensure usability the researcher suggests that the user shall be provided with simple interactive interface and the users shall be able to use the system without training. To ensure security, the researcher suggests that the system should provide login for all types of users, the system should provide messages for wrong validation and all data will be erased from the application when user signs out.

Enhancing m-learning in Open Education

M-learning provides technology advanced learning for academic institutions which will increase the agility of the institution. It provides personal flexibility for the learners and also enhances synchronized learning. The reason for selecting m-learning paradigm due to the relative advantages of advanced technology. The pedagogical advantages of m-learning are blended learning, collaborative learning, interactive learning as well as lifelong learning. It provides multiple devices support in learning process thus the performance will improve.

 M-learning model can be implemented in institutions by identifying relevant systems and infrastructure and also developing mobile applications supporting the model. There must be proper administration of the processes and social integration. After session tests can be done easily by the learners using mobile devices. The beneficiaries of the model are the institutions, learners, instructors and the client organizations.

PEDAGOGICAL ADVANTAGES

Pedagogy is the method and practice of teaching; some of the pedagogical advantages by using m-learning method in open education are:

Blended learning: Usually adopted in open education, which combines classroom sessions with m- learning can enhance and maximize the face-to-face and online communication methods. The learners will be able to complete their online quizzes, assignments and activities using mobile devices after every tutorial session with their instructor.

Collaborative learning: The learners will be able work together in group activities assigned by their instructor using mobile devices which are easily accessible and allow for more opportunities for participation. As a result of such collaborative activities learning becomes more successful.

Interactive learning: Mobile technologies support interactive learning environment due to the fact that the mobile devices

function as the interactive agents that allow varying levels of interactivity. Learners will be able to know the activities happening in the class rooms and they will be able to work and solve problem given by the instructor.

Lifelong learning: Lifelong learning is about encouraging learners to learn and is often used in relation to adult education or continuing education. M-learning concentrates on the individual the use of technology and can provide a flexible learning opportunity which is often preferred by adult s and thus they can be lifelong learners.

SOME OF THE GENERAL ADVANTAGES AND DISADVANTAGES OF ADOPTING M-LEARNING IN OPEN EDUCATION

Advantages

- The handheld devices use in m-learning provide a cheap alternative to the PC in a format that can easily be taken by the to anywhere

- Most recent trend in technology-enhanced learning is the development and dissemination of Massive Open Online Courses (MOOCs) which can be accesses easily through mobile devices

- Mobile devices allow learners to access learning content and learning interactions from anywhere

- Mobile technology enables learners to communicate and collaborate with their peers individually as well as in groups and also with instructors

- Better opportunities to acquire skills at individual's pace and comfort

- Psychological support can be provided through social networks to the learners those are at risk in their study due to personal problems

- Support the academic institutions with retention, progression and transition

- Provides good support for preferred modes of interaction for the learners and will enable more self-evaluation and reflection throughout the learning process

- Mobile devices can use to present simulations effectively

- Advancements of course delivery methods, new evaluation tools and application of prompt and improved feedback to learners.

Disadvantages

- Most of the mobile devices have small screen that limits the amount and type of information displayed.

- Storage capacities of mobile devices are less in comparison with PCs and may not be used by some applications.

- The available keyboards of mobile devices are relatively small

- Due to network connectivity limitations connection speeds may slow

- Processing power of mobile devices is generally slower than desktop devices.

SUMMARY AND CONCLUSION

The evolution of handheld portable devices and wireless technology has resulted in radical changes in the social and economic lifestyles of modern people. Mobile learning will be regarded as a core pedagogical activity in higher institutions of learning due to the advancement of digital technologies. Mobile learning helps learners to improve their literacy and to recognize their existing abilities. Mobile learning can be used to encourage both independent and collaborative learning experiences. Mobile learning helps learners to remain more focused for longer periods. In this paper the researcher identified the enhancements of m-learning in open education and also presented an infrastructure supporting m-learning and suggested a mobile application prototype with its functional and non-functional requirements. Mobile learning which incorporates the advancement of information technology can be considered as the most useful methodology especially in Open University education as well as traditional learning methods by enriching a different learning experience.

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