A “Second Life”: Can this online, virtual reality world be used to increase the overall quality of learning and instruction in graduate distance learning programs?

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Introduction

Second Life is a free, online virtual reality world that has averaged over 1 million new users worldwide in each of its first three years. What is all the fuss about and what are the implications for use in education? Our presentation will involve a live demonstration of this virtual reality environment and present research whose initial findings suggest that several positive benefits are associated with its use in our graduate level distance learning program.

The immediate thought that comes to mind when one hears the words “Second Life” is a part sarcastic, part tired thought of, “I already have too much to deal with in my first life!” This is what many of us were thinking as we trooped into a presentation and demonstration of Second Life. Expecting another contribution to the social collaboration tools that are currently redefining the Web, we were greeted instead by a game-like 3D virtual reality world where users or “residents” move around and experience a digital environment with a digital-self or avatar. Several members of our faculty became intrigued with the possibilities such a free, easily accessible environment presented. We thought: could this be more than just another trivial addition to the Web?

Given the implications for increasing our online presence and providing innovative interactions and support to our sizeable distance learning student population, many of us decided to take a moment out of our busy “first lives” to take a closer look. Should my digital self be tall or short? Fat or skinny? Muscular or slim? Blond or lime green hair? Five feet or seven feet tall? Faced with such engaging decisions about usually immutable physical characteristics in a game-like environment, where decisions are immediately rendered in 3D digital images before your eyes, it did not take long for many of us to become absorbed in this new, expansive, beautifully rendered virtual world.

Second Life has garnered quite a bit of notoriety since its launch in 2003. As of February 2007 there were over 3 million residents worldwide (Retrieved February 13, 2007 from http://secondlife.com/whatis/). IBM is one of many
Fortune 500 companies investing large amounts of resources in establishing a commercial presence (Kirpatrick, 2007) and, in the academic world, seemingly every week there is a new article on the impact this virtual world is having on the real world around it. Why all of the excitement?

Present day society with its affordable computing and high bandwidth infrastructure has made great strides in catching up with providing the necessary memory, processing speed, and connectivity to experience the full effect of virtual reality technology. Second Life defines itself as, “An online society within a 3D world, where users can explore, build, socialize, and participate in their own economy” (Retrieved February 13, 2007 from www.secondlife.com). Some say that, similar to real life (referred to simply as RL in Second Life) there does not appear to be a real goal or end point and although it is initially free, to actually participate or own any land you have to pay for it (Diski, 2007). But proponents say that this environment adheres to one of the more desirable and addicting aspects of the computer gaming industry – having to figure out what to do in the first place (Wagner, 2007). In addition, virtual worlds today usually offer the opportunity to explore in an online, socially connected exchange with thousands of other simultaneous users in an “immersive environment” that is similar, yet different in many significant ways than the real world (Bixler, 2007; Dede, Clark, Ketelhut, Nelson, and Bowman, 2005).

The literature has found that the use of avatars are particularly effective when addressing motivation-related outcomes, especially as it is associated with a learner’s self-efficacy or confidence that one can accomplish or learn some identified task (Park, 2007; Baylor & Kim, 2004); particularly engaging to users is the ability to manipulate an avatar’s ethnicity, gender, and other physical attributes (Park, 2007), which is a major component of the Second Life experience. Educational purposes, however, focused primarily on two primary aspects of virtual reality: an immersive environment and social interactions (Bixler, 2007; Dede, Clark, Ketelhut, Nelson, and Bowman, 2005).

What was it that a graduate faculty at a mid-sized southeastern university saw in Second Life that so engaged us? One of the immediate ways of using this technology was to ask students to participate in this immersive, socially interactive environment for our distance courses, which typically are a blend of face-to-face, television, and course Web site. One course has used this environment to provide its “face-to-face” lecture in a virtual, private “sky box” that brings students from three campuses divided by real constraints of distance together into one “class room.” We also began holding “virtual” office hours where students at a distance in particular expressed the desire and ability to just “drop” in to talk to a faculty member just like local students can. Second Life has also served as an ever present, free resource for students to interact with and evaluate a living example of an impressive use of multimedia technology.

A review of the relatively young body of literature on the educational impact of Second Life suggests that the primary focus has been on the multifaceted ways people are currently using it, especially in the business sector, but with no focus on learning outcomes or student attitudes, especially for non-traditional school aged students represented by graduate students. Although our research is in its preliminary stages, we have used a mixed-method approach to address two primary questions that we feel will make a significant contribution to the literature:

1. In what ways has the use of Second Life impacted learning and instruction in distance learning programs?
2. How usable is Second Life in terms of utility and general ease-of-use for students and faculty?

Data collection involved natural observation, qualitative interviews, user surveys, and content analysis of discussion board transcripts.

Method

Participants and Instrumentation

All 18 participants in the study are samples of convenience. The study’s sample included three faculty members from a mid-size southeastern university graduate program that used Second Life as part of their blended (n=3) and online courses (n=1), a Second Life instructor who teaches virtual seminars, nine graduate students who participated in a course featuring Second Life as a primary mode of course interaction, and four students who attended a series of virtual seminars in Second Life (n=4). The data collection period was from January 2007 to October 2007.
Faculty (n=2). Two of the authors of this study are tenure track faculty members who teach traditional and distance graduate courses. Each documented how Second Life was used in their courses, how students reacted, and general thoughts about overall utility and potential use in distance learning.

Second Life Instructor (n=1). The Second Life Instructor teaches several virtual seminars in Second Life and asked eight of her students a set of six questions including, “How quickly did you pick up the skills necessary to be successful in the class?”, “What are the positive and negative aspects of learning in a virtual environment?”, and “What real life lessons and/or skills were learned from your experience in a virtual environment?” A content analysis was conducted of the four student responses that were received.

Graduate Students (n=9). Students in a face-to-face course studying online collaboration tools used, examined, and discussed Second Life and its potential use for educational purposes. A content analysis was conducted of student discussion board transcripts which took place over a one week period (January 28-February 4th, 2007).

Results
The Wow Factor

Second Life is a free to use three dimensional world that adheres to one of the paramount standards of usability which is user control or “designing a product so that the extent to which the user has control over the actions taken by the product and the state that the product is in is maximized” (Jordan, 1998). Becoming a member of Second Life is relatively easy and painless and the process and engagement involved in creating a virtual self (referred to as an avatar in Second Life) is addicting and relatively limitless.

Our program purchased virtual property within Cybrary City, an island where libraries and information resources are made available in Second Life and each of our faculty created their own avatar. A photo of the faculty virtual avatars in front of our virtual building is shown in Figure 1.

![Figure 1 - Faculty Avatars and Department's Virtual Building](image-url)
Presented with the ability to freely change an avatar’s features, clothing, and virtual possessions, our faculty quickly embraced Second Life as a vibrant place for exploration and social collaboration with tremendous possibilities for our graduate program: Social collaboration amongst faculty and students, three dimensional information seeking both for reference and program marketing purposes, and classroom presentations and work groups in small group settings.

One of the biggest problems with attempting to conduct a class within a public building is the potential for anyone to interrupt class, which in the real world is clearly inappropriate but in the virtual world is a facet of understanding the dynamics of the SL social situation. In order to protect against this, one of our faculty members created a private virtual skybox that can only be accessed through private invitation. Figure 2 shows an avatar seated in our virtual classroom in the sky.

![Figure 2 - Private virtual classroom in the sky](image)

Faced with a blended course involving over 80 students across three campuses statewide, one of the authors of the study felt Second Life would be an ideal opportunity to build stronger collaboration between students from different campuses. The use of Second Life, however, turned out not to be that simple.

Second Life Meets Academic Reality

To enter the world of Second Life the computer you are using must have the Second Life software installed and have the computing hardware in terms of RAM, processing speed, and graphics card necessary to run this robust software. Prepared to present to the entire class from the classroom teaching station, the author realized that the software had not been preinstalled by technical support and impromptu installations were not allowed without an administrator password. The long awaited preview of Second Life had to wait a little longer.

The following week Second Life was successfully previewed in class and all students were informed that in conjunction to the author’s on campus office hours, virtual office hours would also be available in Second Life. In addition, the author brought up the possibility of conducting a full class session completely in Second Life. While the feedback from students were predominately positive regarding the “wow factors” of being able to create a virtual
self, fly and move freely around a three dimensional virtual world, and meet new people in a uncontrolled environment, the overall course outcomes were less favorable. No class meeting was ever held in Second Life because a small, yet significant minority of students could not access it through their older computers and when these students approached their campus academic libraries all were told that Second Life was not installed on the library computers and could not be without a strong rationale from the instructor. Due to time constraints, the author did not attempt to articulate this rationale as it would have involved engaging with three university libraries simultaneously. The author’s virtual office hours also mirrored the overall usage of physical office hours, which was not utilized at all and a surprise since the availability for individual student contact had been increased by over 50% by making synchronous office hours available to the two distance sections. The following semester, one of the authors decided to try again and offer virtual office hours via Second Life to an entirely online course. This attempt met a similar fate where no student took advantage of this opportunity to “drop in” to meet with the instructor during posted virtual office hours.

A second author of this study had students engage with Second Life as a focus of a class as it provided an environment rich in learning resources and an opportunity to conduct class and discussion in an online environment. Students were introduced to Second Life in a face-to-face class where they were given the opportunity to interact with the instructors and other students in making their initial foray into the alternative world of Second Life. Many of the students were apprehensive in developing their avatars and making initial contact with other participants in this environment. They came together as a class in the online environment to receive instruction and explore learning opportunities. Instructors planned and conducted a journey with the students bringing the class to specific locations and then discussing the uses of the particular “landmarks” or locations within Second Life. Students were able to bookmark landmarks for further exploration and were able to ask questions of other students and instructors as the tour progressed.

Class was also held in Second Life with mixed results. The idea of having a real time chat in the online environment was beneficial but the use of a virtual physical space may have been unnecessary for the content of the particular class. The use of PowerPoint and notes within the virtual classroom, however, added a more dynamic element to the class and made better use of the tools that Second Life offers to an instructor. The class offered an opportunity for both instructors and students to operate in a virtual environment both synchronously and asynchronously; exploring the resources and meeting with each other. Problems that arose centered on the fear of technology and the learning curve of some students but everyone in the class was able to overcome their hesitations and participate in the virtual classes with a minimum of difficulty.

Student comments varied widely in their perceptions of this first experience. All nine students found Second Life to have uniquely positive aspects for educational purposes: it connects users to a wide array of information resources, it provides “residents” with the ability to fly and transport one’s avatar from one place to another, it provides a generally “stimulating,” immersive, and interactive learning environment, it allows users to virtually “experience” information as opposed to just reading text, it socially connects people and organizations from different parts of the country and world “who you would probably never meet in real life,” it is a cost effective way to meeting virtually as opposed to actually “face-to-face” with other people, it provides opportunities for virtual field trips and simulated experiences, and, in general, the 3D world is much more conducive to an online educational learning environment than traditional flat, one dimensional text-driven digital displays.

There were also a number of negative aspects. First and foremost, were the technical issues involving the need for robust computing and connectivity - one student reported having his computer’s graphics card malfunction. In addition, students ran into the general prohibition of the use of such software in public computing environments where students tried to take advantage of more robust hardware to use Second Life. Another primary point brought up was the potential of “wasting time” and challenge of “time-on-task” especially when attempting to teach a large number of students. An additional issue was that while the “uncontrolled” environment of Second Life can prove educationally stimulating at the same time it does make it a challenge to manage the learning experience and ensure

1 The course included three sections, one face-to-face local section, and two distance sections.
2 Second Life is not a Web site that you connect to but instead requires you download its client software directly onto the computer you are trying to connect with. This causes major issues in attempting to access Second Life in public computing environments such as public or academic libraries because most prohibit downloading of unauthorized software.
consistency in student experiences. Finally, while online collaboration can be quite enjoyable and successful at times, students brought up the concern of the coldness and artificial reality associated with technology as an explicit danger, especially when faced with the thought of entirely replacing real human interaction with a digital, virtual world.

Providing Instruction in Second Life

Two applied examples of how Second Life is currently being used for instruction are continuing education Virtual Librarianship courses offered by the University of Illinois at Urbana-Champaign and a technology course taught at San Jose State University.

The University of Illinois at Urbana-Champaign and the Illinois Alliance Library System has made use of virtual adjuncts to teach continuing education, no-credit, six week courses in Second Life. Five courses have been offered, two in the summer 2007 and three in fall 2007, with an average class size of 20-30 students per course. These classes are taught by librarians in Second Life and have covered such topics as Intermediate Virtual World Librarianship, Virtual World Librarianship in Second Life, and Libraries and Immersive Learning in 3D Virtual Environments. Table 1 below shows the general breakdown of one of these courses:

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<th>Table 1 - Virtual Course Overview</th>
<th>Virtual World Librarianship in Second Life Course Overview</th>
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<td>Week One: Introduction to Libraries in Virtual Worlds</td>
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<td>Week Two: Second Life 101</td>
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<td>Week Three: Collections, Resources, and Exhibits in Virtual Environment</td>
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<td>Week Four: Reference and Information Services in Virtual Worlds</td>
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<td>Week Six: Skills Needed by 21st Century Librarians in Virtual Worlds</td>
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Jeremy Kemp at San Jose State University taught a section of Information Technology Tools and Applications in summer 2007 that included bringing students into Second Life and having them work on projects with Second Life librarians to illustrate examples of how the software they were studying was being applied as well as to locate virtual resources around designing advanced Web applications using technology such as dynamic HTML and XML and Web programming languages such as XSLT, JavaScript, JSP, Perl, PHP, MYSQL, and ASP.

One of authors of this study works for Second Life as an Assistant Director/Operations Manager for the Alliance Library System's Info Island Archipelgio. As part of the study, she asked her students about Second Life. Two students worked with her on a business/tourism project called Virtual Morocco and answered her questions in Second Life. A second pair of students she worked with in a class being taught at a local university answered questions via email.

In response to the question, “How quickly did you pick up the skills necessary to be successful in the class?” all four students responded that they had easily picked up the needed skills quickly and felt confident about using Second Life within two to three weeks. The more experienced students initially were called upon to do more advanced tasks in Second life and were taught building and scripting skills, which they learned with relative ease. Students felt that the most positive aspects of learning in a virtual environment were that it was: Collaborative, asynchronous, involved visual and kinetic learning, and provided opportunities for interaction with others inside and outside of the class. The major negative aspects of learning in a virtual environment involved: Problems with technology, high end requirements, Second Life downtime for maintenance, use of traditional classroom teaching methods while in the virtual world, problems encountered from disputative Second Life residents, and learning to communicate textually requiring instantaneously formulating answers and responses and fast typing skills.

In terms of the most valuable lessons learned from working with Second Life the students listed the following: Time management, self reliance, leadership, teaching, social networking, graphic arts and design, experience working with virtual groups, and experience with virtual reference.

3 Second Life has added a voice component that should help alleviate this requirement.
Discussion and Conclusion

Teaching and Learning Opportunities in Second Life

The use of Second Life in graduate education and in teaching and learning environments in general are not limited to distance learning. As a free resource that in the past would have been cost prohibitive, Second Life represents a relatively open access, immersive virtual 3D learning environment that has many potential uses in teaching and learning environments. Based on the results of our study and review of the literature, here are some of the major teaching and learning opportunities Second Life represents:

Placing an Avatar with a Name - In the past, and for the most part even today, a typical synchronous online interaction in distance education involves text-based chat. Users are defined by their user name and communicate by typing text based messages. Second Life, ironically also uses text-based chat as the primary method for communication. Changing the communication environment from a flat, text based one dimensional interface to a rich, multi-color, 3D environment that allows users to represent themselves with virtual avatars or representations of themselves. As student isolation is one of the major problems associated with distance education, the ability to “place an avatar with a name” and add the aspects of non-verbal representations of personality and feeling, has significant implications for social collaboration and communication in online environments. While sharing the major benefit of online, synchronous communication, which is to not have to meet face-to-face at a specific physical location, Second Life adds many additional layers through virtual representations of physical characteristics and communication to this online interaction.

Synchronous Virtual Information Seeking - Unlike navigating a Web site, in Second Life you have the opportunity to interact with both static information and synchronously with other users. The concept of adding a synchronous, three-dimensional aspect to online information seeking is one of the aspects of Second Life that has captured the attention of the corporate world. The same benefits apply to teaching and learning environments where students can both access digital content in Second Life while at the same time engaging in a discussion with a student or instructor. In addition, other users through their virtual avatars serve as additional resources that otherwise would not available. For example, at Cybrary Island, information science buildings from across the world are housed together ranging from the US to Europe to Asia. Interaction amongst instructors and students are frequent and, engaging in discussions around mutual topics of interest that is truly global in nature, has many possibilities.

A Virtual World Allows for Virtual Experiences and Resources - In Second Life you have the ability to perform tasks, create objects and environments, and interact with people and objects that you cannot do in real life. For example, you can fly, teleport, and generally control and customize your avatar in unlimited ways. Outside of the social consequences of being able to create a digital self, creating virtual learning environments or interacting with existing content rich ones is where Second Life excels. Although like most online instruction, planning and preparation is necessary to find relevant resources and to ensure the integrity and effectiveness of instruction, Second Life can be used as virtual field trips so that students can not only find relevant resources but also potentially have the opportunity to see and interact with 3D digital information as well as other users as information resources.

Technology as a Nexus Point - The Internet and the Web connect people and information together. Traditionally this is done through digital information usually in the form of text, graphics, video, and document/file exchanges. In distance education, television/video conferencing, Web cams and Web casts, threaded discussion boards, and synchronous chat are the predominate mediums in which collaboration is achieved in one-to-many instructor-to-student educational environments. Web conferencing software, which integrates Web video, file sharing, and synchronous chat is highly desirable in the delivery of distance education but is extremely costly and usually involves dedicated internal resources and support by the distance program. Second Life offers a potential nexus point in which distance programs can utilize this virtual world at little or no cost for its instructors and students. Social connection and collaboration in many ways is the easiest to attain in Second Life and at the same time helps meet an essential need for distance students.
Challenges of Using Second Life

Technology – Although broadband connectivity and computing power continues to become more robust and inexpensive, to operate in the vibrant digital world of Second Life takes high end computing power. This poses a significant barrier equally for instructors and students as computers that are only a couple of years old may not have a high end enough graphic card able to handle Second Life’s robust graphics. With the increasing popularity of Second Life this poses a unique digital divide that previously did not exist. In addition, as Second Life requires a software client download, it is difficult to use public computers thereby severely limiting its overall portability.

Allocation of Time and Resources – Second Life is time intensive for many reasons. First, it is highly addicting because of the large number of options and overall control it provides users, especially as a user’s avatar is the virtual representation of that user and therefore usually garners careful attention to such details as height, weight, hair color, skin color, general physical features, and certainly clothes. Second, learning how to operate in this virtual world, although relatively intuitive, takes some acclimation and experimentation. Third, is the time and resources it takes to create a digital instructional environment (to have personal space you must purchase virtual property), which can be substantial. Training for students must also be factored in. Fourth, is the amount of set up time and technical support required to ensure all students are successfully able to access the high end computing resources necessary to interact with Second Life. Lastly, in terms of instructional design, attempting to use standard classroom teaching methods in a digital world usually does not translate very well, especially if it is almost completely chat based. The addition of voice communication will help mitigate this problem.

Uncontrolled Learning Environments – A user’s avatar is called a resident in Second Life. Unfortunately, a majority of residents are not in Second Life for educational purposes and therefore, when trying to provide instruction there is always a chance that an instructor or students will be interrupted. In addition, similar to the impact laptop driven wireless computing has in classroom settings, the opportunity for students to lose interest or become easily distracted is considerable.

Conclusion

Distance learning programs use course management systems to organize and deliver content as well as manage course functions. Second Life represents another medium in which to engage and collaborate with students or have students engage with peers. At a cursory level, this unique digital virtual world allows for more complex social interaction as it introduces personal expression through virtual avatars that bring virtual non-verbal communication and interaction. At more complex, well planned levels, Second Life becomes a vibrant learning environment where self-exploration, virtual tours, and access to a diverse set of users are easily accessible and available.

Distance learning is a great way to allow students who are scattered geographically to take advantage of a class that does not require face-to-face classroom instruction. While the technology is in place to facilitate distance learning, the actual class experiences of traditional distance learners can be less than satisfying for the student and the instructor. From the student's perspective it is more difficult to form relationships with others in the class and the instructor. While the materials may be fully covered and the assignments completed, graded and returned electronically the overall experience lacks the kind of connection students feel in a standard class. Second Life, and other virtual environments help bridge this gap by giving students the feeling of being present with other classmates and with the instructor. They have the ability to talk to each other during class in private instant messaging and to ask questions of the instructor as the questions arise naturally out of the lesson plan. Although this is still a form of electronic communication, it creates a shared experience for the students and instructor. It is difficult to explain the connection, but one of the Linden Labs employees, Pathfinder Linden, calls this connection "emotional bandwidth." It adds an element of depth that cannot be achieved in a standard distance learning situation.

Another way that Second Life and other virtual environments will impact distance learning is to enable a greater variety of classes to be taught. In a 3D environment, instructors may now demonstrate instruction as well as lecture and students may work together to create projects within the virtual world. In addition, with access to a greater number of global residents the opportunity for synergy and collaboration expands. The technology of 3D virtual worlds is being expanded and improved and many private and public organizations are creating virtual spaces that someday will be tied together much like web pages of today. These early explorations of education in Second Life will help to build a foundation for virtual education of the future.
References


