Chapter 3.16
Online Role-Based Learning Designs for Teaching Complex Decision Making

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ABSTRACT

Decision-making processes in relation to complex natural resources require recognition and accommodation of diverse and competing perspectives in a decision context that is frequently ill defined and fraught with value judgements. Online environments can be used to develop students' skills and understanding of these issues. The focus of this chapter is the learning design of an online roleplay-simulation (Mekong e-Sim) which was created to develop learning experiences about these types of issues across multiple institutions with students from the disciplines of engineering and the humanities. The key stages of interaction within the e-Sim are described and linked to student tasks, resources, and supports. The evolution and adaptation of the learning design used in the Mekong e-Sim has been described. Eight key challenges in the design and implementation of online roleplay-simulations have been identified. In this chapter, we have tried to address a gap in the online role-based collaborative learning literature about the design of these activities, linkages between pedagogy and information and communication technology, and how to exploit these linkages for effective learning.

DOI: 10.4018/978-1-60960-195-9.ch316

INTRODUCTION

University courses seek to develop students' content and disciplinary related knowledge and skills. The professional workplace is characterised by

multidisciplinary teams working together to solve increasingly complex issues and problems. Well prepared graduates need more than just knowledge and skills; it is critical they have the capability to generalise from one situation to another, to adapt their behaviour to a range of contexts, and to understand multiple perspectives. To function successfully in the contemporary workplace, graduates also need to understand how to work cooperatively and collaboratively. A recent Australian review of science graduates found little evidence that graduates' training had contributed to an awareness of social implications of developments in their discipline, an understanding of other points of view, the ability to use information technology effectively, the ability to work with others, and a capacity to deal with complexity and ambiguity (McInnis, Hartley, & Anderson, 2001). The challenge facing university teachers is how to incorporate these new dimensions of curriculum into an already full programme. It is acknowledged that the development of students' skills and understanding in these generalisable and transferable skills is a necessary dimension of professional education. Despite this, there is a paucity of descriptions of strategies that teachers can use to develop students' skills in a sustainable way.

University teachers have been challenged to develop effective teaching approaches that will support students in learning the broad range of skills and knowledge now considered essential for the professions. One approach to teaching that appears to offer a solution to this dilemma is that of active learning. Active learning methods attempt 'to develop the cognitive [knowledge, understanding, and thinking] and affective [emotive] dimensions of the learning process in such a way that learners' active involvement in the learning is improved' (Learning and Teaching Support Network, 2003). They involve a more discursive and collaborative approach to problem solving and seek to illustrate and accommodate diversity that provides a means by which students can develop discipline-specific and generalisable skills and knowledge. Active, engaged learning can be achieved through the use of a wide range of strategies, including collaborative learning, problem-based learning, case methods, enquiry-based learning, and combinations of roleplay and simulation. These strategies can be represented through learning designs.

Learning designs provide a way of representing the components of a planned learning activity or experience and the ways in which those components interact. These representations can be applicable to different kinds of learning approaches and be used to enable repeatable, effective, and efficient instances of learning. In addition, learning designs support the reuse and repurposing of component elements and the framework and components of a learning instance (IMS, 2007). A learning design can be repopulated with different contents and resources to be applied in a new learning context (Richards, 2005), and/or a set of learning activities can be included in different courses (McAndrew & Weller, 2005).

In the following sections, we discuss the active learning principles that have underpinned our approach to creating a learning design for an online roleplay-simulation. We then focus on the learning design of the Mekong e-Sim and discuss how the design has been adapted for different teaching contexts. We then address the challenges facing designers of these activities, particularly in regard to designing these types of activities to use the affordances of information and communication media in a way which enhances student learning.

BACKGROUND

Contemporary learning theories are informed by the belief that learning is an active process of constructing knowledge that is supported by teaching or instruction (Duffy & Cunningham, 1996). The types of learning environments that support students in achieving these learning