The impact of m-learning technology on students and educators

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ABSTRACT

This paper addresses the notion of the impact of mobile learning technology from the learner's as well as educator's point of view. The authors have outlined the application of the e-learning in smart classes, which is followed by a similar argument with regard to the m-learning technology. This is followed by a statistical evaluation of the m-learning which through multiple surveys is conducted among the undergraduate and postgraduate students as well as the academics. In conclusion, the outcomes of these surveys are presented in graphical forms that highlight the merits and demerits of the m-learning technology.

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1. Introduction

Mobile technology can provide the complete tools and services for accessing any video and audio materials that are available on the public domain. The 3G technology provides services in areas such as broadband Internet access, downloading music and uploading video clips to name a few. It can easily provide access to the Wi-Fi networks, but the speed of the connection depends on the number of users who simultaneously try to have access to the network. This speed would significantly reduce as the number of the user increases (Wentzel, Lammeren, Molendijk, Bruin, & Wagtendonk, 2005). The 4G, on the other hand, is the fourth generation of cellular wireless standards (Arshad, Farooq, & Shah, 2010). It is based on TCP/IP protocol, which facilitates a provision of wireless networks in order to improve services in the areas of video and multimedia applications. The 4G technology which is based on the Worldwide Interoperability for Microwave Access (WiMax) resulted in improving areas such as, speed, performance, reliability, fault tolerance, portability, compatibility and latency in real time applications. In addition, it improves secure and easier access for communication purposes (Adibi, 2010).

To identify the main attributes of 4G technology, one can summarize them as follows (Bai, Kanickam, & Vijayaraj, 2012).

- Faster communication speed.
- Wider network spectrum.
- Better image and video transmission.
- More flexible communication.

Undoubtedly, all the above categories will significantly improve the applications of the m-learning with regard to the bandwidth, speed, and the reliability of the receiving and transmitting of the online teaching materials.

1.1. Application of m-learning in smart classes

Recent advancement in the mobile technology and offering of the 4G features resulted in the wider coverage and improving the reception area which has made the m-services in an education environment a very suitable choice and attractive option (Andreu, Almonte, & Rejas, 2011; Hosny, 2007). One way to exercise this access option for our students is to use the smart class facility (E-podium) to record the lecture materials in real time environment. This suggests that we can record while we are lecturing in the class. Completion of the recording process can be followed by uploading them on the special Learning Management Services (LMS), which are readily available and utilized by most universities around the world (Leal & Queirós, 2011). The platforms that are used in this regard include blackboard, WebCT, to name a few. Once the materials are uploaded into the platform in question, then students by using their mobile phones/devices and through having access to the Internet, can manage to have an easy access to their lecture materials anytime, anywhere 24/7 as they may see appropriate.

This paper presents the impacts of m-learning on educators and students by carefully designed surveys. The surveys are conducted on both the undergraduate and graduate students, as well as on the faculty members. A detailed findings from the surveys are reported, and some future directions are discussed. The rest of the paper is organized as follows. Section 2 discusses a smart class room environment which is equipped with E-podium and facilitated with LMS for e-learning. Section 3 presents the impact of

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m-learning on the students and the educators by some surveys. Finally, section 4 draws some conclusions.

## 2. Utilization of smart classes using E-podium and LMS in relation to E-learning

An E-podium is a device that controls all the classrooms' components by an internal control unit along with special software for a smart classroom environment. The E-podiums used in the classrooms at King Saud University (KSU), Riyadh are equipped with the required hardware equipment and software packages (E-podium, 2010). The hardware equipment includes (i) two screen projectors, (ii) a touch control screen, (iii) projector screen to display on the smart board, (iv) digital camera, (v) high quality internal speakers, (vi) 3-D highly sensitive microphone, (vii) smart card reader, (viii) keyboard and digital pen, (ix) port to connect to a laptop with the projector screen or the other devices and 8 USB slots. The software package includes a control screen system that has (x) students' attendance display system, (xi) e-notepad, (xii) video conferencing technology, (xiii) lecture conferencing network technology, (xiv) live or recorded video airing icon, (xv) camera document icon. Fig. 1 shows an image of an E-podium and its control system screen used in KSUs' classrooms.

Lecture video recording procedure in which lectures can be recorded and saved on the university servers for the use by the students can best be explained as follows (E-podium, 2010). The professor can turn the video technology (video and audio) of the E-podium on, and the whole lecture can be recorded and saved in an AVI format video. After the completion of the lecture, the professor uploads this video in the corresponding course folder in his LMS account. The enrolled students in that course can access this

(a) Hardware.
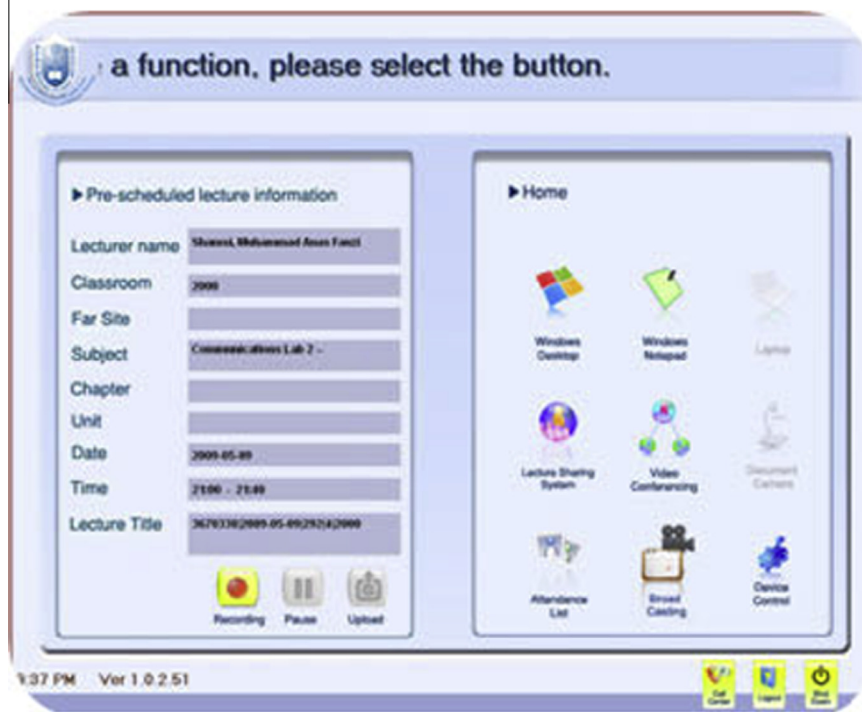
(b) Control System

Fig. 1. Existing E-podium in KSU's classrooms: (a) hardware and (b) control system.