Chapter 23
Challenges for Teacher Education in the Learning Society:
Case Studies of Promising Practice

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ABSTRACT

In this chapter the author presents the results of a project developed in pre-service and in-service teacher education programs at the Minho University, Braga, Portugal. The main goal of the research was to test the importance of providing technological-rich experiences in teacher education programs as a strategy to promote the integration of technologies in the classroom. As educators in a public university we assume that the failure of ICT integration in Portuguese schools is due to a lack of teacher training in technology-supported pedagogy. We present and discuss a set of principles that we consider essential to understand and sustain the importance of the learning experiences we develop in teacher education programs both for pre-service and in-service teacher education. Different Web 2.0 tools were explored in different contexts and with different pedagogical goals: to build e-portfolios, to enhance cooperation and collaboration among peers, to develop skills in searching, organizing and sharing web resources and to facilitate interaction and communication competencies. Results are presented and discussed in order to infer a set of guidelines for the design of teacher education and training programs regarding the use of ICT in teaching and learning.

INTRODUCTION

Thinking about the future of training in the knowledge-based society needs to be holistic as learning will become a lifelong activity that cuts across different learning generations and life spheres such as private, public and work. The focus should therefore be not only on traditional formal learning institutions such as schools and universities but it should also embrace other forms of adult education and many forms of informal learning. Learners need to be prepared not only to operate the technology but also for higher-order skills such as knowing and understanding what it means to live in a digitalized

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and networked society and specially what it means to work in online collaborative teams where information is shared and knowledge collaboratively constructed (Punie & Cabrera, 2006).

The first generation of the Internet had as main characteristic the amount of available information. However, the user's role in this scenario was only of viewer of what was happening in that particular web page, as he didn't have authorization to change or edit the content. This stage, that is also called Web 1.0, was very expensive to users, because most services were paid and controlled through licences; the systems were only available to those who could afford online transactions and buy software to create and maintain sites (Anderson, 2007). Along with the changes of paradigm in the internet, a huge and varied online service are now available for several aims and the use of these resources grows as the users produce information, sharing their knowledge through the Internet, in an easy, fast way (Fryer, 2005; Richardson, 2006). Hayman (2007, p.1) defines Web 2.0 tools as "a cluster of web-based technologies services with a social collaboration and sharing component, where the community as a whole contributes, takes control, votes and ranks contents and contributions".

According to Yuen & Yuen (2008), Web 2.0 applications hold a profound potential in education due to their open nature, ease of use and support for effective collaboration and communication; they change the traditional view of human knowledge and open up more opportunities in teaching and learning. Teachers can use Web 2.0 tools not only to attract students' attention but to enhance new and varied learning experiences (Ferreira, 2007; Moura, 2007). Today, over several hundreds of the Web 2.0 applications are available and have potentials in education. Some of these tools include: podcasts (i.e., audacity, iTunes), Blogs or Weblogs (i.e., Blogger), wikis (i.e., Mediawiki, PBWiki), social bookmarking tools (i.e., del.icio.us), social networking tools (i.e., EduSpace, Facebook, MySpace), social media sharing tools (i.e., Flickr, SlideShare, YouTube), virtual 3D community (i.e., Second Life), social library tools (i.e, LibraryThing), customized sites (i.e, Google Pages) and collaborative writing tools (i.e., Google Docs).

Teachers can use internet resources for many pedagogical purposes and learning goals (Alexander, 2006). However recent research shows that, for technologies to be integrated in the classroom, teachers´ need specific training and time to reflect on the importance of using ICT as cognitive tools (Jonassen, 2007), that enhance student´s learning and communication skills (King, 2002). In this article we assume that, without changing teacher education programs in Portugal, there is no chance for technologies to be integrated in the classrooms routines: teachers will continue to teach in traditional ways and students will (rarely) use computers other than for drill and practice exercises and word processing. The key question that motivated the development of the research project started by the authors´ team in 2006, was to verify whether the introduction of a new ICT program with the Web 2.0 tools in pre-service teacher education as well as continuing professional development programs: a) helped students/teachers to embody best practices to create enriched and collaborative learning environments, and b) motivated students/teachers to integrate and use technologies to create, in the classroom, learning opportunities to facilitate the students' use of technology to learn and communicate.

CONCEPTUAL FRAMEWORK

ICT and Teacher Education

The impact of ICT in our global societies held the development of different policies regarding the introduction of information and communication technologies in schools and educational systems. To live, learn, and work successfully in an increasingly complex, information-rich and knowledge-