Chapter 4.5
Towards Mobile Learning Applications Integration with Learning Management Systems

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ABSTRACT

ICT in education innovators are creating new kinds of learning applications using all sorts of new technologies available: Web 2.0, Mobile, Gaming platforms and even Virtual Worlds. Mobile learning applications (m-learning) take advantage of the ubiquitousness of the mobile devices to explore new kinds of ways of learning. Learning Management Systems (LMS) are a consolidated kind of Web based learning software that over the last 15 years have evolved to meet the needs of the learning institution to basic, common online educational platforms. The LMS creates a Web based space for every course (Virtual classroom) that can be used to complement the presence learning activities (Blended Learning) or to fully deliver the course contents (Online Learning). Nowadays most learning organizations have integrated a LMS with their information systems (back-office, academic management, etc.) to a point where all learning activities (virtual and non virtual) have a counterpart (syllabus, assessments, scheduling, etc.) in the LMS virtual classrooms. M-learning is not destined to replace the current Web based learning applications, but to extend it, that is why Mobile Applications will need to be able to integrate with the LMS. It also makes sense to be able to access some of the services of the LMS Virtual Classroom from the mobile device. But, to accomplish this goal might not be a simple task. This chapter analyzes the complexities involved to achieve that goal, and describes some standard interoperability architectures and related research and development projects that will allow this kind of interaction between the LMS and the m-learning applications.

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THE NEW GENERATION LEARNING APPLICATIONS

The present time is characterized by the unstoppable technological change. New technologies such as Web 2.0 or affordable and connected mobile devices have enabled the re-conceptualization of learning spaces. This technological explosion has many implications. Today the classroom is not the only space where learners can learn, mobile devices enable the possibility of learning anywhere and anytime.

For example, game-based learning has a huge potential in the learning process of children, adolescents and even grownups (for example Big Brain Academy), and has been an important field of research since late 1970s (de Aguilera & Mendiz, 2003). More recent studies (Prensky, 2001; Prensky, 2008) explore the potential of using game consoles and other portable devices such as Nintendo DS or PlayStation Portable for education purposes. Such technologies with which children spend so much time. Game players can learn to do things such as driving a car, but deeper inside, they learn thinks such as take information from many sources and make decisions quickly, deduce the games rules rather than being told, create strategies, overcome obstacles or learn to collaborate with others though the Network.

Other learning applications use portable technology such as digital cameras, mobile phones, MP4 players, or GPS devices to enhance the learning process. These applications are often called mobile learning (m-learning) applications. Although m-learning is in its infancy, there are many experiences using mobile technology (Brown-Martin, 2008).

Blogging, wikis, podcast, screen-cast, contents from youtube, Google Maps, pictures in Flickr, and social interaction in Facebook or Twitter, are common sources of information used by students while they learn or work in their assignments.

The consumers of these applications are the 'digital natives' (children who have lived all their lives with technology). Studies have tried to define the preferred learning approaches of this generation (Bradley, Haynes, & Boyle, 2005; Kennedy, Krause, Judd, Churchward, & Gray, 2006). Digital natives learning style can be characterized by: preference for receiving information quickly and the ability to process it quickly, a bias towards multitasking and non linear access to information, a heavy reliance on ICTS for information access and communication active involvement (Cao, Tin, McGreal, Ally, & Coffey, 2006).

THE NEED FOR INTEGRATION OF LEARNING APPLICATIONS WITH LMS

Current Web based Learning Management Systems are focused on meeting the needs of the institution in providing a basic, common educational platform. Most of universities worldwide have successfully integrated the use of a LMS where all the academic information services, online contents and learning application are centralized and managed. LMS are a consolidated online learning environment already adopted by learners, teachers and institutions.

Right now we can find lots of learning applications, like the ones described in the previous section, living outside the LMS ecosystems (Mobile applications in particular). Teachers willing to innovate are using applications and technologies not supported by their institution LMS, and by doing so they are taking their students outside the virtual campus. Thus the students need to go to several different sites (using different usernames and passwords) in a scrambled learning environment. This may cause confusion and frustration to students.

We need to allow the use of these new kinds of learning technologies inside the LMS. To keep a coherent learning environment for the learners without limiting the kind of applications to use. In addition to this, the good practices of the innova-