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by Catheryn Cheal

The last two years have seen a surge of interest in teaching in virtual worlds. A virtual world seems the ideal bridge between the innate interactivity of online courses and the intense absorption offered by immersive role-playing video games. Virtual worlds, as digital learning objects appear to provide a space for constructivist learning at its best, facilitating more student engagement than the simple discussion boards comprising most online courses. Students in a virtual world can actively create their own projects as three-dimensional environments without the restrictions of gravity, scale, economics, identity, or distance. Virtual worlds as educational spaces—with their three-dimensional landscapes and customizable avatars—seem so similar to video games that educators may assume, as we did when we considered designing a course in Second Life, that students will become as motivated by virtual worlds as they are by video games. However, these same similarities may also lead students to perceive virtual worlds as play spaces rather than as innovative educational environments. If students feel that learning opportunities offered in such spaces are not valid, they are likely to feel that they are not learning. I encountered this dilemma firsthand when I worked with a colleague to design and teach a course in Second Life (SL).

The Course

In Winter 2008, I designed and taught a course on technology, theory, and current issues surrounding virtual worlds with Vagner Whitehead, an assistant professor in the art department at Oakland University. In Second Life—Research and Creative Activities in a Virtual Environment, offered through the university's Honors College, students studied topics concerning virtual worlds (Exhibit 1). The learning objectives of the course required students to produce an academic paper exploring a chosen topic and to demonstrate building and scripting skills by constructing an environment in SL that illustrated the substance of their analysis.

Student reactions to and perceptions about learning in this environment were evaluated throughout the course to provide evidence about how students perceived SL as a learning environment.

Literature Review

A study of the literature concerning student perceptions about virtual world learning reveals little of a quantitative nature (Exhibit 2). This largely results from the small number of higher education faculty actually teaching in SL and the short time that SL courses and educational islands have been available. Those studies that address student perceptions suggest that students rate SL as enjoyable but are often discouraged by the significant technical burdens of the program (Exhibit 3).

Although there are differences between gaming and virtual worlds, a preliminary review of motivation in these environments led us to believe that a course in SL would benefit from some of the same motivational forces that engage students in games (Exhibit 4). We believed that students would be engaged by motivating factors identified in games, such as challenge, curiosity, control, and identity presentation.

Methodology

To test our assumptions regarding student motivation and perception of learning in SL, we developed a seven-question survey instrument in SurveyMonkey and linked it to the course's Web page. Two questions addressed technical issues and software learning problems. Two open-ended questions invited students to describe what they liked and disliked about working in SL. These were followed by two questions that allowed students to choose from listed options about SL's learning possibilities. Finally, students were asked if they would take another class in SL.

All students responded to the survey during the last week of the semester. The respondents included five males and ten females, all self-defined as nongamers. They were all undergraduate honors students at Oakland University in their late teens or early 20s; none had been in a virtual world before. Oakland University is a doctoral/research public institution situated north of Detroit; 98% of our approximately 18,000 students are local to Michigan and compare similarly to their national peers in use of technology as measured in the Educause Center for Applied Research (ECAR) study of undergraduate students and information technology (Salaway and Caruso 2008).

Survey Results

The survey results clearly indicated that there were problems with the use of SL (Exhibit 5). Hardware issues and learning curve challenges are well-known problems in teaching in SL. Responses to our first question, regarding technical problems, confirmed this: 60% of the class could not access SL from home or found it slow or inoperable on their home computers, thus limiting the time spent on assignments. The campus computer lab also presented problems because lab staff could not maintain frequently required SL upgrades. Further, SL did not work in the dorms because ports required by the program had been closed on the campus wireless network.

The second question, which asked about the first experience in SL, evoked more positive feedback; 60% of students took an hour or less to create their avatars and go through Orientation Island, SL's introductory tutorial. The remaining 40% spent two to three hours on this task. It appears that the initial learning curve for navigation, appearance manipulation, and communication was not particularly steep for students even though only one student reported having gaming skills.

Responses to an open-ended question asking what students liked best about SL were mixed. Twenty percent (three students) did not like anything about it while the remainder enjoyed exploring the island, altering avatar appearance, communicating with people in other countries, and building communities. Responses to a related question about what aspects of SL were most promising for teaching and learning were evenly split between creative building and worldwide communication.

In response to an open-ended question on what students liked least about SL, 46% criticized the program's slowness and 26% found the building interface difficult to learn and use. Other students had problems with scripting, the in-world search engine, and the voice function, and/or encountered "weird people" and "adult content." One respondent made a mysterious reference to "spam," perhaps in reference to the pop-up notices greeting new group members. Another student dismissed SL as "a waste of time." Asked to choose from a list of reasons why there might be poor potential for learning in SL, 33% identified text chat, complaining that communication was too slow. (We did not use voice chat since it was a somewhat new functionality and not all students had microphones.) Another 33% identified the steep learning curve for building and scripting as SL's greatest problem, and 26.7% thought the hardware requirements made SL access difficult.

The most negative feedback came in response to the last question about whether students would take another class in SL. Fourteen out of 15 students said no. While it is possible that students simply felt that they had learned all they needed to know about SL and virtual worlds, we had specifically discussed virtual world teaching as an educational methodology applicable to courses in multiple disciplines. In this context, it

appeared that their negative judgment was specifically related to SL, the course, or the idea of a course taught in a virtual world.

Discussion

Positive comments about SL corresponded with the instructors' goal to use a virtual world as a venue for a constructivist learning methodology. The active components of learning—exploring, communicating, and building—allowed students to gain skills and acquire conceptual understanding about virtual worlds. The course's successes were demonstrated in final projects that included a variety of interesting environmental designs (Exhibit 6). Negative feedback about hardware and bandwidth requirements as well as concerns about the learning curve was stronger than expected but reasonable given the relative unfamiliarity of the software interface for the students. Students' learning styles (Gardner 1983) may have influenced individual attitudes; some students learn best by reading and hearing rather than doing. The high rate of resistance to taking another course in SL, however, called for a serious investigation of our teaching and learning methodology. Our analysis of student reactions over the course of the semester coupled with the survey data revealed three factors contributing to students' negative attitudes toward learning in SL: issues involving technology, concerns regarding the course's design and its designation by the Honors College as a math course, and cultural concepts about game play.

The technical issues have been broadly reported. SL software demands extensive memory, processing, and graphics capability. Its building and scripting interface is not intuitive—related commands are scattered over different menu items and unrelated commands appear in close proximity to each other—and the learning curve for building and scripting is steep. Yet because each student finished the course with a successful final project despite these barriers, an outcome that indicates that they overcame technical difficulties, we needed to seek other explanations for students' negative attitudes toward doing future coursework in SL.

A second factor was course design. This was an experimental course in both content and in teaching strategies as well as in its virtual environment. Team teaching was a first-time experience for both instructors, a complication compounded by the fact that we had very different teaching styles. While the class sessions that kept each student actively learning by building or exploring were effective, the partially online format of the course proved awkward for a number of reasons. Most lectures were given in the classroom, so those given in SL, hampered by the slowness of text chat versus face-to-face conversation, suffered by comparison. Many students had to be on campus anyway during scheduled online class activities, leading to situations in which students were text chatting while sitting next to one another in a computer lab. In this context, in-world student presentations and critiques appeared pointlessly slow. Finally, these students, who had registered for a course fulfilling a math and reasoning requirement within the Honors College, had difficulty understanding the validity and creative procedure for illustrating their papers in a three-dimensional environment. These problems did not appear to justify fully the final negativity about SL; oral evidence throughout the course indicated that most students enjoyed what they learned during class sessions and were engaged with their projects.

A third factor in students' negative assessment of SL involves their conceptualization of virtual worlds as learning environments. Most of our students (75%) reported that they enrolled to avoid a more traditional math class and because SL sounded like fun; their expectations that the course would be easy and fun were not met when the final project proved to be more difficult than expected. These reactions might stem from the same dynamic identified by Stanford-Bowers (2008), who concludes that higher student attrition in online courses than in face-to-face courses is due to student perceptions that online courses are convenient and flexible. If course requirements deviate from this perception, as they well might given that instructors typically prioritize academic experience over convenience, then students will drop out. Although our students did not drop out, they did conclude that a course in SL was not what they had expected and decided that they would not take another course taught in SL.

When the gap between our view of SL as a learning environment and student expectations for a "fun" course became apparent in the second month of class, evidenced by students' comments and impatience with assignments, we addressed the situation with students. We wanted to clarify the differences between using a virtual world for play and using it as a learning environment. To explore the differences between these approaches, we scheduled an additional class lecture and discussion. In this discussion, we pointed out that although SL shares some attributes with multiuser games—including colorful, three-dimensional graphics; fluid, customizable avatars; freedom of movement by means of similar keyboard commands; digital objects owned by an avatar; and similar text chat, instant message, and voice chat functions—it does not adhere to traditional definitions of a game. Furthermore, gaming objectives emphasize entertainment while learning objectives are designed for personal development. We emphasized that if the students believed that the course was about play, implicit in gaming environments, then that belief would overshadow learning objectives. Still, our students continued to refer to SL as a game throughout the semester, and their oral comments in class seemed to indicate that they continued to view it primarily as a space for play.

There is some theoretical basis for viewing SL as a game if the definition of games is broadened, as Salen and Zimmerman (2004, 537-553) do, to include games as open-system cultures without pre-set conflict, rules, or outcomes. In this context, a virtual world is a type of game, like *Sim City*, with open boundaries between the game structure and the real world and with opportunities for users to define their own goals and build their own content. Student comments like "waste of time" reflect the link between games and play and invoke a particular rhetoric of play. Sutton-Smith (1997, 201-213) writes about seven rhetorics of play, one of which is "play as frivolity" in opposition to a work-ethic viewpoint. Our Midwestern honors students had very tight schedules filled with school and jobs, and, as nongamers, expressed a tendency to define video games in general as a waste of time. An alternate view of play is "play as progress," which Sutton-Smith (1997, 18-34) defines as a way of turning children into adults. This view concedes that play is valuable and educational if the content is ethically and morally appropriate. Virtual worlds, like video games, are problematic in this context because of the presence of, as our students put it, adult content and weird people. Certainly the conflict between the power of games to teach and the tendency of games to include inappropriate elements accounts for much of the media attention about using video games and virtual worlds in teaching.

It appears that many of our students wanted a playful course, but by the end of the semester, they questioned the value of a learning environment they perceived as a space for play. While the students did accomplish the learning objectives in their final projects—as Honors students, they were accustomed to fulfilling course requirements—they did not necessarily believe in the validity of those learning objectives that centered on construction in SL. Student opinions about SL, expressed in private conferences with instructors, became more negative about mid-semester, when the task of turning written essays into virtual environments became the primary activity of the course. This shift suggests that our students needed much more background information about SL's value as a learning environment as well as explanations on how and why one might render a text essay as a visual environment, which is the dominant mode of information presentation in SL. When the students became uncomfortable with the open-ended creative potential of SL and frustrated by the research and building work required by the course project, they may have justified that discomfort by characterizing SL as a rather poor and difficult game.

Findings

Negative course perceptions were caused by technical problems with the SL software, course design, and student concerns about the validity of learning in a game-like environment. Technical problems are relatively simple to address; in future courses, we will ask that students have audio, sufficient graphics processing capability and memory, and appropriately adjusted settings on their personal computers. For those without off-campus access to appropriate hardware, we will provide more hours on suitably equipped on-campus computers.

Other factors must be addressed in course classification, design, and execution. The next iteration of the course will be classified and publicized as a writing-intensive, interdisciplinary course about rhetoric and communication, offered as a general education course through the Writing and Rhetoric department. This change in classification will reflect course content more accurately than the former classification as a math and reasoning course in the Honors College. Each week of the course will include both a theoretical component and a skill-building section rather than separating theory and practice into different weeks. More time in lectures, discussions, and readings will be devoted to content regarding issues in virtual worlds. The addition of more conceptual material should help to validate the seriousness of the content and give the students a more solid basis for thinking about their projects.

Conclusion

Although the class enrollment was too small to yield a large quantitative study about student perceptions of learning in virtual worlds, this exploratory study is an important first step in gauging student reactions to new content in an innovative technological environment. The study described in this paper has identified a potential problem in using virtual worlds as learning environments: similarities to video games in avatar construction, group interaction, avatar movement and the appearance and physics of digital worlds may predispose students to approach a course about virtual worlds and taught in a virtual world as play rather than learning. As instructors of a course in Second Life, we had wanted to invoke the motivating factors associated with games but not the related concepts and attitudes about play.

This small study indicates that further studies of larger student populations are needed as more instructors offer college courses in virtual worlds. Additional research including explicit questions about attitudes toward play versus learning will confirm whether and clarify how student attitudes about games and play affect learning. Surveys measuring student's prior experience with games and virtual worlds could compare pre- and post-course perceptions. Exploring gender, age, ethnicity, geographical origin, and class differences with regard to learning in virtual worlds could also yield productive results. An additional topic for research is whether students view the engagement found in game-like activities to be worth the extra time required to learn and interact with virtual world software. This study has shown that while there is potential for interactive and engaging education in virtual worlds, those possibilities may be negated if students feel lost with a difficult interface and hardware problems or if students characterize the virtual world as a venue for play incompatible with learning. Instructors seeking to teach in these new venues must provide motivation and guidance in their use and value.

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