Chapter 29
Creating Contexts for Collaborative Learning in a 3D Virtual World for Distance Education

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ABSTRACT

The purpose of this chapter is to explore the contexts that teachers can create to promote collaborative learning in 3D virtual learning environments. The authors report on the findings of a case study using the 3D virtual world Second Life in a preservice teacher distance education program. Two types of contexts are identified: social interaction (social context) and instructor's scaffolding (pedagogical context). The anonymity represented by avatars in the 3D environment allowed learners to engage in social interaction and practice collaboration skills. Scaffolding involved several stages: scaffold the students' learning of the new technology, plan the course structure, implement the procedures during the lesson, and facilitate transitions between activities. The study also identifies the potential for a third context (emotional context), as the participants—both the instructor and the students—report a need to express emotions in many situations, but the environment does not seamlessly support this mode of communication.

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INTRODUCTION

Second Life (SL) is a multiuser virtual environment (MUVE) configured as an online world in which individuals interact as avatars with people and objects in three-dimensional (3D) space. Avatars are visual representations of a user by an animated 3D figure controlled by the user through customization and movement. MUVEs offer educators new opportunities to design authentic learning experiences that would not be possible in a traditional classroom (Dieterle & Clarke, 2007). Educators have used SL for online instruction in colleges and universities in a variety of disciplines, from academic content to professional preparation (Wang & Burton, 2013). A specific building block in the SL environment used by developers and instructors for constructing buildings and disseminating content is the "box." This tool was also used by the students in the case we report from.

Previous research for using SL in different subject domains has found that collaborative activities in virtual learning environments can encourage empathic interaction between peers or team members working together (Miller & Wallis, 2011), and students often blur the distinction between themselves and their avatars when they immerse themselves in the 3D learning environment with the effect of making 3D virtual worlds as potential sites for embodied and extended cognition (Pasfield-Neofitou, Huang, & Grant, 2015). In a study of language teaching and learning in SL, examining the teacher's facilitating role, it was found that the teacher played important technical and social roles in the early phases of a learning activity to counterbalance the threshold of advanced technology and ensure the establishment of a collaborative learning environment (Wang, 2015).

However, to the best of our knowledge the previous research in 3D virtual worlds lacks best practices and examples of the specific teaching conditions that can promote collaborative learning. We address the discrepancy by exploring a case study in a preservice teacher distance education program at a southern university in United States where 34 students participated in the study, using SL as the learning environment. Faculty members have been teaching in SL for six and a half years, and it has been the educational platform for six online graduate courses at both master's and doctoral levels. It has also been incorporated into undergraduate, campus-based courses for role-play simulation. Since the use of SL was first piloted in 2011, over 1,000 students have used SL in their teacher preparation courses.

The use of a 3D virtual immersive environment, such as Second Life, offers students and faculty the illusion of being together in a classroom on campus, an experience quite different from that of engaging in asynchronous forums and information-sharing portals. Everyone interacts live in real time while viewing a visual representation (an avatar) of one another. The learning space is designed to look like a classroom, yet there are artifacts and tools in SL that cannot be found in any traditional classroom. Our working hypothesis, based on comments from previous course evaluations of the online teacher preparation program, is that it is possible to create a learning community in SL that is comparable to a campus-based classroom. However, it requires advance preparation of a skilled instructor and the use of the technology's unique features to create learning contexts appropriate for an online learning environment. For example, users in virtual worlds relate to one another based on presence, look, and feel, and they position themselves at a certain distance from each other while communicating, not unlike in the real world. When presenting new material during a lecture or when students ask for assistance, an instructor in a virtual world will glean information from students' movements, gestures, and verbal behavior. Moreover, developers and instructors need to be conscious of the decisions they make when either replicating or transcending conventions in face-to-face (f2f) communication for online environments.

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