Chapter IX

From Engineer to Architecture?
Designing for a Social Constructivist Environment

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Abstract

This chapter examines the design requirements of a social constructivist virtual learning environment. It uses the example of teaching expertise to practitioners to demonstrate the practical application of the cognitive theories underpinning a community of practice, with the objective of providing an insight into some of the complex issues involved in creating such an environment. It is argued that the analogy of designer as architect is most appropriate, reflecting a move from task-centred courseware to learner-centred situated environments.
Introduction

The focus of this chapter is on the marriage of instructional approaches, based on the theory of the cognitive process involved in learning, with appropriate technology, to facilitate teaching and learning. Specifically, this is examined in the design of a social constructivist virtual learning environment (VLE).

From a teaching perspective, Lynch, back in 1945 (in Ertmer & Newby, 1993) called for employing an engineering analogy as an aid for translating theory into practice, providing a bridge between learning research and educational practice. More recently, Hung (2001) puts forward the idea of teachers as “pedagogical engineers” with the “responsibility to plan a lesson(s) with the most relevant instructional approaches and technologies at his or her disposal” (p. 286).

From the technologist’s perspective, Bednar, Cunningham, Duffy, and Perry (1995) contend that the field of instructional systems technology prides itself on being an eclectic field, “Dewey’s proverbial linking science between theories of the behavioural and cognitive sciences and instructional practice” (p. 100). The primary strategy for providing this link has been to collect concepts and strategies suggested by the theories and make them available to the practitioners.

More recently, Goodyear (2000) highlights the “emerging responsibility of educational technologists to move beyond the design of instructional tasks to the requirement to become architects and creators of virtual learning environments reflective of real world activities” (p. 1) and to move toward student-centred educational, technology-mediated learning. The designer as architect creates online learning spaces that afford and nurture learning but do not determine it.

This chapter will recap the drivers toward a social constructivist learning environment by examining the change in cognitive theories underpinning learning, and the changes in the higher education sector. Teaching expert professional practice to distance-learning students at university level will be used as an example of cognitive strategies that might be used, giving examples of how these have been employed in a managed learning environment in the author’s institution. The issues involved in creating and supporting such a system are then discussed.
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