

Teaching and Learning in a Virtual World: A Pedagogical Experimentation Using Second Life

Poonam Kumar

Educational Technology, Saginaw Valley State University, Saginaw, MI, United States., pkumar@svsu.edu

Follow this and additional works at: <http://aisel.aisnet.org/amcis2012>

Recommended Citation

Kumar, Poonam, "Teaching and Learning in a Virtual World: A Pedagogical Experimentation Using Second Life" (2012). *AMCIS 2012 Proceedings*. 12.

<http://aisel.aisnet.org/amcis2012/proceedings/VirtualCommunities/12>

This material is brought to you by the Americas Conference on Information Systems (AMCIS) at AIS Electronic Library (AISEL). It has been accepted for inclusion in AMCIS 2012 Proceedings by an authorized administrator of AIS Electronic Library (AISEL). For more information, please contact elibrary@aisnet.org.

Teaching and Learning in a Virtual World: A Pedagogical Experimentation Using Second Life

Poonam Kumar

Saginaw Valley State University
pkumar@svsu.edu

ABSTRACT

Immersive virtual worlds like *Second Life* offer many instructional affordances for enhancing learner's experiences, especially in online classes. This paper will describe the implementation experiences of using the virtual environment in addition to the traditional learning management system to enrich the online learning experiences of students in an online graduate class. The benefits of using virtual environment is evaluated both from faculty and student perspectives. Based on the findings recommendations are made for best practices in using this innovative tool.

Keywords

Virtual World, Second Life, Online education, Immersive Learning

INTRODUCTION

Virtual worlds have been in existence since 1980s, but they have been mostly associated with the world of gaming. It is only in recent years, that there has been an interest in exploring the potential of virtual environments for education and training purposes. These multi-user virtual environments (MUVESs) offer real life experiences and the ability to collaborate and create content in 3-D simulated environments. There are currently over 100 virtual worlds available (Wagner, 2008). Some examples of virtual worlds are *Open Sim*, *Active Worlds*, *World of Warcraft*, *Project Wonderland*, *Reaction Grid*, *There.com* and *Olive*. Virtual worlds are becoming increasingly popular among educational institutions and businesses around the world. There are many virtual worlds, but *Second Life* (SL) is one of the most widely used among educators and researchers. *Second Life* (www.secondlife.com) is a three dimensional, immersive virtual environment that was created in 2003 by Linden Lab. Since then it has grown tremendously and currently has more than 18 million registered users, also called "residents." The residents use *Avatars* to explore and participate in group meetings, social gatherings, recreational activities, professional networking, and numerous other activities. "Residents can explore, meet other residents, socialize, participate in individual and group activities, create and trade virtual property and services with one another and travel throughout the world" (SecondLife.com). *Second Life* is a virtual world that is created by its residents. The residents have the ability to build houses, shopping places, classrooms, meeting places and even whole cities using prims (primitive objects). *Second Life* is comprised of many islands and it is currently there are approximately 21,332 islands in *Second Life* (Schiller, 2009).

Second Life is the largest virtual world that is used by individuals, businesses, educational institutions, professional organizations, libraries and a number of governmental agencies for entertainment, marketing, business meetings and training purposes (EDUCAUSE, 2008). Several corporations like Toyota, General Motors, IBM, Sony, Wells Fargo are also using *Second Life* for recruitment, training, sales, product development, meetings, conferences and to provide customer support (Lee, 2009). Employees at IBM, Cisco, BP, State Farm, and Accenture use *Second Life* to recruit employees, brainstorm with colleagues, attend meetings and manage operations programs using avatars (Reeves & Read, 2010). In addition, many agencies like Center for Disease Control and Prevention, NASA and National Oceanic and Atmospheric Administration use *Second Life* for promoting information and staff training.

In recent years, the popularity and use of *Second Life* among educational institutions has also increased. Approximately more than 200 universities, museums, professional organizations and research centers have a presence in *Second Life*. Many educational institutions have created their own islands and are using *Second Life* for recruiting, fund raising, teaching and research purposes. For example, Harvard Law School has created a Harvard Extension School to teach students court proceedings in a simulated environment. Many other institutions are also using the virtual environment of *Second Life* to teach computer science, engineering, foreign language and medicine (Schiller, 2009).

This paper presents a case study that examines the use of *Second Life* in a graduate online class. The effectiveness of using *Second Life* is evaluated from both learner and instructor perspectives. In the next section the author discusses the instructional affordances of *Second Life*, followed by a description of the case study. This is followed by lessons learned and finally the author provides recommendations based on implementation experiences.

SECOND LIFE AS AN IMMERSIVE LEARNING ENVIRONMENT

Due to its three dimensional and immersive nature, *Second Life* has a tremendous potential as a teaching and learning tool. Virtual worlds and *Second Life* in particular offer many pedagogical affordances. The three dimensional virtual environment can be used to simulate real world experiences at a very low cost. *Second Life* provides a three dimensional virtual environment where participants can immerse themselves in real life experiences and learn through observation, participation and social interactions. These immersive environments provide authentic opportunities for enhancing communication, interaction, engagement and collaboration among students in the classroom. These technologies are already being used in industry workplace for employee recruitment, training, customer support and enhancing collaboration and communication among geographically dispersed virtual team members. Organizations such as IBM, Intel, Cisco, Michelin, Wells Fargo and World Bank use virtual worlds for training and collaboration (Krantz, 2010; McCafferty, 2010). For example, Michelin, the tire maker, used *Second Life*, for training employees in charge of developing its global information systems. Northrop Grumman Corporation also uses *Second Life* to prototype products, conduct simulations and train employees. Similarly, many government agencies including Homeland Security Department, Air Force and Agricultural Department are utilizing virtual worlds for interagency collaboration.

Second Life provides a learning environment that supports *constructivist* and *social learning* theories (Dreher, Reiners, Dreher, & Dreher, 2009; Smith & Berge, 2009; Warburton, 2009). Constructivist learning emphasizes teaching methods where students actively participate in the learning process and are actively involved in discovery, exploration and knowledge creation. A constructive teaching approach can be implemented by making the learning environment personally relevant to students, providing opportunities for exploration, collaboration and knowledge creation. *Social Learning* theory postulates that learning occurs in a social context, and interactions between learners and peers are an important part of the learning process. *Second Life* provides a suitable environment for designing learning experiences where interactions, engagement and knowledge creation can be easily facilitated.

The model (Figure. 1) developed by Dalagarno and Lee (2010) highlights the instructional benefits afforded by such virtual environments.

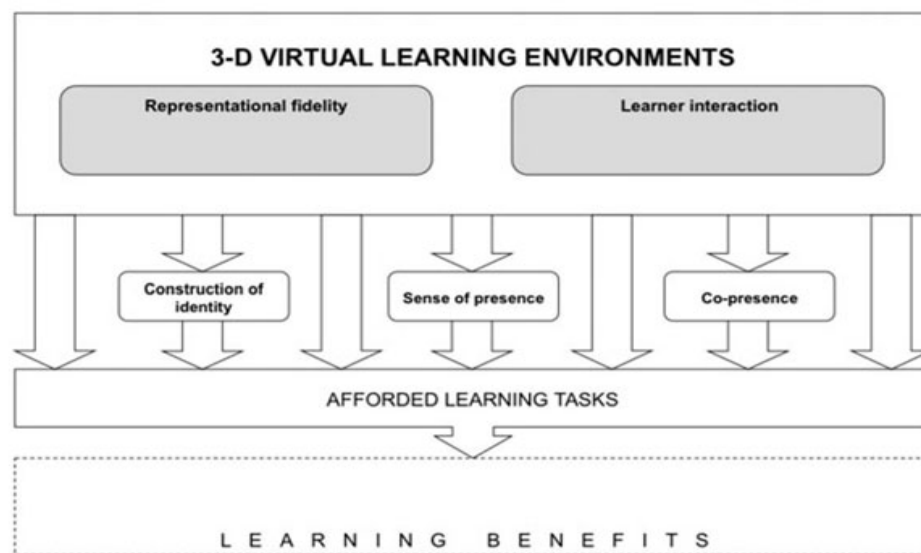


Figure 1. Initial Model of Learning in 3-D VLES (Source: Dalagarno and Lee, 2010)

For example, students from multiple locations can work on group projects in real time without travelling; faculty can have meetings with students in *Second Life* to enhance “social presence” in online classes, instructors could create simulated experiences to demonstrate concepts and to deepen student understanding of concepts. In addition, *Second Life* is an excellent medium for professional development and networking. There are numerous professional organizations and research groups that regularly host conferences and meetings providing numerous opportunities for professional development and networking with people around the world. The unique features of the SL environment in particular are very useful in enhancing the quality and effectiveness of online instruction. Due to lack of face-to-face interactions sometimes it is difficult to create a sense of “social presence” in asynchronous online learning environments. The use of *Second Life* can provide faculty and students a feeling of being together through the use of *avatars* and thus enhance the sense of community in online learning environments (Burgess et al., 2010).

CASE STUDY

Purpose

The purpose of this project was to explore the pedagogical use of *Second Life* in an online course and to evaluate its potential as a teaching and learning tool. The course was a graduate level course titled *Instructional Design* and was offered completely online using Sakai learning management system. The course was part of the Instructional Technology program and focused on instructional design models and principles for creating effective instructional programs using technology. A major emphasis in the course was to teach students about emerging technologies for teaching and learning. Since *Second Life* is an emerging technology that is widely used among educational institutions and offers immense opportunities for not only educational purposes but also for professional networking and development, *Second Life* was incorporated in the course to teach students about this new medium by “immersing” them in the experience. Seventy students participated in the study. The objectives of this study were to: 1) explore the instructional potential of *Second Life* in an online graduate course; 2) understand the challenges and barriers in integrating this technology; and 3) determine appropriate pedagogical and instructional design approaches for effectively incorporating *Second Life* in courses.

Second Life Learning Activities

In order to maximize student learning, the use of SL was aligned with the course learning objectives. The main learning goals for integrating second life in the online course were:

1. To expose students to this new and emerging instructional medium, Second Life
2. To help students understand the educational potential and current educational uses of Second Life
3. To evaluate the instructional use of Second Life in the course, both from student and instructor perspectives.

A *Second Life* assignment was incorporated in the course. The assignment included the following learning activities:

1. **Creating an Account.** First, the students were asked to create an account in Second Life and create an Avatar. None of the in-service teachers had SL accounts.
2. **Learning the Basics.** Since the in-service teachers were not familiar with SL, the next step was to help them learn the basic fundamentals of communicating and moving in SL virtual environment. The instructor provided video tutorials for students to watch and learn the basic skills of navigating and communicating in SL. This activity was completed by students individually at their own pace.
3. **Virtual Field Trips.** The students participated in two instructor-guided tours. The first tour was to the ISTE (International Society for Technology in Education) island in SL. ISTE staff member provided the tour of the island, the resources and professional development opportunities offered at ISTE island. The second tour was to an island created by Florida school system that is used for staff training. Students had the opportunity to visit the island and attend a presentation by the school staff on how they use Second Life for training purposes.
4. **Immersing in the Experience.** Once the students learned the basic skills and became familiar with SL, the instructor gave an assignment where students were required to explore educational places in SL and immerse themselves in that environment to understand the teaching and learning potential of this technology. The instructor provided a list of educational resources and islands in SL. Students were given the choice to explore any one of the provided resources in depth and then critically think about their educational potential.
5. **Reflecting upon the Experience and Sharing Perspectives.** After spending some time exploring educational resources in Second Life, students reflected upon their experiences and completed a report answering questions about their perspective of the educational potential of SL for their own teaching and professional development. They

were provided a list of questions to respond to. Students then shared these perspectives with their peers and instructor on the discussion forum in the course website. A snapshot of the virtual tour in *Second Life* is provided in Figure 2.



Figure 2. Snapshot of virtual tour in *Second Life*

LESSONS LEARNED FROM THE IMPLEMENTATION

Implementation of *Second Life* in an online course provided an opportunity to explore the instructional benefits and challenges involved in using this technology. Seventy students participated in the study and completed a survey and open ended- questionnaire to provide their evaluation of *Second Life* from a learner's perspective. Student feedback about the use of *Second Life* was overall positive. Students appreciated the opportunity to go on virtual field trips to *Second Life* and to learn about the technology through immersive learning experiences. There were many challenges that the faculty and students faced in using *Second Life* in the course. Some of these challenges included technical, safety and security issues, students' lack of familiarity with SL, time required for preparation etc. Based on these experiences, the author offers the following recommendations for effectively integrating SL in courses:

- *Plan and Prepare.* *Second Life* is a new technology that has a steep learning curve and requires lot of preparation and planning to fully utilize its instructional capabilities. Instructors need to take the time to get familiar with this virtual environment and practice the skills of using avatars, moving and communicating in *Second Life* before they implement it in their courses. *Second Life* provides a wealth of education related resources including blogs, discussion forums, training, tutorials, simulations, etc. Instructors need to first research and carefully evaluate these resources for instructional uses. Furthermore, we shouldn't assume that students are familiar with this technology, in fact majority of the studies reported that they were not familiar with *Second Life*. Therefore, it is important to plan time in the course to introduce students to *Second Life* and to provide step-by step instructions and tutorials to familiarize students with this new environment.
- *Address Technical Issues* With its rich graphic and multimedia interface, *Second Life* has some technical issues related to bandwidth, hardware requirements and firewalls. Instructor needs to be aware of these technical difficulties and help students address these issues.
- *Align Second Life Projects with Course Goals* *Second Life* is a powerful instructional technology but its instructional potential can only be leveraged if *Second Life* activities are thoughtfully aligned with course goals and student learning outcomes. The alignment of technology with learning objectives and assessments will ensure enhanced learning outcomes.
- *Scaffold Learning* Plan learning activities that move students gradually to a higher level of learning. For example, first introduce basic skills that students need to navigate in *Second Life* and then ask them to complete other activities that require complex skills like building content and scripting.

- *Be Aware of Risks and Issues* SL is an online user generated environment and has some issues related to inappropriate content, misbehavior, sexual harassment and interruptions. Some of these issues can be addressed by using SL spaces that are only open to authorized users like university virtual campuses, sending students to carefully selected places and making students aware of these issues.

CONCLUSION

In conclusion, there are many advantages of using *Second Life* as a teaching and learning tool as discussed in this paper. *Second Life* can be used to enhance the learning experiences of students by providing opportunities for experiential and immersive learning. *Second Life* is a great instructional technology that supports constructivist and social learning approaches. Despite these advantages there are some challenges regarding the use of SL for teaching and learning. Understanding and addressing these challenges can help instructors successfully implement *Second Life* in their classes.

REFERENCES

1. Burgess, M. L., Slate, J.R., Rojas-LeBouef, A., & LaPrairie, K. (2010). Teaching and learning in *Second Life*: Using the Community of Inquiry (CoI) model to support online instruction with graduate students in instructional technology. *Internet and Higher Education*, 13 (2), 84-88.
2. Dalgarno, B. & Lee, M.J. (2010). What are the learning affordances of 3-D virtual environments? *British Journal of Educational Technology*, 41(1), pp. 10-32.
3. Dreher, C., Reiners, T., Dreher, N., & Dreher, H. (2009). Virtual Worlds as a Context Suited for Information Systems Education: Discussion of Pedagogical Experience and Curriculum Design with Reference to Second Life. *Journal of Information Systems Education*, 20 (2), 211-224.
4. Good, J., Howland, K. & Thackray, L. (2008). Problem-based learning spanning real and virtual worlds: a case study in Second Life. *The Association for Learning Technology Journal*, 16, 3, 163-172.
5. EDUCAUSE Learning Initiative (June 11, 2008). Seven things you should know about Second Life , available at <http://www.educause.edu/ELI/7ThingsYouShouldKnowAboutSecond/163004> , accessed Sept. 20, 2010]
6. Krantz, G. (May, 2010). It's "Game On" for Training in Virtual Worlds. *Workforce Management*, 89, 5, p.4.
7. Lee, P.D. (April, 2009). Using Second Life to Teach Operations Management. *Journal of Virtual Worlds Research*.
8. McCafferty, D. (November 16, 2010). *Virtual Worlds Training: Give Your Program a Second Life*, available at <http://www.cioinsight.com/c/a/Virtualization/Virtual-World-Training-Give-Your-Programs-a-Second-Life-107587/>, accessed January 18, 2012.
9. Reeves, B. & Read, L. (January 21, 2010). Avatars in the Workplace. Harvard Business Review Blog at http://blogs.hbr.org/cs/2010/01/avatars_at_work.html, accessed October 15, 2010.
10. Schiller, S.Z.(2009). Practicing Learner-Centered Teaching: Pedagogical Design and Assessment of a Second Life Project. *Journal of Information Systems Education*, 20(3), pp.369-381
11. Smith, M., & Berge, Z.L. (2009). Social learning theory in Second Life. *The MERLOT Journal of Online Learning and Teaching*, 5(2), 439-445.
12. Wagner, C. (2008). "Learning Experience with Virtual Worlds." *Journal of Information Systems Education*, vol. 19 (3), pp. 263-266.
13. Warburton, S. (2009). Second Life in higher education: Assessing the potential for and barriers to deploying virtual worlds in learning and teaching. *British Journal of Educational Technology*, 40(3), 414-426.