Chapter III
Virtual Spaces for Teaching and Learning

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ABSTRACT

Interaction is fundamental to the learning process and game-like 3D online spaces present opportunities for enhancing learning through supporting a richer variety of interaction between learners and content, instructor and peers. Provision of a “low threshold application” for development of learning experiences in such spaces will extend the opportunities for more teachers to arrange learning experiences in virtual spaces. A heuristic that maps the possible variety of learning experiences in virtual spaces is one option for supporting teachers in the design of such experiences.

INTRODUCTION

Learning is the result of experience. At a broad level this is true of formal learning that occurs in schools or other educational contexts, of what we learn informally through life experience, and of learning that results from personal reflection. In each case the learner, however understood, is changed in some way through the experience of interaction in the educational setting, with aspects of the world, or with selected ideas. Thus it is fair to say that interaction is fundamental to the learning process (Ertmer & Newby, 1993).

Interaction within formal education is most commonly managed by a teacher who is responsible for orchestrating the variety of resources accessed by the learner. At its simplest this may involve no more than teacher and learner engaged in conversation, but more often it involves the teacher in sequencing a variety of resources and experiences. The work that teachers undertake in planning and implementing a learning environment is made complex by the number of factors that must be attended to and the variety of decisions that must be made, often almost instantaneously in the course of a learning activity. There is no
single correct way to assemble a sequence of learning activities, which should be designed to respond to characteristics of the learner, teacher, subject matter, and context including availability of time and other resources. Moreover, the teacher cannot easily judge the effects, especially in the longer term, of the experiences on the learner. For reasons such as these, teaching has been characterized as a *wicked problem*, one that is complex and ill-structured, in which the problem definition and context is constantly changing and a solution is not clearly right or wrong and may not necessarily be recognized by an observer (Mishra & Koehler, 2007). The work of teachers requires high levels of knowledge and skill that may not be recognized by a lay observer because, in common with experts in other fields, expert teachers make the difficult look easy.

It has long been recognized that teachers must deal with both content, what is to be learned by the learner, and pedagogy, the design of experiences to facilitate learning. The overlap between content and pedagogy is the critical region of teacher activity where knowledge is transformed in ways that support learning (Shulman, 1986). This transformation of knowledge is a complex area of decision making about how pedagogical techniques mesh with the nature of content and the needs and capabilities of the learner. More recently, Mishra and Koehler (2006) recognized that, as teachers work with technology, from traditional paper and chalkboard to current computer-based technologies, a further series of overlaps of domains adds to the complexity of the challenges faced by teachers. Although these ideas have been mostly developed in the context of school education, the principles should be equally applicable at other levels of education.

The interaction that constitutes the experience from which learning results varies in the nature of the stimuli offered to a potential learner. In traditional classroom learning, where teacher and learner are present together, the full range of human communication is available and may be supported by aids such as audio-visual presentations. In other circumstances, communication, and the consequent richness of the learning experience, may be limited as, for example, in traditional distance education by correspondence where the sole means of communication is the written word. Distance educators, aware of the importance of interaction for learning, have welcomed the introduction of technologies that enrich the possibilities for communication (Moore, 1993). However, even as online learning, with its possibilities for more frequent interaction at a distance, has rapidly expanded, concerns have been raised about the lack of authenticity and presence because, for many educators and learners, online spaces seem disembodied and less real than the experience of traditional face-to-face classes (Land & Bayne, 2006). Hence there is growing interest in the educational application of virtual worlds, in which participants are more realistically represented and can engage in a wider range of activity. Working in such virtual spaces will inevitably introduce new challenges and opportunities for teachers and learners.

As the contexts in which teachers work become more complex, as a consequence of factors including increasing cultural diversity and introduction of new technologies, it is important to understand what interactions are valuable for learning and how those interactions are affected by technologies. It is also important to support teachers in designing and implementing learning experiences that make the most of the available resources. One approach that has proved fruitful in supporting teacher use of new technologies has been to identify tools that present relatively low barriers to use. These “low threshold applications” (LTAs) are more likely to be taken up by teachers (Gilbert, 2004). In addition to identifying uses of common software applications that might provide LTAs for educators, it is reasonable to consider how new applications might be developed with lowering the threshold to educational use as a design criterion. If the educational potential of
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