

Second Life in Education: The Case of Commercial Online Virtual Reality Applied to Teaching and Learning

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Abstract

Second Life is a three-dimensional, multi-user virtual environment that has attracted particular attention for its instructional potential in professional development and higher education settings. This article describes Second Life in general and explores the benefits and challenges of using it for teaching and learning.

Introduction

Developed by Linden Lab, in San Francisco, California, in 2003, Second Life is a three-dimensional (3D) virtual world inhabited by computer-generated avatars. The original intent of Linden Lab was to “create a revolutionary new form of shared experience, where individuals jointly inhabit a 3D landscape and build the world around them” (Linden Research, 2009a). Via their computer avatars, individuals can travel to and live on Second Life “islands”. These islands are a part of a digital continent landscape and a host of computer servers. When one purchases a Second Life island, this individual is essentially leasing a computer server from Linden Lab. Once a Second Life resident constructs her individual avatar, she can now go to a variety of public islands. There are several activities and islands to explore, including going to a tea dance, shopping, fighting dragons, and other similar activities (Second Life, 2008). Second Life has its own currency, Linden Dollars (L\$) and has its own exchange rate with several world currencies (Wikipedia, 2008). With Linden Dollars, Second Life residents can purchase a portion of land on an island, and buildings, furniture and accessories for that portion of land, as well as clothing and accessories for their avatars. As reported on the Second Life web site, “there are even a fair number [of Sec-

ond Life residents] who make part or all of their real world living by being a creator in Second Life" (Second Life, 2008).

The population in Second Life has virtually exploded over the past two years. As of January, 2008, there is a Second Life resident population of over 11,943,235. Sixty percent (60%) of these individuals are male and 40% are female. Within the past week (in January, 2008), 451,552 Second Life residents logged on and within the past month (in December, 2007), 890,024 Second Life residents logged on (Second Life, 2008). It can be expected that these numbers will continue to grow in the next few years.

The rise in popularity of Second Life within instructional settings

As can be expected, the use of Second Life for instructional purposes and innovative approaches to deliver instruction also has rapidly expanded (Childress & Braswell, 2006; Deubel, 2007) within the past two years. Several higher education institutions now have Second Life campuses, including Princeton University, New York City College of Technology, Australian Film Television and Radio School (Wikipedia, 2008) and other higher education institutions. Educational associations, such as the International Society for Technology in Education (ISTE) now have instructional seminars or webinars within Second Life (International Society for Technology in Education, 2008). Second Life instructional topics are quite varied and include the full spectrum, including an exploration of ancient Egyptian tombs (Foster, 2007a), language acquisition (Stevens, 2006), legal issues (Foster, 2006), health education (Boulos, Hetherington, & Wheeler, 2007), three-dimensional modeling and software design (Lorenzetti, 2007), nursing education (Skiba, 2007), Geography (Foster, 2007b) and other similar instructional content. In addition to delivering instruction within a higher education setting, Second Life also has served as an instructional environment for corporate training purposes (Gronstedt, 2007). Though there have been successful instructional experiences, it should be noted that there have been negative consequences of having Second Life instructional classes cited as well (e.g., Bugeja, 2007).

In addition to these instructional experiences, Second Life residents are now able to access information resources and conduct research. Abram (2006) noted that Second Life can be a vehicle to promote information literacy. Bainbridge (2007) and Swanson (2007) also advocated that Second Life can be an excellent environment for scientific research. Several libraries are now constructing their own virtual libraries within Second Life (Erdman, 2007; Hurst-Wahl, 2007; Peek, 2007). For instance, both the British Library (Stothart, 2007) and Bradley University, in Peoria, Illinois, (Bell, Pope, Peters, & Galik, 2007) now have their own respective Second Life branches. There is an actual Second Life Library within Second Life (Barack, 2006). San Jose State University's (San Jose, California) School of Library and Information Science

now has its own virtual Second Life presence (Orphan, 2007). Half of the American Library Association's (ALA) Second Life island is devoted to disseminating information about recent ALA news and events (American Library Association, 2007). Individuals can either go to the library and access information through a "first-life" (i.e., bricks and mortar) library or a Second Life library.

Current commercial and private uses of Second Life

Second Life has within it a wide range of virtual spaces developed by and for participants. There are virtual churches, mosques, and synagogues; virtual dojos (martial arts practice areas); virtual coffee shops and virtual concert venues. Members of Second Life run a vast number of businesses that sell items such as clothing, furniture, pre-fabricated buildings, and artwork. Premium subscribers (participants who pay a monthly membership fee) may buy land and furnish it with items they purchase or build themselves.

In the United States, National Public Radio's, Science Friday, series maintains its own Second Life island, which contains a large amphitheater for presentations as well as numerous exhibits and activities. There are also a number of "adult-themed" areas that cater to various fetishes and predilections.

Although companies including Coca-Cola, Anheuser-Busch, Kraft Foods and Nissan have run virtual marketing campaigns in Second Life by creating spaces directly related to their products, this type of commercial activity has lost some of its momentum among marketers (Steel, 2007). According to Steel, part of the problem is that Second Life is not attracting as much traffic as marketing initiatives need. As business organizations become more aware of the underlying technologies involved in online virtual reality, they are experimenting with creating their own, independent virtual worlds.

Current educational uses of Second Life

Second Life is being used as an educational tool by a variety of non-profit and for-profit, higher education and business-oriented organizations. It should be noted that Second Life requires participants to be over eighteen years of age and therefore is not generally suited to elementary, middle or high school educational uses.

Second Life and corporate training

According to Gronstedt (2007), IBM is investing millions of dollars in Second Life; IBM has procured some 25 "islands" in Second Life. Gronstedt also reports that corporations including Sun, Dell, British Petroleum, and Intel are transferring their training programs to Second Life's virtual world.

Second Life allows instructional designers the ability to create models that learners interact with through their avatars. Training professionals are able to illustrate technical concepts in novel and deeply meaningful ways by manipulating scale and perspective (Gronstedt, 2007). For example, in Second Life it is possible to create models of things that are in real life much too small to “walk through” (e.g., a computer chip) at a scale relative to a typical learner’s avatar, which allows the learner to experience the model as if he or she were maneuvering within the object itself. Second Life also presents opportunities for corporations to facilitate orientation and cultural indoctrination activities; Hall and Nguyen (2007) cite the example of IBM using it for the “cultural on-boarding of Chinese new hires”.

While any virtual reality system has this capability, Second Life seems to have attracted the interest of the corporate sector by virtue of its overall popularity with the general public. However, Second Life’s popularity is a double-edged sword; it makes access to the virtual world potentially difficult at peak times, and many corporations find it difficult to reconcile their institutional firewalls with the commercial software (Gronstedt, 2007). Second Life may also pose problems with distraction and age polarization (Hall & Nguyen, 2007). Even with its potential problems, an online virtual reality setting such as Second Life shows promise as a valuable training tool, particularly for large, multi-national organizations looking to reduce the sense of distance among its members.

Second Life and higher education

According to Gronstedt (2007), hundreds of colleges and universities are currently teaching classes in Second Life as well, and Linden Labs actively supports the use of Second Life for educational purposes (Linden Research, Inc., 2008).

Undergraduate and graduate-level instructional activities abound in Second Life. There are well over one hundred universities, colleges, and schools listed on simteach.com’s wiki, Institutions and Organizations in Second Life (Simteach.com, 2008), and a great many more colleges and universities active in Second Life are not on this list. Simple searches within Second Life using the words “university” and “college” generate hundreds of relevant results, including the virtual campuses of Princeton University, The University of North Carolina at Chapel Hill, Tufts University, Bryn Mawr College, and Nova Southeastern University, in the United States.

At this point in time, college and university applications of Second Life might best be considered “exploratory.” Post-secondary activity in Second Life tends to involve “visiting” campuses and classrooms, and participating in single class sessions or pilot courses. Reports such as, “A July 2007 “snapshot” of UK Higher and Further Education Developments in Second Life” (Kirriemuir, 2007), suggest that higher education institutions, or more commonly individuals or small groups affiliated with an institution (e.g., faculty members or extended education staff), are experimenting with the

creation of virtual classroom or common spaces to gain the experience of creating the space and/or of interacting with a limited number of students and faculty.

The authors have been experimenting with Second Life as a communication and instruction tool in their classes at East Carolina University, in Greenville, North Carolina, since late 2006. As Brown writes in the *NCDLA* (North Carolina Distance Learning Association) e-Letter (Brown, 2007), regarding an early experience with a remotely located student:

“In June I held my first student meeting in Second Life. I consulted with a graduate student preparing to embark on dissertation work. We had never met face-to-face, but I recognized her avatar immediately. We spent an hour discussing her topic and refining her approach to the study. I recall the event as something similar to face-to-face discussion. We seemed to make eye contact as we spoke, though “speech” was actually typed text and eye contact was based on pre-programmed movements that avatars engage in while idle. Technically we were just sending text back and forth; doing what we might have done using Instant Messaging. However, it felt like much more – it felt real,” (Brown, 2007:5).

The authors are currently using Second Life to hold virtual office hours for their remotely located students. While students may use more established technologies such as the telephone and e-mail to directly communicate with an instructor, an open virtual environment such as Second Life allows students to communicate with the instructor and with other students simultaneously, thus replicating that aspect of traditional office hours that includes students meeting each other developing working relationships “outside the professor’s door”.

Second Life and professional development

The International Society for Technology in Education (ISTE) maintains a large and active public presence in Second Life. ISTE members serve as docents in ISTE-owned areas, greeting guests and facilitating newcomers’ participation in organized activities. ISTE sponsors meetings and events for its members on a regular basis; the organization has an island of its own with large meeting and resource-management areas.

The Association for Educational Communications and Technology (AECT) maintains a public presence in Second Life. The American Society for Training and Development (ASTD) maintains an active presence in Second Life, but it is restricted to ASTD members. Other education and training organizations such as the American Education Research Association (AERA) and the International Society for Performance Improvement (ISPI) have members who are active in exploring Second Life and/or using it for small group meetings, but they do not presently have established locations within the virtual world.

Problems encountered with using Second Life for education

Second Life is clearly designed for a young-adult audience. Although avatars can be manipulated to look any age, shape, and size, the default avatars are young men and women with a decidedly modern, Western sensibility. This may be problematic for more conservative individuals and cultures. As an example, when helping a female faculty member create an avatar for the first time, one of the authors was surprised to discover that the default mode of dress for the female avatars presented all have bare midriffs. It is possible to make changes to the clothing to create a more modest outfit, but this requires a new user to develop some proficiency with altering the avatar's appearance.

Second Life is also a public space. Though many institutions are opting to buy or lease "island" spaces that are relatively secure, Second Life is essentially open to anyone with a computer and a high-speed Internet connection. Lagorio (2007) reports problems students and instructors have encountered during course sessions held in Second Life; problems that include things like, "this guy is shooting arrows, and if he hits you -- of course, you can't die -- you get teleported to a different land" (Lagorio, 2007). One of the authors experienced problems as a new user in the Orientation Island section of Second Life:

"This great big, naked guy walked up and started bumping into me. When I turned to leave he began to build walls around me. I was new to Second Life at the time and did not know how to build or edit objects. I found myself hemmed in on all sides and just as I remembered I could fly, the guy built a roof, putting me in a box! The only thing I could think to do was log out Second Life. When I returned a few minutes later, the bully was gone." (Abbie Brown).

While none of the problems reported in Second Life are physically threatening, they are a cause for concern. If one is to assume that Second Life offers a more direct and "real" community experience for participants, then it stands to reason that the negative experiences are equally genuine and create a powerful, undesirable sense memory.

One of the greatest difficulties encountered in using Second Life is the matter of necessary bandwidth and processing speed. Currently, a small but significant number of remotely located students access the Internet using "dial-up" -- this is a connection to the Internet made using a traditional, analog telephone line and a modem, as opposed to a high speed connection, which is a purely digital connection. These students often choose to participate in online learning specifically because they are remotely located; their remote location, however, means that dial-up may be the best available option for accessing the Internet. Participation in Second Life requires greater bandwidth than dial-up is able to provide. Computer processing speeds and video cards are also a consideration; Second Life participation requires a relatively fast processor and higher-end video card. Unless one requires students to make use of higher-end

computing tools with high-bandwidth connections, one cannot require participation in Second Life.

Conclusions and discussion

The popularity of Second Life as a topic for discussion and experimentation among educators (Ananthaswamy, 2007; Bugeja, 2007; Oishi, 2007) suggests that studies of Second Life uses are important to the education and educational research community. Until recently, most reports of Second Life within the literature have been essentially descriptions of how Second Life works. Development and reporting of applied research are a logical and necessary “next step” as educators continue to consider the use of online virtual reality such as Second Life for educational purposes. As educators refine their approach to applying online virtual reality, Second Life may be found lacking in terms of the amount of control an institution may maintain over the environment. Currently, classes or meetings held in Second Life are similar to holding these events in a real-world public area such as a park or shopping mall, without the restraints necessary to ensure the relative safety of all participants. Local, regional, and federal laws prohibit a person from accosting another in a real-world public space, and the consequences for doing so can be severe; the same is not quite true for Second Life interactions.

Conversely, Second Life’s public nature makes it an attractive place to apply virtual reality to educational practice because it makes use of something that is currently novel and attractive to the general public (or at least to that portion of the general public that is interested in computing tools, networks, gaming, and/or multimedia).

Looking to historical examples of similar technological situations, Second Life, like Atari, the computer and video game developer, may be the first popular example of the technology, but not the final word on the subject. Second Life’s popularity may cause others to create similar, more technologically up-to-date versions of online virtual reality. Or, current competitors in online virtual reality may overtake Second Life. Regardless of which corporate entity develops a lead, the educational applications of online virtual reality environments such as Second Life seem to be something that will continue to gain in popularity.

References

- Abram, S. (2006). Some tricks to build information fluency--part 2. *MultiMedia & Internet@Schools*, 13(6), 6-28.
- American Library Association. (2007). ALA/Arts island opens in Second Life. *American Libraries*, 38(4), 12.
- Ananthaswamy, A. (2007) A life less ordinary offers far more than just escapism. *New Scientist*, 195(2618), 40.

- Bainbridge, W. S. (2007). The scientific research potential of virtual worlds. *Science*, 317(5837), 472-476.
- Barack, L. (2006). Virtual stacks go live. *School Library Journal*, 52(12), 26.
- Bell, L., Pope, K., Peters, T., & Galik, B. (2007). Who's on third in Second Life? *Online*, 31(4), 14-18.
- Boulos, M. N. K., Hetherington, L., & Wheeler, S. (2007). Second Life: An overview of the potential of 3-D virtual worlds in medical and health education. *Health Information and Libraries Journal*, 24(4), 233-245.
- Brown, A. (2007). Preparing my virtual office: Using Second Life to connect with distant students. *The NCDLA e-Letter* 5(2). Retrieved from <http://www.usdla-nc.org/nl/NCDLAFall2007.pdf>
http://www.ahbrown.com/NCDLA_Newsletter_Fall_2007.pdf
- Bugeja, M.J. (2007). Second thoughts about Second Life. *Chronicle of Higher Education*, 54(3), C2-C4.
- Childress, M. D., & Braswell, R. (2006). Using massively multiplayer online role-playing games for online learning. *Distance Education*, 27(2), 187-196.
- Deubel, P. (2007). Virtual worlds: A next generation for instruction delivery. *Journal of Instruction Delivery Systems*, 21(2), 6-12.
- Erdman, J. (2007). Reference in a 3-D virtual world: Preliminary observations on library outreach in "Second Life". *Reference Librarian*, 47(98), 29-39.
- Foster, A. L. (2006). Harvard to offer law course in 'virtual world'. *Chronicle of Higher Education*, 53(3), 38.
- Foster, A. L. (2007a). 'Immersive education' submerges students in online worlds made for learning. *Chronicle of Higher Education*, 54(17), A22.
- Foster, A. L. (2007b). Teaching geography in Second Life. *Chronicle of Higher Education*, 54(10), 36.
- Gronstedt, A. (2007). Second Life produces real training results. *Training and Development*, 61(8), 44-49.
- Hall, T., & Nguyen, F. (2007, July). IBM@Play on Second Life. *Training Media Review*.
- Hurst-Wahl, J. (2007). Librarians and Second Life. *Information Outlook*, 11(6), 45-53.
- International Society for Technology in Education (2008). *ISTE in Second Life*. Retrieved from http://www.iste.org/Content/NavigationMenu/Membership/Member_Networking/ISTE_Second_Life.htm
- Kirriemuir, J. (2007). *A July 2007 "snapshot" of UK higher and further education developments in Second Life*. Eduserv Foundation. Retrieved from <http://www.eduserv.org.uk/foundation>,
<http://www.eduserv.org.uk/research/sl/uksnapshot072007>
- Lagorio, C. (2007, January 7). Pepperdine in a Treehouse. *The New York Times*.
- Linden Research, Inc. (2009a). *Linden lab*. Retrieved from <http://lindenlab.com/about>
- Linden Research, Inc. (2009b). *Second Life for educators*. Retrieved from <http://secondlifegrid.net/slfe/education-use-virtual-world>
- Lorenzetti, J. P. (2007). Teaching in Second Life: A brief FAQ. *Distance Education Report*, 11 (14), 1-2.
- Oishi, L. (2007). Surfing Second Life. *Technology and Learning*, 27(11), 54 -64.
- Orphan, S. (2007). San Jose State opens Second Life campus. *College & Research Libraries News*, 68(6), 342.
- Peek, R. (2007). Librarians on Second Life. *Information Today*, 24(2), 15-16.

- Second Life. (2008). *What is Second Life?* Retrieved from <http://secondlife.com/whatis/>
- Simteach.com (2008). *Institutions and organizations in SL*. Retrieved from http://simteach.com/wiki/index.php?title=Institutions_and_Organizations_in_SL
- Skiba, D. J. (2007). Nursing education 2.0: Second Life. *Nursing Education Perspectives*, 28(3), 156-157.
- Steel, E. (2007, October 23). Marketers explore new virtual worlds. *The Wall Street Journal Online*. Retrieved from <http://online.wsj.com/public/article/SB119309412255567685.html>
- Stevens, V. (2006). Second Life in education and language learning. *TESL-EJ*, 10(3), 1-4.
- Stothart, C. (2007). British library plans Second Life branch. *Times Higher Education Supplement*, (1804), 7.
- Swanson, K. (2007). Second Life: A science library presence in virtual reality. *Science & Technology Libraries*, 27(3), 79-86.
- Wikipedia. (2008). *Second Life*. Retrieved from http://www.wikipedia.org/wiki/Second_Life