The Educators Coop:
A *Virtual* World Model for *Real* World Collaboration

Leslie Jarmon, Ph.D.[1]
Joe Sanchez[2]

Abstract: Research is presented examining the effectiveness of Second Life (SL), a 3-D virtual world, as a collaborative work tool for a virtual group of 42 real educators and researchers from diverse disciplines and geographical regions. The study focuses on phase one of research being conducted in the Educators Coop, the first long term virtual residential community established in SL specifically for educators and researchers. Six primary themes emerged from the content analysis of the members' responses to the open-ended interview question "How have you used the Educators Coop?" Primarily, the 3-D virtual space is being used to collaborate, to learn, to do real work, to work alone, to network with neighbors, and to build. Some challenges include overloaded work schedules, time zones differences, and computer technology requirements and glitches.

> "Probably the thing that has been most useful to me is the connections I have made with other residents and the things I have learned from them."
>
> - Educators Coop Resident

Introduction

The purpose of this paper is to present research examining the effectiveness of Second Life (SL), a 3-D virtual world, as a collaborative work tool for a virtual group of 42 real educators and researchers from diverse disciplines and geographical regions. The study focuses on research being conducted in the Educators Coop, the first long term virtual residential community established in SL specifically for educators and researchers. In this paper the authors will 1) briefly delineate the theoretical and practical foundations for the Educators Coop model, 2) present the research methods, 3) report research findings on the multiple ways the Educators Coop members are actually using the virtual community, and 4) discuss the implications generated by the data collected during the six month period constituting phase one of the research project.

Background

Social virtual worlds such as Second Life (SL) are currently being used as a new form of groupware by universities, corporations, and libraries and are being characterized as a social

[1] Leslie Jarmon, Ph.D., The Graduate School, The University of Texas at Austin, 1 University Station, G0400, Austin, TX 78712; Phone: 512-232-3617; Fax: 512-475-8851; Email: LJarmon@austin.utexas.edu

[2] Joe Sanchez, School of Information, The University of Texas at Austin, 1 University Station, D7000, Austin, TX 78712; Phone: 512-471-3821; Email: joesanchez@mail.utexas.edu

environment ripe for scientific investigation (Bainbridge, 2007). Although virtual worlds are being enthusiastically adopted, little research exists to support the use of 3D virtual worlds as a collaborative work platform.

In his work about virtual economies, Castronova (2005) explores the idea that virtual worlds such as World of Warcraft (WoW) and SL are creating a unique, perhaps new type of citizen participation that will impact the future of real world governments, economies, and politics. WoW is a virtual world where players assume a character and join other players to campaign and quest in a fantasy-like world of orcs, trolls, gnomes, and elves. Some virtual worlds such as WoW contain a role-playing game at the core of the experience in which large numbers of players interact in what is referred to as collaborative play (Taylor, 2007). Game-like virtual worlds are classified as Massively Multiplayer Online Role-playing Games (MMORPG). World of Warcraft is the most popular MMORPG with 8.5 million players paying a monthly subscription to play the game (Bainbridge, 2007). Virtual worlds such as SL and There have similar features to MMORPGs but at their core they do not contain a game (although games do exist within these virtual worlds), and these virtual worlds that are not games are considered to be social virtual worlds. Second Life is currently the largest social virtual world with over 11 million registered users.

According to Betsy Book (2004), both game worlds and social virtual worlds share six common features between them. Virtual worlds are *shared spaces* used by many players at the same time. Virtual worlds contain a *graphical user interface* that depicts space visually. Interaction in virtual worlds occurs in real time, users experience *immediacy*. Virtual worlds allow users the ability to alter the world they are in; the space is *interactive* and occurs in *decentralized avatar worlds*.

Second Life's 3-D virtual world exists on a scalable server grid running Linux, and each server can sustain one continuous simulation, or "island" in Second Life. Ondrejka (2007) states that over 10,000 islands have been constructed, and each island can support the activities of approximately 60 logged-in avatars, actual users at their keyboards. Further, Ondrejka reports that SL has supported over 35 terrabytes of user-created data. In this endlessly expandable "space," the technology creates a platform for users that is massively distributed and that has pervasive connectivity.

Second Life is a contiguous, persistent world (what users build there remains in the virtual world), with flexible building tools, scripting tools for animation of objects, images, voice, audio, video tools ("machinima"), a weather system with wind, cloud formations, and a day/night cycle. SL provides International Language Support, including Asian character sets, and EU keyboards are supported (Linden Lab, 2007). The technology that supports this capacity for user-created content is the most robust and innovative feature of Second Life. These technologies provide users with multiple developer abilities to create and transform their experiences in the 3-D virtual world.

While MMORPGs are still played more frequently than any social virtual world, social virtual worlds are rapidly expanding and are being adopted by organizations such as IBM, Sun Microsystems, and the American Library Association. These entities have adopted 3-D virtual worlds as platforms for collaboration (Karif, 2007).

Previous research in shared virtual environments has been limited to small groups of participants (Sonnenwald, 2006), timed and coordinated events (Nilsson et al, 2001), and in isolated group environments (Spante et al, 2006). Recent work involving a mid-sized group in

Second Life over a nine-month period uncovered the need to create social spaces and activities that are social in nature (Sanchez, 2007a). Events such as group gatherings, "build"-challenges, and games can encourage the exchange of information and create opportunities for the transfer of tacit to explicit knowledge (Sanchez, 2007b).

Description of the Educators Coop

The Educators Coop is the first long term virtual residential community established in Second Life specifically for educators and researchers. Its 42 members include university faculty, librarians, and K-12 teachers from 32 different educational institutions actively teaching or researching in SL. Members largely reside in regions across the US but also include an educator in Singapore.

Launched in July 2007, the goal of the Educators Coop (www.educatorscoop.org) is to provide educators and researchers with a unique *residential* environment from which to begin exploring, collaborating, teaching, learning, and conducting research more easily and seamlessly. The Educators Coop Island in SL has been designed to cultivate new cross-disciplinary relationships and collaborations. All residents are participants in the research project measuring the effectiveness of this virtual model for cultivating community and collaboration. A second feature making this study unique is that we are exploring the impact of long-term proximity of the participants on their degree of collaboration. By "living" next door to one another as neighbors in this virtual world within the semi-private bounded community area (the Educators Coop Residential Community Island), and by participating experientially in community events and day-to-day kinds of neighborhood activities, we anticipated an significant level of productive real world collaboration. To become a resident of this semi-private community in SL, applicants are required to verify their academic or professional credentials, articulate their teaching and/or research plans, and agree to participate in the research study.

The Educators Coop is designed to encourage social exchange, facilitate navigation across the simulation, provide easy access to community information, and to support group collaboration. The Educators Coop is comprised of sixteen virtual acres of land featuring a Mesa (small flat mountain) raised above the center of the island. The island has been parceled into sixty-four 1024 square meter plots of land. Each quadrant of the island is marked with a large colored flag (red, yellow, blue, and green), and at the based of each flag is a small gathering space featuring benches and landscaping for that neighborhood.

The heart of the island is the Mesa complete with spring-fed waterfalls. The Mesa features a community sandbox for practicing building and sharing ideas, a large group discussion area, a community calendar and bulletin board, and a small group discussion area. The sandbox is a collaborative building space where residents can create and test objects. Land is SL is relatively expensive to purchase, and open areas where SL users are allowed to build are becoming less available. The sandbox made available to residents is a valuable commodity, and the research study anticipated that the sandbox would become an important area where knowledge sharing takes place.

When residents join the Educators Coop they are asked to choose from a variety of seven houses to place on their land, although they are not required to use the house. Thus far, the trend seems to be that expert users choose to build their own homes while beginners choose to modify a model home. The types of objects added to a parcel serve as a possible visual indication of expert and beginner users. Experts have been visiting with beginners and offering advice, whereas beginners have been visiting experts to ask questions. However, while the

types of houses might serve as a visual cue for assessing probable level of expertise in SL, several residents contracted outside builders to construct their homes, revealing a level of expertise, not in building, but in navigating the social economy of SL.

Once applicants have become official members and residents of the Educators Coop, the communication tools within Second Life begin to play a larger role: Instant Messaging, the SL Group notification functions, the Group Proposals function, and so forth. On the Mesa, there are also an interactive bulletin board and calendar for additional communication alternatives. One resident created an interactive 3-D map on the Mesa that allows residents to "click" on the representation of their parcels and immediately teleport to their homes.

Initial early survey data indicated that the Educators Coop model within Second Life was likely to be a rapid collaboration platform (Jarmon and Sanchez, in press 2008). Early on, participants created informal collaborative teams and used quick bursts of communication to solve problems together. These informal collaborative teams would then quickly disband only to reform again to tackle new issues as they emerged.

Methods

This research study is being conducted in two phases in the virtual world of SL on a semi-private simulation called the Educators Coop that was designed to promote collaboration and knowledge creation amongst its residents, who are educators, researchers, and librarians. For the entire project, our four broadly defined research questions are:
- Does a shared virtual environment enable the creation of a community of practice?
- How do members of a virtual community describe their experience?
- In a shared virtual environment, is there a relationship between information architecture and the interactions of a community?
- Will virtual world collaborations extend beyond the virtual world and lead to real life collaborations?

We predict that other research questions of interest will arise as our observations of the community are compiled throughout the year and as we analyze the growing data set. Extensive data were collected after six months at the end of phase one of the research project, and this paper presents those findings related to how the Educators Coop members have actually been using the virtual community thus far.

In addition to two online surveys and two focus group session comprising part of the data collection for phase one, twenty-three interviews were conducted over a two-week period in SL with members of the Educators Coop. Interviewees ranged from one to six months in residency at the Educators Coop at the time of the interviews. The 45-90 minute interviews were conducted through the chat client within SL and each interview consisted of five questions. The findings and analysis in this paper address the responses to one of the five open-ended questions: "How have you used the Educators Coop? Please describe in detail." The interviews were intended to uncover the perceptions and experiences of members in the Educators Coop, an objective that is consistent with Mertens (1998) framework for qualitative research: "Within this realm, the scientist's job is to discover the world as it is experienced by the individual" (p.169). The transcripts of the interviews were analyzed using inductive content analysis of the language used by the members themselves.

Findings

Overall, our results indicate that many of the Educators Coop members regularly meet virtually to share virtual world teaching strategies, to design virtual world research projects, to collaborate on interdisciplinary projects, to co-present at conferences, and most importantly, to create a support system for geospatially separated education practitioners interested in teaching and research in virtual worlds.

Six primary themes emerged from the content analysis of the 23 members' responses to the open-ended interview question "How have you used the Educators Coop?" (Table 1). Members of the Educators Coop reported that they participate in the community and use their allocated space in many ways as a place to learn, work, network with neighbors, collaborate and build. Some members reported that their planned use of the Educators Coop and their actual use were quite different than they initially expected. The six themes are presented below along with typical examples of the interviewees' observations.

Table 1. Six primary uses of the virtual Educators Coop in Second Life

How have you used the Educators Coop?	To collaborate To learn To work To network with neighbors To build Differently than I had planned

Educators Coop is a place to collaborate

According to the interviewees, collaboration is one of the most significant ways they use the Educators Coop, and that collaboration takes many forms. Conference panels, papers, presentations, course projects, and mentoring are some examples of the types of collaboration reported. Members asserted that the Educators Coop presented many unexpected opportunities for collaboration on real-world efforts in the design of assistive technologies for people with special needs, in creating poetry and music, and in working with real-world non-profits. Several members of the Educators Coop became co-presenters in real-world academic conferences even though they had never met in person; their first connection and their collaboration in planning occurred through the Educators Coop in Second Life. Typical of the members' observations were these:
- "On Educators Coop island, we have at least three people now interested in assistive technology/special education"
- "I'm presenting at an RL [real life] conference with one of the Educators Coop folks in January even though we've never met f2f [face to face]"

Educators Coop is a place to learn

Members of the Educators Coop engage in both formal and informal learning while residing on the group land in Second Life. Members found value in weekly discussions about teaching and learning in Second Life and in weekly building sessions. They learned skills such as scripting and building and valued the Second Life teaching experiences that members of the community shared. Participants developed skills and confidence as they spent more time in the Educators Coop. Residents reported that the workshops served two purposes: they learned technical skills by attending workshops and they were able to practice teaching techniques by leading

workshops. For many members, their honed skills and confidence enabled them to lead a workshop at the Educators Coop, their first teaching experience in a virtual world.

- "I attended many of the group meetings and some of the classes and always found the discussions meaningful. I learned a lot from the fellow educators"
- "I have very much enjoyed and profited from the Tuesday and Sunday meetings and from the workshops as well"

Educators Coop is a place to work

Many residents reported that the Educators Coop is a place where they can work in peace and quiet and that it is a place where they feel less rushed and are able to explore and experiment with the affordances of Second Life. For example, members observed that they used their home space on the island to test and practice the building skills they learned in group workshops. Their private home parcels and the semi-private island provided a space "almost like a vacation." Members were able to get away from new users ("noobs") and work with neighbors and other educators trying to solve similar problems and issues. The interviewees also reported that they used their parcels as a home base for their students to begin exploring Second Life. Office hours, class discussions, and guest lectures were some of the class activities held by members on their parcels on the Educators Coop.

- "The most important thing was that it was a place I could call my own, and it gave me a comfortable place in what was initially a pretty unfamiliar world. I also used it as a space to do what building I have been able to do to date"
- "I have a home base ... a place to be, to try things out, to change clothes, to put up a new house, try my hand at anything I like in SL"

Educators Coop is a place to network with neighbors

Residents of the Educators Coop valued the informal networking opportunities that they participated in and often referred to other members in close proximity as "neighbors". When members would see one another on the map they would typically greet each other and talk about things such as teaching and schedules but more often than not they would talk about non-academic topics such as shopping and holiday plans. Members found value in dropping in on each other for short visits to find out what their neighbors had been working on. In many cases members would offer to help one another if they were engaged in building activities. Many members mentioned how they liked to hear about what community members were working on who were located in other parts of the country. The interdisciplinary nature of the group and the consequent variety of uses of Second Life by Educators Coop members has reportedly inspired them to maintain communication with one another.

- "Probably the thing that has been most useful to me is the connections I have made with other residents, and the things I have learned from them"
- "I've also met folks here I would probably never have met in RL (real life), educators at universities and in K12 schools who I wouldn't necessarily ever have crossed paths with"
- "I've used it to network with colleagues from all over the country and it's wonderful because of the interdisciplinary nature of the group"

Educators Coop is a place to build

Members of the Educators Coop used their own parcels and the centrally-located community sandbox known as the Mesa as a place to experiment with building and as a space to test objects or sort their virtual possessions (objects, clothes, note cards, scripts, landmarks, images, and even alternate avatars). Members reported a common experience of building and

modifying their first house at the Educators Coop. Frequently members used their parcels to test scripts (programmable objects) and to work with multimedia such as audio and video streams. Residents reported feeling that the Mesa and the Educators Coop was a safe place to build and experiment in.

- "I have used it to learn how to build. I have built and rebuilt the house - that was fun and educational"
- "I have used the Educators Coop as a location to try out new gadgets I find or buy in SL, such as projection screens, movie screens, and teleporting devices"
- "We have used the Mesa a great deal for building, until we got a place of our own"

Educators Coop is not what I had planned

Some members reported that their original planned use of the Educators Coop and their actual use differed substantially. Members reported not being able to spend the amount of time they wanted participating in the Educators Coop because of their teaching loads or job duties. Others were not able to meet during weekly events because they were teaching or otherwise away from their computers during the scheduled times. Some members reported that the timing was just not right for them because of the time zone differences between the mainland USA and their own geographic location (Singapore). Others reported having technical problems with their computers that impacted their ability to log in to Second Life. Some members also expected to see Educators Coop continuously populated but often, like any school building, the virtual island was empty.

Discussion

The Educators Coop model suggests that social virtual worlds such as Second Life can be used as effective collaborative work tools when certain conditions in the design and management are present. Residents of the Educators Coop used SL to collaborate in a variety of ways categorized above under six themes. They collaborated in pairs, in small groups, and as a community. Collaboration in this social virtual world also led to real world collaborations, most commonly in the form of conference panel sessions. At the same time, many residents reported that their virtual interactions with one another within the Educators Coop community was, in a practical sense, also "real."

The Educators Coop model was created with certain design features intended to support the conditions for potential collaboration among the members of the community. Our findings suggest that individuals and groups working in the virtual world need a variety of spaces to be able to work together effectively and productively, and those spaces should support both formal and informal learning areas. The Educators Coop design anticipated that proximity would matter, and the research findings indicated that members did in fact actively relate to their virtual neighbors and experienced a sense of belonging to a community that was, according to one member, like "a family."

A common belief within the culture of virtual worlds, particularly within Second Life, is that places should be open to the public. The Educators Coop received negative feedback from some members of the Second Life community when it was announced that the project would be a private area. In fact, some members of the Educators Coop initially expressed dismay about the "closed island" and it became a hotly debated topic at the first monthly resident's meeting. However, with time, most members reported that they did in fact prefer to have a closed island and that it had several benefits that they had not previously been aware of such as privacy.

Much like real life, people seem to appreciate a personal space in which to work when participating in a virtual world community. The personal space allocated to each member allowed them to learn Second Life skills without the anxiety of making mistakes in front of advanced users and without the disturbance of uninvited guest dropping in. Personal work space in the Educators Coop has many similarities with personal office workspace in that each member has a home base or a point of entry into the island, a place to start and end the day, and a space to store or display their possessions. Residents would often stop by and informally visit other residents at their "homes," and it was during these times that information was shared, items were "gifted", and Second Life tips and tricks were passed among one another.

Along with personal workspace, shared collaborative space is another type of area needed to support virtual world collaborative work. At the Educators Coop the shared collaborative workspace was the sandbox on the Mesa. The group sandbox allowed members to work on large projects, and working in the sandbox became a signal to others that feedback or assistance was welcome. One section of the sandbox became a community play space where members created a farm scene complete with tractors, horses, chickens, and a windmill. Spontaneous playful projects such as this can occur in spaces where group members are encouraged to collaboratively build and where work teams are encouraged to add to one another's work.

Collaboration can be fostered by community managers. The Mesa was used as a community gathering point and became the center of both the informal learning described above as well as the formal learning activities at the Educators Coop. The Educators Coop model was originally designed to include monthly community meetings on the Mesa. After approximately two-months, at the suggestion of the members, regular weekly chat discussions were instituted for the members to come together to share their experiences on teaching and learning in Second Life. Furthermore, weekly Sunday afternoon (as per US mainland time) workshops for training members in various skill sets were initiated. These weekly workshops were conducted by the members themselves and covered such topics as building speakers' podiums and cars, creating presentations, importing images, making clothes, managing inventories, and adding scripts to objects.

Later, a variety of additional regular community gathering opportunities were initiated including an alternative chat discussion day and time, monthly socials, a swap meet on the Mesa, and a community "book-raising" with the creation of a virtual compilation of the biographies and snapshots of all the Educators Coop members.

Community managers also used and trained members in the use of the built-in communication tools in Second Life, including friendship, teleporting, sharing ("gifting") functions, group instant messaging, group notices, group voting on proposals, and a community bulletin board and calendar on the Mesa. The Educators Coop members were using a convergence of social networking communication tools including Google groups, email, and other inworld Second Life communication features to support their collaboration efforts.

Conclusion

Extensive data were collected after six months at the end of phase one of research on collaboration using the Educators Coop model in the social virtual world known as Second Life. This paper has presented some of the significant findings related to how the Educators Coop community members, comprised of educators and researchers, have actually been using the

virtual community thus far. It was found that, when certain design and community management conditions are present, the members were able to collaborate effectively and productively in ways that impacted their real lives.

Phase two of this research project will involve additional data collection including in-depth individual exit interviews, online surveys, focus groups, and a community Town Meeting. As these new data are analyzed, we anticipate that new findings relevant to effective virtual collaboration will emerge.

More empirical and ethnographic research is needed to examine what characteristics of the individual members made them more or less likely to participate in collaborative activities. Furthermore, it will be important to determine if and how users' participation levels may have changed in relation to the length of time spent in Second Life and in becoming more proficient in virtual world skills. Finally, a long-term examination of the on-going impacts on other real world activities and collaborations among this community of pioneer educators and researchers is warranted.

References

Bainbridge, W. (2007). The scientific research potential of virtual worlds. *Science, 317*, 472-476.

Book, B. (2004). *Moving beyond the game: Social virtual worlds*. Presented at the State of Play 2: Cultures of Play Meeting, New York Law School, NY. October 6-8, 2004.

Castronova, E. (2005). *Synthetic Worlds: The Business and Culture of Online Games*. Chicago: University of Chicago Press.

Jarmon, L., & Sanchez, J. (2008, in press) The Educators Coop experience in Second Life: A model for collaboration. *The Journal of the Research Center for Educational Technology*.

Kharif, Olga. "The Virtual Meeting Room." *Business Week*, 2007;6.

Linden Lab. (2007). Company fact sheet. Retrieved December 15, 2007, from http://www.lindenlab.com/

Mertens, D. (1998) *Research Methods in Education and Psychology: Integrating Diversity with Quantitative and Qualitative Approaches*. London: Sage Publications.

Nilsson, A., Heldal, I., Schroeder, R., & Axelsson, A. (2001). The long-term uses of shared virtual environments: An exploratory study. In R. Schroeder (Ed.), *The Social Life of Avatars: Presence and Interaction in Shared Virtual Environments*, 112-126. London: Springer.

Ondrejka, C. (2007). *School of the future: Innovation and education in Second Life*. Academic Days on Game Development Conference May 14, 2007. Microsoft Development Network, Academic Resource Center. Retrieved December 15, 2007, from http://www.academicresourcecenter.net/curriculum/pfv.aspx?ID=6820

Sanchez, J. (2007a). A sociotechnical analysis of Second Life in an undergraduate English course. In C. Montgomerie & J. Seale (Eds.), *Proceedings of World Conference on Educational*

Multimedia, Hypermedia and Telecommunications 2007 (pp. 4254-4258). Chesapeake, VA: AACE.

Sanchez, J. (2007b). Second Life: An interactive qualitative analysis. In C. Crawford, D.A. Willis, R. Carlsen, I. Gibson, K. McFerrin, J. Price, and R. Weber R. (Eds.), *Proceedings of Society for Information Technology and Teacher Education International Conference 2007* (pp. 1240-1243). Chesapeake, VA: AACE.

Sonnenwald, D. (2006). Collaborative virtual environments for scientific collaboration: Technical and organizational design frameworks. In R. Schroeder and A. Axelsson (Eds.), *Avatars at Work and Play*, 63-96. London: Springer.

Spante, M., Axelsson, A., & Schroeder, R. (2006). The good inequality: Supporting group-work in shared virtual environments. In R. Schroeder and A. Axelsson (Eds.), *Avatars at Work and Play*, 151-166. London: Springer.

Taylor, T.L. (2007). *Play Between Worlds: Exploring Online Game Culture*. Cambridge, MA: MIT Press.