Chapter 5
Evaluation of Mobile Learning Project at the UAE University:
College of Engineering Case Study

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ABSTRACT

The relentless expansion of information technology in educational institutions is widely acknowledged. There is substantial evidence that technology enhances student learning and educational outcomes. Many colleges and universities have adapted technology in their education system. The college of Engineering at the United Arab Emirates University launched its IT-based active learning (Laptop) project at the first semester of the academic year 2002-2003. After several years of implementation, the college is reviewing its course development technology strategy and is asking a very important question, "Did our investment in technology result in enhanced learning outcomes and promote the new, learner-centered pedagogy, or did it have little impact on learning?" The work presented in this chapter highlights the main outcomes and conclusions of a survey study, which was developed to answer the raised question. Many lessons have been learned about the benefits and difficulties in being a laptop college. These lessons are documented in this chapter.

INTRODUCTION

According to Felder (1992), of all instructional methods, lecturing is the most common, the easiest, and the least effective. Unless the instructor is a real splendor, most students cannot stay focused throughout a lecture: after about 10 minutes their attention begins to drift, first for brief moments and then for longer intervals; they find it increasingly hard to catch up on what they missed while their minds were wandering. Various studies indicated that immediately after a lecture students recalled 70% of the information presented in the first ten minutes and only 20% of that from the last ten minutes, Hill, Reeves & Heidemeier (2000); Felder (1992) and Barr & Tagg (1995).

Nonetheless the challenges faced by today's university graduates are very diverse and stimulating. Imagination and ingenuity are required to convert recent advances into useful and effective

applications. Such advancements and changes, ultimately, form a challenging task for educators, Brophy, Norris, Nichols & Jansen (2003). Technology is a recognized part of the overall tools for supporting and enhancing teaching and learning. Many colleges and universities have responded by making technology more ubiquitous.

Throughout the world, Information Technology (IT) is generating a new revolution more significant and out-reaching than those of the past. The relentless expansion of information technology into society in general and educational institutions specifically is widely acknowledged. The use of information help to harness the vast array of resources available and stimulate the development of lifelong learning skills. The "stand and deliver" theory of education needs to be modified or replaced. Learners are required to have interpersonal skills that allow them to have visions of the larger picture and to work together in collaboration with others to reach solutions presented to them in daily working and living. Thus, the instructor will no longer be the universal fountain of knowledge and the student will no longer be graded on his or her ability to remember facts and relate them back to the teacher. Educational institutions will be *learner-based rather than-instructor based.*

In order to overcome the traditional lecture drawbacks, students must be actively involved in the various learning activities within class time. Active involvement in learning, instead of simply lecturing to students, leads to improved attendance, deeper questioning, higher grades, and greater lasting interest in the subject. Various institutions have come to realize that it is better to couple the shift towards active learning by utilizing the full potential of mobile computing and e-learning technologies to facilitate the transition, McGhee & Kozma (2001), McKenzie (2001) and Moody & Schmidt (2004). Moreover, the UAE University strategic plan has emphasized the need to shift from traditional lecture to student-centered active learning methods.

DEVELOPING UBIQUITOUS COMPUTING INFRASTRUCTUTRE AT UAEU

Like many universities all over the globe, the UAE University approach to meeting student computer needs has been one of placing computers and state-of-the-art technology in specialized classrooms, laboratories, the library, and in dormitories. Some students owned computers, which in some cases were not compatible with those in the campus facilities. Despite the continuous upgrade and expansion in IT services and facilities, there were still problems associated with the utilization of the current advanced computing/IT infrastructure such as:

- Students are tied to a limited physical space;
- Time/space limitation and utilization of computing labs due to its occupancy by lectures almost all day long throughout the week, this common type of utilization has limited the use of computers and technology;
- There were usually few empty seats in all classrooms each hour of the day. Computers were in classrooms but they were unavailable for student use during class hours; and
- Faculty also competed for access to the limited computer laboratory time.

These problems have limited the use of computers and technology as an education enabling tool for enhancing teaching and learning. There has been a growing need for student use of computers outside the classroom. In order to overcome the problems of traditional computing labs at UAE University and to take full advantage of the power of mobile (ubiquitous) computing, UAE University has initiated a study of implementing and integrating mobile technologies into the curriculum.

The "laptop program" and "laptop project" are the names given at UAE University to the largest

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