Chapter 21
Cross-University Collaborative Learning:
Extending the Classroom via Virtual Worlds

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ABSTRACT

Over the last two decades, communication and collaboration tools to support student project work have evolved significantly, with an expanding array of options. Most recently, 3D virtual worlds (VW) have emerged. This chapter explores the use of collaborative tools in a cross-university course where student ("virtual") teams engaged in a multi-week project. The student project teams had access to a collaborative toolkit that included Web 1.0 (traditional) and Web 2.0 tools, as well as collaboration spaces in a VW. Findings suggest that more successful student teams were better able to match Web 2.0 and VW collaborative technologies to project activities, while other lower performing teams defaulted to more familiar Web 1.0 technologies. The VW played a key role in facilitating relationship building in the collaborative learning process. The findings are particularly relevant to instructors seeking to integrate and use VWs in the classroom for collaborative project work and distance learning settings.

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INTRODUCTION

The concept of collaborative learning has been widely researched and is generally accepted as beneficial for critical thinking, student satisfaction, learning enhancement and performance (David, 1993; Gokhale, 1995). Collaborative learning involves social (interpersonal) processes by which a small group of learners work together on a problem-solving task (Alavi, 1994; Dillenbourg, 1999). The concept itself is based on premises of effective learning, including active learning and the construction of knowledge (Wittrock, 1978); cooperation and teamwork (c.f., Glaser & Bassok, 1989); and, learning "by doing" (Massey, Ramesh, & Khatri, 2006).

Over the last two decades, whole new opportunities for collaborative learning have emerged as new communication and collaboration tools have become available, particularly in the context of distance education. As of 2009, according to the U.S. Department of Education[1], over 65% of two and four-year colleges in the U.S. offered college-level distance education courses. Yet, even with the array of communication and collaboration technologies, a specific challenge facing distance education is how to get distributed students to collaborate in teams in a way that is efficient and effective (Guth, 2006).

Email, document repositories, telephone/teleconferencing, and web/video-conferencing, among technologies characterized as more "traditional", are still widely used to support distance learning (Bates, 2005). Recently, we have been witnessing the integration of Web 2.0 tools such wikis, blogs and social networking applications into learning environments (Sigala, 2007). And today, while still in a nascent phase, three dimensional (3D) virtual worlds (VWs) are emerging as new learning platforms. A VW is a computer simulated 3D environment where users relate using visual representations of themselves known as avatars. Participants can meet and interact with others and with the content and objects of the VW (Bartle, 2004). Avatars can communicate using text, audio/video, and gestures (Benford, Greenhalgh, Rodden, & Pycock, 2001). Because several people can affect the same environment simultaneously, the world is considered shared or multi-user. As of late, there is growing interest in using VWs to support collaborative distance education (Ritzema & Harris, 2008).

Collectively, traditional media ("Web 1.0"), Web 2.0 tools, and VWs (e.g., *Second Life, Open Wonderland*) can offer a collaborative toolkit for distance learners. Ultimately, however, students and instructors select collaborative tools for a variety of reasons. For example, some students may have different access to, experience with or preference for particular tools. While both Web 2.0 and VWs offer the potential to enable and enhance the efforts of distributed student teams, evidence from the organizational research literature suggests that team members tend to default to tools they are most familiar and comfortable with (Montoya, Massey, Hung, & Crisp, 2009; Lassila & Hendler, 2007), regardless of whether or not the particular tool is a good "fit" to the project activities.

In this chapter, we explore the use of collaborative tools by cross-university ("virtual") student teams engaged in a multi-week course and innovation project. The student teams had access to a collaborative toolkit that included three types of tools: Web 1.0 (email, document repository, telephone/teleconferencing), Web 2.0 (wiki, text-chat), and collaboration spaces in *Second Life*, a VW developed by Linden Lab. We observed the teams as they worked and captured feedback upon completion of their projects in order to understand how various types of tools were deployed in support of their class projects. Upon completion of the course, we examined the relative importance of each tool type to project activities, and also how team-level choice of tools was related to project performance. We were particularly interested in understanding the role a VW