Chapter XXI
The Intersection of Theory, Tools and Tasks in a Postgraduate Learning Environment

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ABSTRACT

This chapter describes the learning environment that the authors created for veteran teachers, graduate students in Teaching and Learning who are interested in developing professionally as designers and moderators of Information Communication Technology (ICT) learning environments. It is based on the assumption that learners construct knowledge and understanding when they are an integral part of the learning environment, when they are members of local and global communities where learning is conceived as acquiring the necessary skills for participation through participation. The program is structured as three concentric circles in terms of ICT use. In the first, the teachers learn about constructivism and socio-cultural theory while they collaboratively investigate their own school cultures with the support of ICT tools. In the second, they expand their acquaintance with ICT tools and learning environments and further develop their skills for learning and teaching in such environments. In the third, they design and moderate E-Learning environments, document them and reflect on the process. This chapter describes
the activities and tasks in each of these circles with illustrations of how the students respond to these tasks both as learners who interpret and evaluate information and theoretical concepts and as teachers of relevant virtual communities who reflect on their practice.

INTRODUCTION

In *Understanding Media, The Extensions of Man*, Marshall McLuhan (1964) argued that communication technologies influence the learning process and products of their users. Based on the principle that “the medium is the message” (McLuhan, 1964), one can further argue that a learning environment is an extension of a technology. Generally invisible, the learning environment consists of the cognitive and social adjustments that its participants, as well as their society, undergo when they adopt a new form of technology. It is a “message” about teaching and learning sent by the new technology. In other words, new communication technology activates a cognitive and social transformation as well as the implementation and dissemination of more progressive ideas about learning and teaching.

This has indeed been the story of constructivism. Constructivism has been known as an epistemology and a theoretical stance on knowledge, teaching and learning since Dewey, Piaget and Vygotsky in the first half of the twentieth century. However, this theoretical stance began to transform learning environments only with the spread of computer-mediated learning. Today the majority of computer-mediated learning environments are grounded in constructivist principles of learning. These learning environments skillfully utilize the strengths of various media attributes in order to develop powerful learning strategies such as problem solving, inquiry and critical reflection and to engage learners in meaningful and motivating learning tasks. Thus, the computer is both a cognitive tool and a medium for reflection.

In the last twenty years, as communication has changed, the social processes and structures of teaching and learning have changed as well. The widespread adoption of ICT in society at large caused the network society to continually redefine the meaning of knowledge, and learning environments changed in ways that expressed the designers’ assumptions about learning and teaching. This process affected school systems as well as higher education. In many traditional institutes of higher education, college administrators and teachers are realizing that computer-mediated education requires developing a new contemporary vision of learning. As a result, constructivist learning environments have been increasingly apparent in higher education in general and in teacher education and professional development in particular (Robinson & Latchem, 2003). Unmistakably, constructivism in its diverse forms is gaining considerable influence in the integration of information technology into educational contexts.

Theorizing ICT Use in Graduate Programs for Teacher Professional Development

Although ICT learning environments for teacher professional development are relatively new, there have already been three important phases in theorizing such environments (Anderson & Henderson, 2004; Pulkkinen, 2004) that, according to Koschman (1996), are guided by different models of learning. Each model replies differently to the question of the role of internet-technology in education. The first, concentrating more on the individual learner’s perspective, focuses mainly on the learner’s interaction with the learning environment. The purpose of learning is understanding and understanding is constructed in
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