



# INNOVATION ABSTRACTS

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## THE VIRTUAL FRONTIER: ENGAGING STUDENTS IN A THREE-DIMENSIONAL ONLINE LEARNING ENVIRONMENT

Although three-dimensional (3D) virtual worlds have existed for years, their educational use is in its infancy. Second Life® (SL), an Internet-based online community developed by its users, enjoys current membership into the millions worldwide. SL is one of the most popular virtual environments in the world, and its resources and benefits are valuable opportunities for educators to take an innovative approach to student engagement.

At the very least, course content delivered through a 3D virtual environment can complement available classroom tools through a traditional online learning management system (LMS). Courses and degrees can be offered through the virtual world. With either approach, online students engage in an interactive learning environment, regardless of their geographical location, and are afforded real-time interaction with instructors, staff members, and other students. Faculty at Texas State Technical College (TSTC) utilize SL-based instruction, and their successes have led to more extensive content offerings, *specifically related to our Digital Media program.*

### Benefits of Virtual World Education

In a three-dimensional virtual world, users are represented in physical forms as avatars. Users interact with one another and with objects in the environment, as they would in a real-life classroom setting. Lectures in the traditional LMS format generally are composed of pre-recorded video, and interaction between students and instructors typically is limited to emails, discussion boards, and chat rooms. The bulk of online learning, in such a format, is designed to be asynchronous—a perceived advantage of online learning.

All of those tools are still available in the virtual environment. What is added, however, is a rich synchronous environment.

One faculty member, using SL for one year, says, “I am able to engage and communicate more clearly with

the students, and the results have been much better than in courses taught completely online. I also believe that the results are as good, if not better, than face-to-face classes.” This positive experience is echoed by another, who is completing her first semester of teaching in SL. “The virtual environment enables students to ask questions and receive answers in real time; they can engage in discussions, much as they would in a face-to-face setting, because students are present at the same time and ‘place’ in the virtual environment.”

While synchronous communication can occur in two-dimensional chat rooms, the 3D environment of SL provides students and instructors the sense of meeting face-to-face. The avatar provides a visual representation of the individual and some visual, non-verbal cues so important to communication.

Experiences shared by faculty and staff suggest that instructional interaction within SL is at least as effective as face-to-face environments. Also, there seems to be an advantage over two-dimensional (2D) communications—even those involving webcams. SL allows personal interaction to take place in the same environment as with other learning tools. Conventional LMS tools allow faculty and students to chat, but that is an isolated event, removed from other available tools. The SL environment allows all of those elements to be combined—providing a more “human” interaction, despite the representation of individuals in avatar form.

Another observation addressed other unique features: “Course content can be interactive with SL in ways that are difficult to accomplish with other LMS tools. The virtual environment enables learners to do things that would otherwise be expensive, dangerous, or impossible.” For example, using a cut-away model of a single-lens reflex camera, where the movement of mirrors and light path through the lens, can be demonstrated easily. These tools are interactive learning devices, as are the simple “kiosks” which display information and engage students asynchronously.

Learning in a virtual environment enables students to engage in simulated training, which can occur alongside, or in lieu of, traditional teaching tools. For example, students in SL may be taught processes



through verbal and written methods, watching video demonstrations, and viewing static images. However, in SL, there is an advantage and synergy resulting from the use of replicas of machinery in a “hands-on” learning process, allowing students—through their avatars—to perform the steps themselves.

Images can be—and often are—uploaded into SL for display and demonstration purposes. Instructors upload presentation slides and samples, and present a lecture, much as they would in a face-to-face classroom. Digital media students upload their work, presenting their ideas and having real-time critiques offered by fellow students.

A number of artists have established galleries in SL. While the learner is still viewing images, the ability to travel to galleries and view artistic displays—moving through an environment as opposed to clicking on a web site—enriches the experience. Students can interact with other users from around the world, presenting them with unique cultural experiences, regardless of their geographic location.

TSTC will collect data to determine if this virtual venue contributes to improved persistence rates, if additional practices are required to retain students in the program, and if application of any successes achieved in virtual learning can be utilized in enhancing retention in more traditional learning venues.

#### **Success Components in Virtual World Education**

Take preparatory steps. Navigating a virtual world is different from surfing the Internet. Students and faculty must be offered orientation opportunities.

TSTC developed student orientation sessions in SL—e.g., extensive tutorials, including video presentation boards located on campus. One surprising outcome is how well nontraditional students adapt in comparison to some of the “digital natives.” The nature of the environment, which engages students as they navigate the 3D landscape, renders the environment less intimidating.

Ensure that students have the technology to operate effectively in a virtual environment. A virtual world is graphically intense—i.e., computers must have video cards sufficient for processing the data. Students must have high-speed Internet connections (due to the amount of data required for the graphics).

The college has worked to ensure that students are made aware of the hardware requirements during the registration process. Student orientation sessions, conducted before classes begin, provide verification that each student’s computer hardware and Internet connections are sufficient to the task.

Faculty preparation involves more than creating the virtual classroom setting. Interactive teaching tools must be utilized. This is, perhaps, the greatest challenge that many educators have faced in SL.

TSTC has developed a team approach to meet this need. A group of experts are ready to assist instructors in designing and building their courses, and implement whatever ideas instructors may have. The Second Life Team at TSTC includes graphic artists and instructional curriculum experts, in addition to programmers involved in the project.

A final challenge is that SL does not have a fully functional LMS. SL is not designed as an educational tool, but as an online community. This means that instructors utilizing SL must rely on a traditional LMS for their grade book, assessments, and assignment-submission tools.

This is not a problem for instructors seeking to utilize SL as a complement to the material currently presented through the LMS. For those teaching courses designed to be “fully virtual,” this does add overhead to the course, as learners (and faculty) must become familiar with both SL and the LMS. Efforts are underway to provide LMS functionality in the virtual environment, which will help overcome this challenge.

#### **Closing Thoughts**

Utilizing a virtual-world platform for classroom instruction enriches the learning experience for online students. The effectiveness, based on experiences reported by TSTC faculty, rivals that of face-to-face learning. Because of our success, TSTC is expanding course offerings in SL, with the goal of offering a complete associate’s degree through the medium. Because SL is a graphically rich environment, offering the Digital Media degree is a natural fit. Other degree offerings may follow soon.

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*\* TSTC is presenting a special session at the 2009 NISOD International Conference on Teaching and Leadership Excellence. The session, “TSTC Gets a Second Life,” will take place on Tuesday, May 26, 11:15 a.m.-12:15 p.m.*