

INFINITE POSSIBILITIES FOR LEARNING IN A VIRTUAL WORLD: SECOND LIFE

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Abstract: Second Life, an online virtual world with millions of “residents” is an effective tool for collaboration and experiential learning. Residents, represented by an avatar, can interact with one another using voice or chat and can explore a 3D world filled with learning objects. Avatars can “teleport” to other countries, speak to anyone in the world, attend virtual conferences, endlessly swim in the ocean, sail the seas without experience, fly to the moon, and build any object of their own that their imagination can create. There is an abundance of places to explore and groups to join focused on science. The Second Life Science Center, the National Oceanographic and Atmospheric Administration Earth System Research Laboratory, the International Spaceflight Museum, the Exploratorium, CalTech’s Jet Propulsion Laboratory, Second Nature Island, and the SciLands are just a few examples. Colleges and universities have populated Second Life with campuses, libraries, and interactive learning areas related to disciplines such as science. Explore the possibilities of Second Life with us while we take you on a tour and discuss the infinite potential for collaboration and learning with this Web 2.0 technology.

Keywords: Second Life, shared virtual environments, computer simulations, virtual reality, multi-user virtual environment, academic libraries – information technology, Libraries and the Internet

Second Life (SL) is a three-dimensional (3D) virtual world that exists on the Internet. Opened to the public in 2003 by San-Francisco-based Linden Lab, Second Life has grown into a phenomenon capturing the minds and imagination of millions around the world. Linden Lab’s mission is, “To connect us all to an online world that advances the human condition.” The company has over 200 employees worldwide making it comparable to other popular social utility companies like Facebook and MySpace. The majority of users of SL are from the United States and Europe (Johnson & Middleton

2008). As of November 15, 2008 there were 15,958,285 residents in SL with 932,311 logging in during the last 30 days (http://secondlife.com/whatis/economy_stats.php).

Avatars can be representative of someone's physical body in "real life" or can represent a user in any way the user chooses. Users who are male in real life may choose to be female in SL. Users may choose to represent themselves as an animal in SL, known as a "furry." The look of avatars varies widely and avatars can be quickly and easily changed within seconds. Many users have multiple "looks" available to them in their inventories to change the look of their avatar on a whim.



Figure 1. A "Furry" or animal avatar as represented in Second Life.

While basic accounts (having an avatar with the ability to explore and interact with other avatars) are free, residents and organizations can also own land in Second Life with varied pricing models that include monthly maintenance fees. The world is entirely built by its residents and residents often create products (such as clothes, hair, houses, cars, etc.) that they give away to any interested user. Users can store items in their inventories which allow them to organize and store items to use as needed.

Applying Web 2.0 principles of interactivity and user participation, Second Life (SL) offers infinite opportunities for business, entertainment and education. Avatars can interact with one another using voice or chat and can explore a 3D world filled with learning objects. Avatars can "teleport" to other countries, speak to anyone in the world, attend virtual conferences, endlessly swim in the ocean, sail the seas without experience, fly to the moon, and build any object of their own that their imagination can create. Additionally, they can exchange real-world currencies for Linden Dollars, Second Life's official currency. The implications of this virtual economy are yet to be fully understood but the virtual world has an annual gross domestic product of \$64 million (Newitz 2006).

Public and academic libraries have been exploring the potential benefits that virtual environments, including Second Life, have on libraries and learning (Kirriemuir 2006; Bell *et al.* 2008; Godfrey 2008). Given that a primary focus of SL is on communication, librarians have been very active in SL with many libraries being created to serve a variety of purposes in SL. Libraries have virtual collections, virtual exhibits, spaces for events such as conferences and classes and offer virtual reference services. Info Islands I and II, Cybrary City, Caledon Branch Library and the American Library Association are some examples of the presence of libraries in SL. Recognizing the value of libraries in transmitting information to the broader public community, funding agencies have tapped them to explore SL for these purposes. In 2006, the Greater Midwest Region of the National Network/National Library of Medicine (GMR NN/NLM) provided a \$40,000 grant to the Alliance Library System (Illinois) to investigate opportunities for providing consumer health information in SL (Kirriemuir 2006). Other examples illustrating the library presence in SL include book club meetings, speakers, discussions on various library related topics such as information literacy, readings, radio broadcasts, and storytelling.

Many colleges and universities have developed campuses in SL which include libraries. The University of Kentucky, North Carolina State University, McGill University, San Jose State University's School of Library and Information Science and Harvard University are just a few exploring applications in SL. A number of schools are also using SL as an admissions recruiting tool to market their campuses to prospective students who may otherwise not have an opportunity to visit them in the real world; examples include Penn State University and Case Western University. East Carolina University, a leader in distance education, has also recreated its campus in SL and will be investigating its potential for enhancing distance education (DeOrnellas 2008). The University of North Carolina Wilmington (UNCW) has recently purchased an island as well. These applications for recruiting or distance education have the potential to revolutionize learning and access to education throughout the world.

Individuals and organizations with elaborate islands, multiple structures and available interactive learning objects are not the only ones investigating applications in SL. Numerous disciplines, including science, are doing so as well (Huang *et al.* 2008). Organizations with land in SL include the American Chemical Society, Centers for Disease Control and Prevention, International Society for Science in Education and National Oceanic and Atmospheric Administration (NOAA) just to name a few. Huang *et al.* (2008) report several scientific endeavors using SL that include sensory effect simulations to reproduce the effects of neurological disorders; therapeutic training environments for individuals with social anxiety disorders and autism spectrum disorders; and simulated "skins" that enable users to experience how skin diseases may progress or appear over time. The potential benefits for clinical students are notable as well. SL enables them to train in real-time using voice, chat, or both to gain valuable experience interacting with patients and appropriately diagnose and provide treatment (Kamel Boulos *et al.* 2007). SL also offers opportunities for diminishing social barriers. By using avatars to impersonate themselves, others have noted that SL has enabled otherwise shy

students to participate more openly in classroom discussions without fear of being judged by their peers (Berger 2008).

Perhaps most noteworthy to aquatic science librarians are some of the initiatives being undertaken by NOAA in SL. Occupying two islands, Meteroa and Okeanos, NOAA enables users, through their avatars, to ride in a weather balloon and experience an airplane ride into a hurricane. Avatars can also see climate change simulations with a melting glacier demonstration or visit a virtual beach to learn about tsunami warnings. On its second island, Okeanos, avatars can go aboard the Okeanos Explorer, NOAA's newest survey vessel. Mapping the ocean floor, observing the effects of harmful algal blooms, assist in an oil spill cleanup, and virtual coral reef sanctuaries provide additional learning opportunities at Okeanos.



Figure 2. Diver in Second Life. Credit: National Oceanic and Atmospheric Administration.

Second Life's strongest asset is its potential to expand communication and collaboration throughout all parts of the physical world by connecting people together in a virtual one. Individual scientists and organizations are experimenting with SL as a medium for hosting meetings and conferences. Everts (2007) describes attending an SL seminar in which a biologist from Texas Wesleyan University delivered a talk on using amino acids to make music. The talk was held on Genome Island, which the biologist had created to teach undergraduate genetics in a new and innovative way. The island also includes a cell that users, through their avatars, can tour and explore. Methods for communicating the

history of science are “evolving” as well (DeBolt 2008). The University of Cincinnati has recreated Charles Darwin’s journey aboard the *HMS Beagle* to the Galapagos Islands. Accompanied by audio and video clips, avatars able to virtually retrace Darwin’s path to celebrate the 150th anniversary of his seminal work, *On the Origin of Species by Means of Natural Selection* (DeBolt 2008). Additionally, SciLands, a continent in SL, exists to facilitate communication and collaboration between government agencies, universities and museums in the science and technology sectors. Further, during the landmark United Nations Climate Change Conference (3-14 December 2007) Nature Publishing Group hosted a concurrent series of talks on climate change in an attempt to capture a larger and more diverse audience from around the world (Samson 2007).

The full impact of virtual worlds, particularly Second Life, remains to be fully understood. While the opportunities for learning are plentiful, there are numerous technical and social challenges posed by this new medium. Bandwidth, latency (slow packet delivery speed), and computer speed present obstacles for enabling access to SL. Economic and social barriers, such as access to computers and the Internet, are recurring themes around the globe that inhibit access to SL. Additionally, SL and virtual worlds present new questions on processes by which individuals socialize and learn group norms, modes by which individuals develop intellectually and express themselves (Bainbridge 2007), along with numerous other economic and legal questions.

Second Life is a unique 3D online virtual world that presents infinite opportunities for learning. Libraries, universities, and scientists have been early adopters of this technology and are actively investigating its merits and disadvantages for inclusion in their missions. SL presents additional opportunities for increasing and improving distance education. Universities challenged to provide physical space to an increasing number of students may find that SL lessens the effects of these challenges in new and exciting ways. In a changing climate where people are looking for sustainable ways of living, combined with economic uncertainties, SL materializes as a viable alternative to physical travel while continuing to allow professionals and others to communicate, collaborate and learn from one another. Most importantly, SL offers endless opportunities for becoming a more globally connected environment.

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