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Chapter X

Rethinking Cognition, Representations, and Processes in 3D Online Social Learning Environments

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Abstract

Three-dimensional (3D) online social environments have emerged as viable alternatives to traditional methods of creating spaces for teachers and learners to teach to and to learn from one another. Robust environments with a bias toward peer-based, network-driven learning allow learners in formal environments to make meaning in ways more similar to those used in informal and in-person settings. These new created environments do so by accounting for presence, immediacy, movement, artifacts, and multi-modal communications in ways that help learners create their own paths of knowing using peer-supported methods. In this chapter, we will review the basics of the technologies and the theoretical underpinnings that support the development of such environments, provide a framework for creating, sustaining, and considering the effectiveness of such environments, and will conclude by de-

scribing two examples of 3D virtual worlds used to support course instruction at the university level.

Introduction

Three-dimensional (3D) online social learning environments have emerged as viable alternatives to traditional methods of creating spaces for teachers and learners to teach to and to learn from one another. While games are the most prominent example of the use of a 3D graphics interface (Wikipedia, 2006), our experience and research suggests that the use of this technology in non-game settings can positively impact learning and communications among students and with their instructors (Aldrich, 2004; Jones, 2004, 2006; Jones, Morales, & Knezek, 2005; Jones & Overall, 2004). Well-designed 3D online learning environments that combine social constructivist principles with immersive gaming theory support deep cognitive learning in powerful new ways. Robust environments with a bias toward peer-based, network-driven learning allow learners in formal environments to make meaning in ways more similar to those used in informal and in-person settings. These new created environments do so by accounting for presence, immediacy, movement, artifacts, and multi-modal communications in ways that help learners create their own paths of knowing using peer-supported methods. These environments move beyond current Web and text-based methods for instructional delivery to create new Internet-based delivery methods that can facilitate new interactions, higher levels of engagement, and deeper learning.

In this chapter, we will review the basics of the technologies and the theoretical underpinnings that support the development of such environments. Then, we will provide a framework for creating, sustaining, and considering the effectiveness of such environments on the abilities of participants to use their experiences in virtual worlds to make better sense of their experiences in the real one. We will conclude by describing two examples of 3D virtual worlds used to support course instruction at the university level.

3D Online Learning Environments

3D online learning environments take elements of massively multi-player online entertainment technology and overlay selected tools to create an interface that allows students and instructors to interact and to communicate within a designed environment for the purpose of accomplishing informal or formal learning. Online