Chapter 9

Digital Learning Environments and Student-Centered Curriculum in a University Context

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ABSTRACT

With promises of rich information resources readily available, successful use of the World Wide Web (WWW) within an instructional setting is tied directly to a pedagogical approach that promotes Student-Centered Learning (SCL). SCL is based on constructivist approaches and has become an important theme in the educational theory and practice. Although SCL is not a new idea, new technologies developed for the Web and other Digital Learning Environments (DLEs) allow new forms of educational support to be facilitated, enabling new pedagogical concepts and enhancing learning. This chapter reports on an effort of empowering learners in the design of web-based teaching and learning in undergraduate programs in a Turkish university context.

INTRODUCTION

The Web can be a powerful source for a paradigm shift from teaching to learning, from teacher orientation to learner focus. The use of the Web in tertiary education should promote a range of learning experiences which promote independent and interactive learning such as inquiry-based learning, collaborative learning as well as problem-based learning (PBL) (Ng et al., 2002, Sharma & Gülsecen, 2008). The popularity of web-based teaching and learning lies in the strengths of its distributed nature and the ease of its browsing facility. Broadly speaking, both the use of technology and increased interest in student-centered learning (SCL) may lead to a significant change of...
the teacher’s role, as well as the recognition of the active role of the learner in the learning process.

BACKGROUND

Digital Learning Environments (DLEs) are technical solutions for supporting learning and teaching. A DLE can be educational software, a digital learning tool, an online study program or a learning resource and may thus consist of a combination of different technical solutions.

Constructivist theorists contend that learning occurs when learners actively construct their own knowledge and think reflectively when information and concepts are presented to them (Saunders, 1992; Tynjälä, 1999). Learner-centered (or student-centered) teaching is based on constructivist views and has become an important theme in the educational theory and practice. The emphasis in the constructivist-based education is on the activities of the learner (Lunenberg & Korthagen, 2003). In a SCL environment, learners have opportunities to identify their own learning needs, locate learning resources, and construct their own knowledge based on those needs. Learning is more individualized and less standardized. Although student-centered education is not a new idea, new technologies developed for the Web and other DLEs allow new forms of educational support to be facilitated, enabling new pedagogical concepts and enhancing learning.

Three primary propositions underlie constructivism (Saunders, 1992):

- Knowledge is in our interactions with environment;
- Cognitive conflict is the stimulus for learning;
- Understanding is influenced through the social negotiation of meaning.

From these three propositions, a set of instructional principles that can guide the practice of teaching and the design of a learning environment have emerged. These principles are:

- anchoring all learning activities to a larger task or problem;
- supporting the learner in developing ownership for the overall problem or task;
- designing an authentic task and the learning environment to reflect the complexity of the environment;
- giving the learner ownership of the process used to develop a solution;
- designing the learning environment to support and challenge the learners’ thinking; and
- encouraging testing ideas against alternative views and alternative context providing opportunity for and support reflection on both what is learned and on the learning activity.

As stated in the literature since its first prominence in the late 1970s, PBL has lent its increasingly important voice to the ongoing debate on how to organize teaching and learning at the universities. It restructures traditional instructor/student interaction to emphasize active, self-directed learning by the student, rather than didactic, teacher-directed instruction (Maxwell, Bellisimo, & Mergendoller, 2001). According to Driessen and Vlueten (2000), PBL is characterized by problem-orientation, interdisciplinary work and self-directed learning and focuses on interpersonal and professional skills. Having taken its place among the curricular innovations hotly debated in the circles of the higher education over the last 30 years, learners exposed the PBL are gradually allowed to acquire more and more responsibility, and then become increasingly independent of the teacher which is traditionally viewed as the only
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