Chapter 48
Critical Factors in Defining the Mobile Learning Model:
An Innovative Process for Hybrid Learning at the Tecnologico de Monterrey, a Mexican University

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ABSTRACT

Many factors converge when attempting to define the most adequate mobile learning model to be applied in a face-to-face university environment. As far as innovation related processes go, the implementation of mobile learning, implies defining a road map on the basis of strategic planning. It is also important to apply an action research approach in the implementation process of the model. In analyzing in depth this innovative mobile learning process, there are key factors to consider. First, there are factors related to the technology necessary for the implementation of the model—both hard and soft requirements. Second, there are cultural issues related to the use of non-native internet professors of innovative technologies. Finally, there are challenges related to defining, exactly, those educational strategies to be handled through mobile devices. This chapter focuses on the critical factors involved in integrating mobile learning into a hybrid educational model at a Mexican university.

INTRODUCTION

Mobile learning has become one of the most challenging advances in educational technology. This innovation has been integrated within a face-to-face mode of higher education, to enhance a student-centered approach oriented toward a more personalized learning (Alexander, 2004; Belanger, 2005; Herrington, Herrington, Mantei, Olney & Ferry 2009; McConatha, Praul, & Lynch, 2008; Spectrum, 2009; Trinder, Magill, & Roy, 2005; Wagner, 2005). A challenge with the implementation of mobile learning projects arises due to the lack of experience related to a full integration

DOI: 10.4018/978-1-60960-042-6.ch048

within educational face to face environments; also due to the speed at which technology develops in contrast with human –professors- adaptation to change; and finally, and paradoxically, it is also due to the parallel development of computer technologies devoted to education which compete with professors' attention and administrative resources, and with mobile initiatives. Nowadays, we are facing what can be called an educational convergence related to digital convergence. E-learning is moving toward e-learning 2.0, thereby incrementing technological possibilities to deliver content (Downes, 2005). These advances enhanced by integration of mobile devices allow the creation of educational platforms which collaborate in richer environments favored by web 2.0 technologies (Spikol, Milrad, Maldonado & Pea, 2009). Web tools such as blogs, wikis, and podcasts are integrated to create social learning environments in which mobile devices are more and more used along with computers, leading to "educational convergence in hardware, software and educational activities (Conole, de Laat, Dillon;& Darby, 2008; Richardson, 2009). This new state of the art educational technology demands a correlating pedagogical evolution (Herrington, et. al 2009) and favors the broadness of hybrid learning strategies. The evolution towards a technology which supports a social learning process has as its counterpart the integration of "education on demand" in mobile learning solutions. These are products which are at the same time a possibility for and a result of technological developments. When implementing mobile learning as a component of hybrid learning strategies for Campus Undergraduate Educational classes, a systems approach is needed in such a way as to face technological, human, as well as educational and administrative factors -- looking forward to a real assimilation of mobile learning in teaching-learning strategies.

BACKGROUND

One of the challenges for higher education institutions in the new millennium is the necessity to manage an approach of continuous innovation in the design of educational environments, in order to foster learning. Learning borders also expand, from professional specialization to enhancing the acquisition of competencies demanded by the labor market in multicultural environments (Oblinger & Rush, 1997; Wagner, et al., 2006). We have now reached a point in which Instructional Design integrates educational objectives, oriented toward developing knowledge about concepts and skills to perform processes related to specific fields of specialization; as well as objectives oriented toward the acquisition of thinking and technological skills – what is often called "transversal."

Educational technologies evolve in parallel with information and communication technologies; and this evolution leads to digital convergence. On the other hand, the application of technology in education little by little has demonstrated its potential to be used as a delivery media, as well as a source of educational tools, in face-to-face environments. It implies that students are asked to manipulate technology in order to carry out active learning activities (Felder & Brent, 2003;Prince, 2004; Seppälä & Alamäki,2003), satisfying both specific knowledge acquisition as well as transversal skills development, engaging them in what Herrington & Kervin (2007) call Authentic Learning. Applying a comprehensive analysis to these trends, we can see that we are now facing what can be called a "face-to-face and distance learning strategies convergence," or the arising of the sixth generation of learning in which converge distance learning evolves with face-to-face student centered learning1.