

A Second Look at Second Life: Virtual Worlds and Education

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In recent years Second Life has received a great deal of attention from a range of educators including college professors, middle and high school teachers, and corporate trainers (Brown and Green, 2009). Universities, k-12 institutions and corporations are experimenting with teaching and learning in Second Life (Bugeja, 2007; On The Horizon, 2007; Brown and Green, 2009). At issue is how virtual worlds will be used for educational purposes. Although reports of the potential uses of the online virtual world Second Life are numerous, questions remain regarding the true instructional efficacy this technology. Furthermore, articles and reports questioning the usefulness of the technology in its present state (e.g. Taylor and Chyung, 2008) have begun to appear.

The purpose of this study is to identify the benefits and challenges of using an online virtual reality environment to promote an improved and more satisfactory learning experience for distant learners by increasing their sense of community among faculty and classmates. Objectives of this study include determining what aspects of traditional peer-community development and content learning may be perpetuated within an online virtual environment, and determining how approaches may be transformed by this new technology.

Online Virtual Worlds: the Multi-User Virtual Environment

Online virtual worlds, often referred to as MUVES (Multi-User Virtual Environments), were named “a technology to watch” by the Horizon Report (2007). The Gartner Group asserts 80 percent of all Internet users will make use of some type of virtual world by 2011 (Gartner Group, 2008).

A MUVE can be defined as a computer-based environment in which multiple users can interact with the setting, specific objects and each other in real time. Interaction within the virtual world may occur through a variety of protocols including text-based chat, voice transmission, audio cues and visual cues. Audio and visual cues may be in a mode of constant presentation (e.g. a waterfall that is always in motion and always presenting the sound of falling water). They may also be triggered by actions taken by the user (e.g. clicking on the button of a dispensing machine to receive a virtual soda pop).

Similar to the Web, online virtual worlds are housed on remote servers that are constantly accessible to subscribers. One typically requires dedicated software to access these servers and interact with the virtual environment. Second Life is a type of MUVE in which all activities occur in a seemingly three-dimensional space. The Second Life environment is generated using physics rendering software that affords the presentation of three dimensions in which physical properties such as gravity, elasticity, and density can be manipulated (Linden Research, 2008). Unlike the Web, Second Life requires a higher-end computing system: one use cable or DSL to connect (dial-up will not work); one's monitor resolution must be at least 1024 x 768; one's video card must be relatively new and better than "basic" (Linden Research, 2009).

Second Life is also referred to as an MMPORPG (Massively MultiPlayer Online Role Playing Game) because of its large number of participants (Second Life has an international population numbering in the millions) and the fact that one develops a new persona (an avatar) to participate. Second life is considered a game to the

extent that it conforms to parameters established in similar MMPORPG settings: one operates an avatar to participate, and one follows a set of guidelines for interacting in-world. However, there is no set goal to Second Life; there are no specific quests in which to participate and no competitive activities designated by Second Life's guideline. The guidelines are more like a code of conduct, similar to codes one might find articulated by a business or academic setting, or a club. Other MMORPGs such as World of Warcraft are more easily recognizable as games in that participants compete and cooperate to gain status and in-world material wealth. While it is possible to gain both status and material wealth in Second Life (the Linden Dollar, Second Life's currency can be converted to real-world legal tender), there is no specific directive for participants to make or spend money; and, while some participants do become celebrities in their own right, there is no participation goal that states this is a desirable outcome.

Because Second Life allows one to build anything one can think of, and interact with people who may be logging in from anywhere an Internet connection can be established, it demonstrates potential for teaching and learning. An educator might create a traditional classroom in which to conduct traditional teaching with learners who are geographically far-flung. One might build replicas of very small or microscopic phenomena to a scale large enough that Second Life avatars can wander within the model. One might construct virtual architecture to see how the design works with virtual light sources. One might construct replicas of ancient cities to allow students to see in three dimensions what these cities were once like. The

educational possibilities are numerous and varied. The question is, what are the realities of using Second Life as a teaching tool?

I teach graduate-level courses online. Course are delivered primarily via the Blackboard Learning Management System; communication between the instructor and students is usually through the announcements and discussion forum features in Blackboard, email and/or telephone. In this situation I identify Second Life's potential usefulness as something that may add an increased sense of social presence; a feeling of greater connectedness between instructor and student and among students as a group.

Theoretical Foundations and Perspective

Three distinct yet interrelated theoretical frameworks are used as lenses for this study: *presence*, *positioning*, and *community* as defined in educational research and general scientific literature (e.g. Ananthaswamy, 2007; Dennen, 2007; Miller, 2007).

- Presence: the participant's feeling of personal social engagement.
- Positioning: the role an instructor takes while facilitating instruction (pedagogical, managerial...etc.).
- Community: the general sense of social connectedness felt by the participants.

A secondary perspective taken in conducting this study is that all cognitive activity contains some emotional aspect. Neuropsychological studies (e.g. Damasio, 2006) indicate brain activity is governed to some extent by emotional response. Assuming a connection between cognition and emotion, one hypothesis for the use of virtual reality may be that it adds an emotional component to online interaction

that is helpful in strengthening the memory of the experience. Novelty may account for some of the increased memory, but there may be more to it than that: the virtual experience may approximate typical face-to-face interaction closely enough to engender a visceral reaction that helps distant learners feel a greater sense of social presence.

Method

Since the primary goal of the study is to develop theory from the data gathered (emergent design), it proved most useful to employ a naturalistic inquiry approach (Lincoln & Guba, 1985). The research method employed was participant observation. In this account I document my three-year experience learning to use Second Life and applying it to my teaching.

Documentation includes a personal journal; transcripts of conversations held within the Second Life environment; interviews with students regarding their experiences; and member-check interviews with faculty members currently experimenting with online virtual reality.

Participant Observation: My Second Life

I spent three years as a participant observer in Second Life.

In the fall of 2006 I received a message from a colleague advising me to “check out” Second Life. This colleague is considerably more experienced with virtual reality for educational purposes than I and I felt the need to explore this new virtual world. I was familiar with the concept of Second Life from reading cyber-punk fiction including Neal Stephenson’s, *Snow Crash* (1992; the novel which provided the inspiration for Second Life), and William Gibson’s, *Neuromancer*

(1984; Gibson coined the term “cyberspace”). I had also read works such as Howard Rheingold’s, *Virtual Reality* (1991), and had researched and written on the subject of simulations for educational purposes a little myself (e.g. Brown, 1999). In terms of understanding the concepts and technical conditions, I was reasonably well prepared to participate effectively in an online virtual world.

My first foray into Second Life involved downloading and configuring the Second Life viewer software; establishing a user account and developing my avatar. Based on conversations with numerous colleagues and students who have tried Second Life, my experience of taking hours to configure my avatar into something I felt represented me appropriately was not uncommon. Ultimately, I noticed two sets of continua regarding avatar development:

- The continuum of uniqueness: people seem to be willing to spend hours creating a unique avatar, or they spend no time at all, making use of a default avatar provided upon registration.
- The continuum of accuracy: some people will spend tremendous amounts of time getting their avatar to look exactly like their real-life selves, or they will spend time getting their avatar to look appropriate to a fantasy version of themselves (this may be a human or non-human form).

After developing one’s avatar (an activity that may be continually revisited, making adjustments as one learns more about operating Second Life), the next activity involves learning to navigate within the virtual world.

Navigation within Second Life entails using one’s avatar to perform actions such as walking, turning, flying, sitting, holding and pushing, and using the Second Life

viewer environment to read maps, conduct searches and activate teleportation to different parts of the virtual world. One typically learns navigation strategies by visiting Second Life's Orientation Island (the default destination for all new users), or by participating in orientation activities supported by user groups (e.g. the New Media Consortium's orientation area).

There is a distinct awkwardness involved in learning to control one's avatar. It took me a bit of practice to walk and communicate with gestures. It took me even more time to control flying...and landing. Navigation of the environment in general using maps, searches and teleportation proved less difficult to master. I suspect this is because these activities are directly associated with other Internet-based activities such as using search engines and indexes and using applications like Google Maps. After I explored Second Life enough to feel confident in my ability to navigate, I began to consider how I might use the environment for educational purposes.

Because I teach online, I do not often have the opportunity to meet my students on campus. No one visits me during my office hours and private communication is limited to telephone and email. Phone and email work well for direct communication between myself and individual students, but what is missing is the ability for students to meet each other serendipitously. When I taught face-to-face, students would stop by my office; there were opportunities to introduce one student to another (or they might meet on their own outside my office). With the ability for people to gather at locations within Second Life, I thought I might be able to recreate the office-hours environment for my distant students.

In my first few months of activity within Second Life I bought a piece of land and built my own office space (I became a paying member of Second Life so that I could own land, and I added \$25 US to my account to give myself modest purchasing power). Originally I thought I would build everything myself, but I ultimately decided to purchase ready-made architecture and furniture. I do not find building in Second Life to be particularly complicated (it is similar to constructing artifacts in 3-D rendering software such as Maya, with which I have some familiarity), but it is time consuming and I wanted to focus on interactions with people instead of the challenges of in-world construction. It took quite a while to find a piece of land in a “neighborhood” that I could afford and was nice enough to feel comfortable inviting students into (many affordable land areas were populated by casinos or were surrounded by huge, floating advertisements). It took a similar amount of time to shop for an appropriate building and furniture. Ultimately I needed more than a full semester’s time to acclimate to Second Life enough to feel comfortable interacting with students in a way that went beyond just “toying” with the technology.

In the fall semester of 2007 I included in my course syllabi a note that I would be holding office hours in Second Life for one hour every week (Mondays from 6:00 PM to 7:00 PM Eastern Time). I included a link to Second Life’s website and offered basic directions for establishing a user account. I have been holding office hours once a week in Second ever since. I learned how to create interactive pieces for my office: one picture on the wall when clicked on takes students to my program’s website; when one clicks on the picture of my Ph.D. diploma one receives a copy of

my vita. I created t-shirts with our program name (IT @ ECU) on them which visitors could take with them and avatars could wear.

In the fall of 2007 the East Carolina University, at which I am a faculty member, took a strong interest in Second Life. The office of Academic Outreach Technology Services began experimenting with Second Life and invited faculty members to meetings to discuss its instructional potential. I was a regular at those meetings. Soon after, Academic Outreach began building a virtual university campus, renting space from the New Media Consortium. I migrated my office to the university's space and now hold my office hours in my virtual campus office (I wound up selling my original office land space, making a profit that allowed me, among other things, to purchase some nifty office furniture). In the summer of 2008, the university sponsored a two-week "academy," inviting fifteen members of the faculty and staff to engage in workshops and labs on using Second Life. Faculty participating in the event became relatively sophisticated Second Life citizens; one outcome of the academy was the Virtual Worlds in Education conference held entirely in Second Life in the fall of 2008 (Brown, Hodges, Kisling and Collins, 2009).

I have never made use of Second Life a requirement in my courses because of the system requirements. I have students whose only option for connectivity is dial-up (educators working in remote, rural settings), and our program does not specifically require a video card of sufficient power to support use of Second Life.

While I have continued to hold office hours in Second Life, and my students continue to express interest in experimenting with it, I find I have few visitors. I never had many people visiting during office hours; perhaps three or four each

semester, but recently I have noticed a decline even from that small number. It is important to take into consideration, however, that I rarely receive visitors during my face-to-face office hours (no one visited in the past year) and that most communication that would traditionally transpire during office hours now occurs via telephone or e-mail (I provide students with my home phone number, advising them that they may call any day, any time between 8:00 AM and 6:00 PM: I receive on average a dozen calls each semester). In the 2009 summer semester I did not mention Second Life office hours in my East Carolina University course syllabi.

Results

I find Second Life does indeed provide a strong sense of presence. Communicating synchronously with students and seeing their avatars (which move naturalistically by default and can be directed to make specific gestures) promotes a sense of being with people in a fixed place and time.

Positioning was not a significant factor in participating in Second Life. There is a possibility that students perceived me as technologically sophisticated because of my virtual office activity, and I did take a number of students on tours of various Second Life locations, but overall there is no particular evidence that my role or perception of my role as facilitator or manager changed based on Second Life activity.

Student sense of community seems to have been impacted by Second Life Activity. Students expressed enthusiasm for visiting the East Carolina University virtual campus and meeting other students in my office. Students were amused and excited at the prospect of dressing their avatars in t-shirts and pants that had

university and program logos on them (ECU's virtual bookstore has a variety of shirts and pants available free of charge). Students informally discuss their Second Life visits in course discussion forums. Graduate students also report visiting the virtual campuses of their undergraduate alma matters.

Conclusion

As someone who studies and teaches educational technology, experimenting with online virtual worlds is exciting. Students who have the ability to make use of this medium report finding it a worthwhile addition to course communication. At present, however, the time it takes to become a proficient user of something like Second Life is a limiting factor.

It is important to recognize that Second Life is a public place much like a public park or a shopping mall; that anyone can participate and individuals and groups may conduct themselves in a manner that is not in keeping with a traditional academic environment. Students may find this off-putting or worse, distressing. Making students aware of this at the outset is critically important.

Another important consideration is the number of potential technological problems that may prohibit common use of online virtual reality. It will take time for the general public to completely understand the paradigm of an online virtual environment, and universal access to such an environment is not currently technically possible.

Online virtual worlds such as Second Life demonstrate considerable potential for teaching and learning, but they are at present in their infancy technologically. Furthermore, while educators seem to enjoy considering the possibilities of online

virtual worlds, a very small percentage have experimented with their use. A great deal more study is required and further research is strongly recommended.

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