Chapter 9
Communication and Education in a Virtual World: Avatar-Mediated Teaching and Learning in Second Life

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ABSTRACT
Education within Second Life frequently recapitulates the “sage on the stage” as students sit their avatars down in chairs in the virtual world and listen to or read an instructor’s lecture while watching a slideshow. This conceptual article explores alternative active learning techniques supporting independent and collaborative learning within virtual worlds. Within Second Life, educators can utilize a variety of scripted tools and objects as well as techniques of building and terra-forming to create vibrant virtual personal learning environments and learning experiences that are engaging and responsive to individual learners. Issues of embodiment in an avatar are discussed in terms of social presence, and student learning styles are considered as well as approaches to problem-based learning, games, role play, and immersive virtual world environments.

INTRODUCTION
Millions of distance students worldwide participate in online learning environments. In the United States alone, distance student enrollment increased from 1.6 million students in 1998 to over 3.9 million in 2007 (NCES, 1999; NCES, 2008; Sloan-C, 2008). Approximately 75% of distance courses in 2007 occurred within asynchronous Internet-based learning environments (NCES, 2008, p. 3).

Within asynchronous online learning environments, researchers observed high student attrition rates, with students citing frustration, isolation, and lack of social interaction (Weasenforth et al., 2002; Terry, 2001; Beard & Harper, 2000; Hara & Kling, 1999; Hiltz, 1997) However, students interacting with and more aware of the “social presence” of classmates and instructors reported experiencing greater satisfaction in online courses (Chou, 2001; Tu & Corry, 2001; Gunawardena, 1997). Perceived “social presence” increases
civility and trust, supporting willingness to share personal information and opinions with others. (Murphy & Cifuentes, 2001; Murphy & Collins, 1997).

Synchronous online teaching enables real time interaction between students and instructors in environments varying from text-based chat rooms to computer conferencing software and virtual worlds. While computer conferencing and virtual worlds both offer audio, video, text and image sharing, in virtual worlds teachers and learners are uniquely embodied as avatars synchronously co-present within immersive 3-dimensional surroundings, engendering a heightened sense of social presence (Warburton, 2009). The virtual world has physics – balls roll, or fall when dropped – and a social and economic milieu in which learners can build artifacts, join in marketplaces of goods or ideas, undertake simulated experiences (Dunleavy, Dede, & Mitchell, 2008), and interact with others beyond the classroom. Unlike conferencing environments, virtual worlds are persistent (Childress & Braswell, 2006), continuing to exist, evolve and change even while learners are offline. To leverage the unique qualities of virtual worlds, instructional designs can integrate these elements of immersion, simulation, and enhanced social presence in interpersonal interaction.

TEACHING IN VIRTUAL WORLDS

A long tradition of educational research exists within virtual worlds. In 2003, Delwiche (2006) taught ethnographic research to undergraduate students who formed “the Halfling Ethnographers Guild” within the virtual world of Everquest (http://www.everquest.com/). At Illinois State University, undergraduate education students undertook quests within World of Warcraft (http://www.worldofwarcraft.com/) (Mullen, Beilke, & Brooks, 2007). Within Quest Atlantis (http://atlantis.crlt.indiana.edu/), fourth graders completed quests to analyze environmental science problems. (Barab et al., 2007) In Active Worlds, Cornell University taught science to high school students, while the University of Colorado-Boulder taught a business accounting course (Damer, 2008; Corbit, 2002). In Second Life, courses ranged from English Composition at Ball State University to law at Harvard Law School, genetics at Texas Wesleyan University, sociology and criminology at Coventry University, computer science at Ohio University, and astrobiology at the University of Arizona (Grove & Steventon, 2008; Gollub, 2007; Ye, Liu, & Polack-Wahl, 2007; Boulous, Heatherington, & Wheeler, 2007).

Assessment of education in virtual worlds notes improvements in attentiveness (Mikropoulos, 2001), participation (Ketelhut, 2007), class attendance, and performance on exams (Blaisdell, 2006), although visually rich environments can distract students off-task (Omale et al., 2009). Assessment of satisfaction finds students responding positively to learning activities in Second Life (Jarmon et al., 2009; Good, Howland, & Thackeray, 2008; McVey, 2008) but with some criticisms over workload and ease of use (Wagner, 2008; Wang & Braman, 2009). DeLucia et al. (2009) found college students experienced a high level of social presence in Second Life.

Establishing relevance of virtual world activity to course learning is important for student satisfaction (Minocha & Tingle, 2008; Mayrath et al., 2007). There should be solid pedagogical reasons for visiting Second Life such as observing events, visiting relevant places, or participating in learning activities. Cost in both cognitive load and technical requirements should be considered to ensure sufficient time, training, and technical trouble-shooting for students to participate successfully in activities and assignments (Conrad, 2002; Guzdial, 2001). Since significant effort is required to use Second Life, basic skills orientation is a necessary first step.
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