

Experiencing information literacy in Second Life

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Abstract

Brave or naive, but aware of the research, teaching and play potential, the authors plunged into teaching part of an employee communication course at Mount Saint Vincent University in Halifax, Nova Scotia in Second Life, a virtual environment. Using the analytical tools of observational protocols, and discourse analysis of rhetorical accounts found in student and teacher reaction logs, discussion transcripts and focus group interviews, we situated ourselves among the learners to explore the threshold concept of information literacy in our classroom in Second Life.

Introduction

Perhaps brave or naïve, but always aware of the research, teaching and learning potential, the authors—a librarian and a professor—plunged into teaching part of a fourth-year professional communication course in Second Life during the 2007 winter term. Through experiential learning, our teaching goal was to help the students better understand how to critically evaluate the various communication tools and social environments available to them in the university and the workplace. Our research goal was to investigate the effectiveness of this 3-D virtual environment as a teaching environment in order to answer our research question: Does Second Life offer an effective learning environment in which to facilitate students' grasp of information literacy? We define information literacy as a constructivist process that reflects a student's ability to employ critical analysis of communication and information gathering tools, processes and networks. We wanted to know how well Second Life allows for the facilitation of this process.

Second Life, a 3-D virtual world, has been written about extensively in the popular press and in professional journals from the perspective of the new users and new services (Bell, Peters, and Pope 10-15; Grassian and Trueman 84-89). Second Life is being used as a service point and learning environment for both business and academia (Antonacci and Modares 36 pars; Foster A35-A36). While it has been differentiated from online gaming environments and redefined as a community space (Grassian and Trueman 84-89), few systematic studies to define Second Life as a platform for course

delivery have been published. There is cautious optimism that the now available and more inclusive, participatory Web 2.0 technology, which Second Life is part of, will lead to enriched learning opportunities although critical evaluation is required (Childress and Braswell 187-196). The literature considers other online platforms and learning (de Freitas 6-73), there are some accounts of instructional experiences in Second Life (Lee and Hoadley 383-389) at the secondary level, and only a handful of studies of Second Life as a university teaching and learning environment. Aaron Delwiche (160-169) used Second Life to teach a course on game design and found it to be an effective learning environment. Megan Conklin (6-31), has written a primer for setting up and delivering courses in Second Life, but has not conducted an assessment of the classes delivered from the perspective of instructor or student.

This article is an account of our ethnographic study. After defining information literacy as a "threshold concept" as outlined by education scholars Jan H. F. Meyer and Ray Land ("Threshold Concepts and Troublesome Knowledge" 1-14; "Threshold Concepts and Troublesome Knowledge (2)" 373-388), we identify what we see as the "troublesome knowledge" inherent in defining information literacy as a constructivist concept. We also introduce the "troublesome" nature of Second Life as experienced by ourselves and our students. The article's methods section illustrates the research tools and processes we used, and introduces the particular nature of the students we both learned with and taught. Our conclusions section argues for a cautious employment of Second Life as a learning environment for teaching information literacy, in particular, but offers advice for those educators willing to explore the platform.

Information literacy as a Threshold Concept

While information literacy is frequently understood as the ability to "recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (ACRL 2), Jeremy Shapiro and Shelley Hughes (31-35), Marcum (1-26), Edward Owusu-Ansah ("Debating" 366-374; "Information" 219-230), Kimmo Tuominen, Reijo Savolainen and Sanna Talja (329-345), and James Elmborg (192-9) have all urged an approach to information literacy that takes into account the complex system of social relationships, socio-technical configurations, and work organization that comprises today's reality. This more encompassing approach to information literacy made sense in the context of teaching fourth year students, many of whom had already been exposed to sessions in bibliographic instruction and academic integrity in previous years. It was also more in keeping with the workplace competencies and literacies the students would require as public relations graduates entering the workforce, particularly those of critical thinking, problems solving, and socio-technical competencies (Casner-Lotto and Silvert 6; Conference Board of Canada "Workplace Literacy Central"). Christine Bruce, Sylvia Edwards and Mandy Lupton's have described several frames within which to view information literacy including the "learning-to-learn frame" with its constructivist orientation and a focus on "helping learners construct knowledge appropriately and developing learning processes that foster the development of professional thinking patterns" (4).

Departing from the competency frame of information literacy as provided by ACRL's standards and guidelines (8-14), and adopting a constructivist orientation, the challenge becomes one of gauging the information literacy process. Adding a virtual environment as a place for the process to unfold muddies the waters further. To facilitate our understanding of our students' use and evaluation of information literacy in a Second Life environment, we employed the analytical frame of Jan H. F. Meyer and Ray Land's theory of "threshold concepts and troublesome knowledge" ("Threshold Concepts and Troublesome Knowledge "1-14; "Threshold Concepts and Troublesome Knowledge (2)" 373-388). A "threshold concept" is one that is crucial to the mastery of a particular field or way of thinking. Once the concept is truly grasped, according to Meyer and Land, it is transformative: a new understanding is assimilated into the way one continues to learn. The process is often irreversible, but it can be consciously modified or rejected in light of other new concepts. According to Meyer and Land, a threshold concept is likely to involve forms of "troublesome knowledge," which are often counter-intuitive and met with initial resistance and struggle. While some learners proceed to a deeper level of understanding, others can become stuck or resort to mimicry. Difficulty in understanding threshold concepts, then, may leave the learner in a state of liminality (Latin *limen*—'threshold'), a suspended state in which understanding approximates to a kind of mimicry or lack of authenticity" ("Threshold Concepts and Troublesome Knowledge" 10).

Using a constructivist definition of information literacy presents it as a threshold concept because we see information literacy as a social practice that extends beyond information gathering skills. We wanted our students to *critically analyse the ways in which we think about using and evaluating the communication process, personal and professional experiences, and information gathering within a scholarly and workplace environment*. In the twenty-first century, these environments necessarily include virtual environments. This is surely a troublesome concept for some of our students who are rarely asked to critically evaluate information other than from text. Of course, the technical skills necessary to navigate the virtual world influence how students think about the learning environment. The Second Life environment itself then also becomes a source of "troublesome knowledge" because while most of our students had experienced online course delivery, few of them were familiar with the Second Life environment. Even fewer consider themselves gamers, which would at least allow for them to navigate with ease. Helping our students through this process of information literacy should shift them "from problem solving to problem finding, problem refining and problem framing," according to education scholar David Perkins (qtd. in Bradbeer 16). Thinking about information literacy in this way identifies it as a threshold concept relevant to not only the field of communication, but rather extends information literacy to other disciplines in that it "leads to new and previously inaccessible ways of thinking about" the ways in which students, teachers and researchers gather, evaluate and use knowledge (Clouder 506).

Method

We employed layered investigative methods within the broader theoretical concept of ethnography. Throughout the Winter 2007 term, the authors kept relevant texts that were later analysed: researchers' self-reflection logs; Second Life IM and chat logs; WebCT discussion logs; and copies of the relevant portions of the students' final papers. Through discourse analysis of the IM and Chat logs using QSR Nvivo, and analysis of the final papers, we evaluated the extent to which the students demonstrated "information literacy" in their ability to use, and thus, evaluate, the Second Life platform. To this end Mayers and Land's ("Threshold Concepts and Troublesome Knowledge "1-14; "Threshold Concepts and Troublesome Knowledge (2)" 373-388) concepts of threshold concepts and troublesome knowledge, discussed above, proved a useful lens through which to analyze these texts. The texts also illustrated their perceptions of Second Life. At the end of the term, we held four voluntary focus groups with nine students in total of the 39 students enrolled in two sections of the course. When presenting excerpts or quotes of student discussions we use the initials of their Second Life names to protect their identity. We also show the online dialogue in its original form to demonstrate the reality of online discourse as it happened in our students' experiences within Second Life and in the forum section of WebCT.

The students in this study were fourth-year, or seniors, in a professional communication program. The course is an elective, delivered in the students' final term before graduating with a degree in public relations. All of the students were under the age of 30, and all were Caucasian, with the exception of one male and one female. Many (75%) of the class had taken at least one course with an online component. Five of the 39 students (13%) said they were familiar with Second Life at the beginning of the term, and only three students (8%) identified themselves as gamers.

Our sessions in Second Life took place on "Info Island," an online location whose mandate matched our requirements for safety, support and no cost. In addition to working in Second Life, course content and discussion was facilitated by WebCT, radio documentaries and reports, a documentary film, and newspaper, blog, wiki and pod technologies.

From the first day of class, the students were aware that portions of the course content delivery would be in Second Life. The relationship between the platform and the course content was articulated in the course syllabus, and discussion during the first week of classes. We highlighted that the students and teachers would concentrate on analysing, experiencing, and understanding the different modes of communication within an organization and that one of the main course objectives was to help students better understand how to critically evaluate the various communication tools and social environments available to them in the workplace. The students were also informed about the research study and provided with the opportunity to opt out of the study as per the institutions' research ethics policy.

We take a social constructivism approach to teaching, which emphasizes collaborative learning among the students, support of student questioning, the teacher as co-learner and collaborative knowledge production (Bonk and Kim 67-88). For some adult learners, this is itself a troublesome concept for various reasons, including, in the words of one of Rehberg Sedo's former students, "I've paid good money for this class and I want you to tell me what I need to know." The utilitarian approach to learning, as we will discuss below, is generally more evident when the students are on the eve of looking for full-time employment in their chosen field.

This Life and Second Life

During our first Second Life class, we met in an on-campus computer lab. We provided background gathered through academic and popular literature on the use of Second Life for education and business purposes. This was followed by a hands-on exercise of creating avatars (3D virtual representation of themselves) and entering the Second Life environment. Our logs indicate that the students were for the most part excited about the newness of the environment. There was animated chatter and giggles as the students created their avatars and learned to fly. During the creation of avatars, we asked the students to think about avatars, identity, space and place. We asked, "How do you decide what/who is legitimate? What are the implications for the classroom? Does this environment encourage sharing of resources within groups, and does this come into conflict with principles of academic integrity and intellectual property? During this class, there seemed to be a clear understanding of the link between course content and the learning platform.

The second time we met in Second Life, we wanted to ease the technological learning curve by having the students navigate the environment on a scavenger hunt leading them to spaces in Second Life related to learning and business. While technological learning curves were a factor as evidenced by comments such as "its interesting but kind of hard to navigate around" and "Okay, my inherent problem is that for no reason, I keep being launched into space and I can't come down haha," at least one student was coming to terms with the new environment: "I think the functions of this world really works our ability to multitask and be able to take everything in at onc" [sic]. Nevertheless, it was in this class that doubts were first raised about the connection between the learning platform and the class content.

After this class, one student expressed her reservations in the course WebCT chatroom. She questioned Second Life's relevancy to the course topic, generally, but more specifically to how Second Life could help "prepare" the students for "actual employee relations in the real world of communications." She wrote: "I'm seriously just concerned about what everyone thinks. As for me, this is not what I thought learning about employee relations meant, but I'm trying to keep an open mind." The topic garnered responses from 12 other students. While all of them were excited to be trying something new in the classroom, half of the students expressed a willingness to experiment with the environment, and the other half felt dubious about the significance

of Second Life to the field of internal communication. In what was going to become a sort of class division line between those who outwardly valued Second Life and those who did not, one male student wrote that he felt uncomfortable in the environment and did not see it as an effective learning environment. Another was willing to give it chance and have a little identity fun while doing so. He wrote: "Don't get me wrong, Second Life can be beyond frustrating. I still can't figure out how to get any hairstyle beside giant anime-style spikes. I'm not impressed with that whatsoever. Wings, however, are definitely cool. :-)"

The work of higher education scholar Glynis Cousins (134-147) is useful to help explain what some of the students were experiencing at this point in the term. Cousins argues that the emotional responses students experience can make learning troublesome. She suggests that not only mastery of the concept troublesome, but also the difficulty lies within the emotional experiences and social context of both the learner and the learning environment. Students' previous knowledge and experience dictates the hegemonic corporate practices of professional communication. They are not necessarily taught that there are alternate ways of doing things, or looking at things. Indeed, their professional work experiences may encourage just the opposite: Play the game, or leave. This is a strong emotional foundation through which were asking them to move.

In the third class students met in small groups to discuss and generate questions for future guest speakers in the Talus Library in Second Life. Several students began joining the class from home at this point. It was during this class session that some students displayed technical playful skills and course competencies through playful banter:

A. M: I actually like this Second Life thing it's pretty neat

A. M: hehe I am a nerd

P. R: Hey guys, it's really quiet in here... it's kinda creepy

M. M: i'm doing ok the questions are almost done

A. M: yeah everyone is dedicated to the tech

P. R: and yet we are all communicatiing

M. M: thas deep dude

P. R: cool

A. M: how about we have a dance off instead?

A. M: haha

P. R: how do we dance?

A. M: F9

(Real Time Communication via Second Life. 25 Jan. 2008)

All of the students were able to complete the in-class assignment, which was to create a team wiki and post questions to it for future online and face-to-face guest speakers. Each group succeeded in navigating in-world, discussing in-world and meeting their assignment expectation. However, we noticed among some students a stronger emotional resistance to the Second Life environment. One student was overheard saying, "This is too weird. Too 'Brave New World'-like, where everyone is twins". In the

class logs and in the focus groups most students described the silence in class while they worked online as uncomfortable or as noted in the log above "kinda creepy". Some students felt that it might have been less unnerving if they had all accessed Second Life separately from off-campus rather than together in the class lab. This is contrary to the findings of Delwiche (165) who found the students in his course preferred to meet together in a lab when using Second Life. This difference may be due to the fact that Delwiche's course utilized Second Life for an activity that could not be done without the software, i.e. creating a virtual game. The focus of our class was to evaluate Second Life for its use for meetings and communication, activities that could easily have been accomplished without any software as the students were in close proximity. This made the use of Second Life appear forced and artificial, with the exception of the session with a guest speaker who resides in another country.

The uneasiness the students felt at this point can also be explained by the newness of the technology and their inability and frustration in learning how to navigate. Most of their experience with the Internet was in using social networks, such as Facebook, or for e-mail and messaging. While few identified themselves as online gamers, almost all of them said that they use the Internet for reading newspapers/blogs, for shopping, for music downloading and listening, and for scholarly secondary research. This is consistent with the results of the Pew Internet & American Life Project April 2006 Survey, with the exception that U.S. Internet users who play online games a few times a month or more often are listed at about 28% (Horrigan,4) whereas only 8% of the course participants identified as gamers.

Our reflective logs illustrate that we were frustrated after this class with the schism that was forming. The problem may have been that we were assuming that the students' adoption or interactions with Second Life would be similar to other Web 2.0 practices. Although students may communicate through chat technologies such as MSN messenger, Skype or Facebook (IBID), they seemed to view Second Life as a different world both because it is relatively new and because it encompasses elements of both video games and online communities. Even those students who excelled within the environment still felt apprehensive about the platform. As one student expressed in a focus group, "I don't think we would have questioned things, as much if we in class and just having you, ahm . . . kind of . . .sit there and say this is what it is. We were searching and researching and discussing on our own so I was looking at the whole process of it, rather than just the program – because the program – was uncomfortable for me."

According to John Dewey (10-22) and Jean Piaget (38-48), interaction with the environment is a fundamental principle in how we construct knowledge. We argue that this could, in part, explain the importance of not generalizing the way the Internet is used. Our students reported using the Internet as a communication and information-seeking tool, which can explain why they felt comfortable using the other class technologies, but were experiencing some stuck-ness with Second Life. According to Piaget, "the learner relates new experiences to previous experience and thus

continually revises his/her understanding of the world" (qtd. in Frank pars 10-11). If the students were not gamers, they were less likely to move with ease into the virtual space of Second Life, because as Leander and McKim (211-240) argue, while "offline places are embedded within and reproduced in cyberspace... [It] is perhaps too much of a truism to note that in creating anything 'new' we are always bricoleurs, using scraps of old materials, familiar structures, and well-worn stories" (220). The students' experience was a forced bricolage because course expectations required students to participate in Second Life instead of them entering of their own volition. Second Life then remained a troublesome concept for students who had negative emotional and ideological reactions to the learning environment.

The fourth class was hosted by a guest speaker, CC Chapman VP New Marketing, Crayon (Public Relations firm), in his Second Life property. Rehberg Sedo's notes from meeting with C.C. Chapman indicate a discomfort with the name of his space, Dirty U-Turn Cafe, because of some of the negativity in the popular press about Second Life. As with the previous class, most students chose to come to the lab with a few signing in from off-campus. During this class, issues of Second Life's credibility as a communication platform emerged organically as a theme in students' questions and discussions. This provided the opportunity for the class to engage in a critique of the forms and sources of information.

DD: that's my main problem with these mediums. the freedom is great but there's no regulation

AY: but why should everyone have their say when they aren't an expert

FA: What about freedom of speech A?

SS: what's an expert?

AY: no credibility

SS: think about collaborative knowledge production.

FA: but what is credible? credibility is a matter of opinion within us. I may feel a doctor is credible, others may not

KK: hearing other people's views and thoughts on a subject can open others minds...I think it's a great thing

AY: no I trust credible sources such as literary and academic publications...obviously the media is slanted and you would be a fool to take any of that at face value...same is for the web with this sort of thing growing

SB: Am I wrong in suggesting that Second Life is simply the next step from the MSN, MySpace and Facebook accounts that we all have? Sure, it has a brand new visual/virtual component, but it's basically the same idea. I guess I'm just surprised at the opposition"

(Real Time Communication via Second Life. 1 Feb. 2007)

The discussion illustrates well one of David Perkins (6-11) reasons for why a threshold concept might be troublesome: it is alien knowledge or counter intuitive. These students had not been previously encouraged to engage with non-traditional sources of information. To the contrary, information literacy sessions are usually designed to steer students towards safe and traditional academic sources of information. In the Second Life environment we were exposing them to a new and undefined situation, and to

consider information literacy in a new way. We were sharing with them the experience of questioning critically the environment, the information and other avatars.

After this fourth time meeting in-world, we asked ourselves what would move our students to a closer understanding of our conceptualization information literacy. In several instances, the "information literacy" threshold happened in our class for some of the students when they used Second Life for other class assignments, or blogged about the experiences on their own, or, as we discuss below, they had to critically analyse Second Life in their final papers. This crossing of the threshold may have happened for these students because they took an active role in the process, and applied it into other facets of their student experience. As Lynn Clouder illustrates, students might experience liminality at different times and in different ways (511). She argues that while discussions and knowledge gathering with teachers and other students can help, moving through the threshold in students happens when the students are touched (512). Some of our students, however, did not know how to move out of liminality to the threshold. We suspect in some cases this to be a reflection of them being unwilling to commit a sufficient amount of time and energy to an elective course.

We argue that our students' life situations—eve of graduation, actively applying for professional positions, experiences in a professional program where at least one half to one third of the courses are practical rather than critical theory based—plays into their engagement of mimicry or lack of authenticity. In particular, the Second Life environment with its inherent learning curve and unfamiliarity might preoccupy students enough to keep them in this period of stuck-ness.

Students' fears of the environment were made evident through sometimes harsh comments during the class and reflected upon in several post-class blogs, including that of our guest speaker:

"The first batch was pretty laid back and we talked about a variety of topics. . . The second batch was much more confrontational, but in a good way. They asked the hard questions. How can Second Life be a replacement for employee interaction? Is technology hurting how we communicate? Really good questions! It was a great back and forth. The other big difference between the two sessions is the first were dancing around while asking questions. Exploring the space and having fun. The second all sat down formerly and didn't move. It was quite interesting indeed."
(Champman, web log post February 2, 2007)

"Questions were flying at CC from every direction. . . By the end of the chat, it became painfully obvious just how divided the class really is when it comes to embracing new communications technologies. It seems that at least half are still very skeptical about the value of learning and collaborating in a virtual world."
(Pyle, weblog post February 3, 2007)

In one section of the course, the side conversations showed preoccupation with students' perception that in order for them to get credit, Chapman had to answer the

questions generated by their study group in the previous class. This seriously hindered their engagement in conversation. They continued to add questions for the guest even when the question was unrelated to the thread of class conversation, taking away from the opportunity for the group questions to build on one another. In other words, collaborative knowledge creation broke down.

In every class, and in particular in the fifth one, we experienced technological glitches that were frustrating to the students and us. Rodrigues joined the class from off-campus with the goal of providing clarification on final assignment and reviewing secondary research resources with the class. At the time of course delivery Second Life lacked an in-world browser that could interact with other Internet applications and so this session was executed in a traditional lecture/question period style instead of an interactive/hands-on session. Questions from the students were directed at Rodrigues and Rehberg Sedo rather than engaging in discussion with one another, and were very task focused. Some samples include:

MM: can we review the paper topics again? are they still the same ones as on the last page of the syllabus?

BH: how many sources should we have for this paper?

JC: is there a problem finding scholarly research with the topic being so new?

OB: can we use information from bloggers who are currently writing on the implications of new technology? IF we are able to validate their credibility?

OB: I am interested to look to blogs as sources to research current trends/topics.. so i guess they'd be more of primary resource for my research

(Real Time Communication via Second Life. 8 Feb. 2007)

Surprisingly, this traditional format, far from being upsetting, was comforting to some students as illustrated in this comment during one of the focus group sessions following the end of the course, "I would have liked to see more auditorium like spaces with power points. I didn't like it when we met on the couches because of the way the avatars sat. It was too provocative and casual for me."

We should have expected this reaction because the introduction of new forms of technology in the classroom have long presented a dual learning curve for students (Windelspecht 97) and many students view the use of the new technology as peripheral to their subject area (Laurillard 217-218). While the mimicking of a traditional lecture-style classroom may have provided a comfort level for some students, it was troubling to us in its inherent power structure as it took away from the students engaging in problem solving and put the emphasis on direction from the instructors. Following the session two students made appointments with Rodrigues for further assistance in selecting appropriate resources for the assignment

The final Second Life session was held at the Canada Nexus building on Cybrary City. The format was a large circle in a public green space. Students who attended were those with a high comfort level with the Second Life environment, and discussions arising from class reading flowed quite smoothly and remained on topic. However,

attendance was down by 25 per cent in both sections. Focus group discussions suggested that non-attending students were uncomfortable with Second Life as a learning platform.

Two visitors dropped by during the second section and asked to join the group. While we had private conversations about deciding to invite them in or not—and ultimately deciding to do so—the students were uncomfortable with this lack of privacy. We did not know that at the time, but it became evident in the papers of those students who chose to write on the topic of ethical considerations of Web 2.0 technology. The students nominated privacy in the learning or workplace environment as imperative to effective communication. It is interesting to note that other social networking and communication tools favoured by the students – Instant Messaging and Facebook – have privacy filters that allow contacts to be limited to those chosen by the user. In studies relating to cell phone use it has been argued that the strengthening of the users' immediate network of contacts might also lead to an increased discomfort with interacting with strangers (Ling qtd in Young, pars 1-2). As one of the focus group participants commented, "... people could come in and people coming in and starting to talk was ... I don't know ... the whole atmosphere was uncomfortable."

Conclusions

We came away from this experience in Second Life with mixed feelings about its effectiveness as a learning environment, its facilitation of students' understanding of course content and ability to employ critical analysis of communication and information gathering tools, processes and networks. On the positive side, all of the students in the course were able to demonstrate acceptable critical analysis of communication and information gathering tools, processes and networks. This was evident in their class assignments, discussions, final papers, and in the focus group discussions. Twenty-one of the 39 students (54%) wrote above-average reflective and well-researched final papers that integrated their own experiences of Second Life. We believe the students could only have written this calibre of work if they had passed through the "threshold" of information literacy with their first-hand experience of Second Life. Of those 21, five (or, 13% of all of the student papers) were exemplary work that could be queried for publication or used as starting pieces for graduate school applications. The other 18 students (46%) wrote average essays that neglected to consider Second Life in any depth. Half of these students had been vocal about their dis-ease with Second Life, and we suspect that they were either rebelling against the environment, or they were afraid to tackle the subject knowing that there was an evaluative mark attached.

While the use of Second Life did enhance students' ability to employ critical analysis of communication and information gathering tools, we do have concerns about the impact of its high learning curve both on instructors and students. Studies have found that online course delivery allows for effective learner-centered teaching styles that facilitate "active learning, critical thinking, collaboration, and the development of confidence and lifelong learning habits" (Frank, "Facilitating Courses"). Most relevant to our

study/experience, Frank ("Teaching and Learning") found that teaching online forces teachers to give up a portion of the control that is evident in face-to-face course delivery. Learning to deal with this is unnerving for some, and certainly was for us as we delved into not only a new teaching environment, but also into learning a new set of technological skills and thinking about information literacy in the changing environment of virtual reality. Our logs and discussions highlight the anxiety we felt about the technology issues, and the dis-ease the students were sometimes exhibiting towards each other online, towards CC Chapman, and less frequently, towards us.

Unlike students and teachers who argue that there are no or limited barriers to entry in Second Life (Mason and Moutahir, 30-38), but who found that there was a high learning curve, we believe that for some of our students the unfamiliarity with Massively Multi-user Online environments can be identified as a temporary and sometimes permanent barrier to entry. Such a barrier has direct negative results on students' understanding of the social nature of information literacy and course content. We found the steep learning curve created in some of our students an emotional apprehension and an adversity to the virtual learning environment evident after two classes in Second Life.

Based on our experience, we recommend:

- 1) That educators prepare for a steep learning curve and technological glitches. We cannot assume that every student of this generation will be either comfortable or savvy with online environments.
- 2) If the course is to be delivered online provide up-front technical training and communicate the technical requirements well.
- 3) If the course is to be delivered in both a face-to-face and an online environment, provide the up-front training and do not meet more than once in a lab setting. Some of our students found communicating online while being in a shared computer lab disconcerting.
- 4) While breaking out into small groups in-world was most effective for us, the small group discussion is difficult to observe because there are too many conversations at once. It is laborious to reflect on all of the conversations, but it is a fruitful task.
- 5) If there is a lot of material to cover, the chat/discussion environment is not particularly conducive. Instead, consider other Web 2.0 technologies, such as blogs and podcasts, or consider mixing delivery methods across technologies and face-to-face environments. We also recommend a reflective learning report for each event held in-world.

Using ethnographic methods to investigate the virtual environment allowed for us to experience the culture along with our students. We believe this was the most appropriate evaluative method at this point in our teaching careers and in this particular moment in technological history. We hope our case study adds to the literature on the pedagogical opportunities of Second Life and other virtual environments. We are happy we took this risk, and we encourage other educators to do so, too.

Works Cited

Antonacci, David M., & Nellie Modares, "Second life: The Educational Possibilities of a Massively Multiplayer Virtual World". EDUCASE Southwest Regional Conference.

(2005): 36 pars. EDUCAUSEconnect. 29 November 2007

<<http://connect.educause.edu>>

Association of College and Research Libraries. Information Literacy Competency Standards for Higher Education. 2000. 24 August 2007

<<http://www.ala.org/ala/acrl/acrlstandards/standards.pdf>>

Bell, Lori, Tom Peters, and Kitty Pope. "Get a (Second) Life!" Computers in Libraries, 27.1 (2007): 10-15, Academic Search Premier. EBSCOhost. Mount Saint Vincent

University Library, Halifax, NS. 29 November, 2007

<<http://web.ebscohost.com>>.

Bradbeer, John. "Threshold Concepts within the Disciplines." Planet 17 (December 2006): 16-17. August 22, 2007

<<http://www.gees.ac.uk/planet/p17/jb.pdf>>.

Bonk, Curtis J., and Kyung A. Kim. "Extending Sociocultural Theory to Adult Learning." Adult Learning and Development: Perspectives from Educational. Ed. M. Cecil Smith and Thomas Pourchot. Lawrence Erlbaum Associates, 1998. 67-88.

Bruce, C., M. Lupton, and S. L. Edwards. "Six Frames for Information Literacy Education: A Conceptual Framework for Interpreting the Relationships between Theory and Practice." Italics 5.1 (2006) 12 February 2008. 59 pars.

<http://www.ics.heacademy.ac.uk/italics/vol5-1/pdf/sixframes_final%20_1_.pdf>

Casner-Lotto, Jill; Henry Silvert, New Graduates' Workforce Readiness: The Mid-Market Perspective The Conference Board : New York. February 2008

<<http://www.conference-board.org/publications/describe.cfm?id=1422>>

Chapman, C. C. "My First Time in Front of Students." [Weblog entry.] 2 February 2007. 28 November 2007.

<<http://www.cc-chapman.com/2007/02/02/my-first-time-in-front-of-students>>.

Childress, Marcus D., and Ray Braswell. "Using Massively Multiplayer Online Role-Playing Games for Online Learning." Distance Education, 27 (2006): 187-196.

Clouder, Lynn. "Caring as a 'Threshold Concept': Transforming Students in Higher Education into Health(Care) Professionals." Teaching in Higher Education 10 (2005): 505-17. August 28 2007

<<http://www.informaworld.com/smpp/content~content=a723756554>>

Conference Board of Canada. 2008. Workplace Literacy Central. 23 April 2008.

<<http://www.conferenceboard.ca/workplaceliteracy>>.

Conklin, Megan. 101 Uses For Second Life in the College Classroom. 2005. Elon University, Department of Computing Sciences. 27 August 2007.

<http://statewideit.iu.edu/resources/101_SL_Apps.pdf >

Cousin, Glynis. "Threshold Concepts, Troublesome Knowledge and Emotional Capital." Overcoming Barriers to Student Understanding: Threshold Concepts and Troublesome Knowledge. Ed. Jan Meyer and Ray Land. UK: Routledge, 2006. 134-147.

de Freitas, Sara. Learning In Immersive Worlds: A Review Of Game-Based Learning. 2007. Joint Information Systems Committee e-Learning Programme. 15 January 2007

<http://www.jisc.ac.uk/media/documents/programmes/elearninginnovation/gamingreport_v3.pdf>.

Delwiche, Aaron. "Massively Multiplayer Online Games (MMOs) in the New Media Classroom" Educational Technology & Society. 9.3 (2006): 160-172. 22 April 2008

<http://www.ifets.info/journals/9_3/14.pdf>

Dewey, John. Democracy and Education. New York: Macmillan, 1916.

Elmborg, James. "Critical Information Literacy: Implications for Instructional Practice."

The Journal of Academic Librarianship 32 (2006): 192-9. 28 November 2007

<<http://dx.doi.org/www.msvu.ca:2048/10.1016/j.acalib.2005.12.004>>

Frank, Christine. "Facilitating Courses by Computer Mediated Communication and the Role of the Teacher: the Community College Teacher's Perceptions". Diss. Ontario Institute for Studies in Education, University of Toronto (Canada). 2000. Dissertations & Theses. ProQuest. Mount Saint Vincent University, Halifax, NS. 27 August 2008
<<http://www.proquest.com>>

---. "Teaching and Learning Theory: Who Needs It?" College Quarterly, 8.1 (2005)
August 24 2007
<<http://www.collegequarterly.ca/2005-vol08-num02-spring/frank.html>>

Foster, Andrea. "The Avatars of Research: Students and Professors Join Popular Virtual Worlds Like Second Life to Study the Real-World Interactions They Represent." The Chronicle of Higher Education, 52.6, (2005, September): A35-A36. Academic Search Premier. EBSCOhost. Mount Saint Vincent University Library, Halifax, NS. 29 November, 2007
<<http://web.ebscohost.com>>.

Grassian, Esther, and Rhonda B. Trueman. "Stumbling, Bumbling, Teleporting and Flying... Librarian Avatars In Second Life." Reference Services Review, 35 (2007): 84-89. 23 August 2007
<<http://www.emeraldinsight.com/10.1108/00907320710729373>>

Horrigan, John B. A Typology of Information and Communication Technology Users.

Washington DC: Pew Internet & American Life Project. May 2006. 25 April 2008

<http://www.pewinternet.org/pdfs/PIP_ICT_Typology.pdf>

Laurillard, Diana. Rethinking University Teaching : A Framework for the Effective use of Educational Technology. London ; New York: Routledge, 1993.

Leander, Kevin M., & Kelly McKim. "Tracing the Everyday 'Sittings' of Adolescents on the Internet: A Strategic Adaptation of Ethnography Across Online and Offline Spaces". Education, Communication & Information, 3 (2003): 211-240.

Lee, Joey J., & Christopher M. Hoadley. "Ugly in a World Where You can Choose to Be Beautiful: Teaching and Learning about Diversity via Virtual Worlds." Making a Difference: The Proceedings of the Seventh International Conference of the Learning Sciences (ICLS), Indian University, Bloomington, IN. 2006: 383-389.

<<http://www.tophe.net/papers/Lee-Hoadley-ICLS06.pdf> >

Marcum, James W. "Rethinking Information Literacy." The Library Quarterly 72 (2002): 1-26. Research Library. ProQuest. Mount Saint Vincent University, Halifax, NS. 29 August 2008

<<http://www.proquest.com>>

Mason, Hillary and Mehdi Moutahir "Multidisciplinary Experiential Education in Second Life: A Global Approach". Second Life Education Workshop at the Second Life Community Convention, San Francisco. 20 August, 2006. 39-43. 27 August, 2007
<<http://www.simteach.com/SLCC06/slcc2006-proceedings.pdf#page=39>>

Meyer, Jan H. F. and Ray Land. "Threshold Concepts and Troublesome Knowledge: Linkages to Ways of Thinking Practising within the Disciplines". Enhancing Teaching-Learning Environments in Undergraduate Courses Project, Higher and Community Education, School of Education, University of Edinburgh. 2003. August 24, 2007
<<http://www.tlrp.org/dspace/handle/123456789/177>>

---. "Threshold Concepts and Troublesome Knowledge (2): Epistemological Considerations and a Conceptual Framework for Teaching and Learning." Higher Education 49 (2005): 373-388. August 25 2007
<<http://www.springerlink.com/content/q302w85n8217185k/>>

Owusu-Ansah, Edward K. "Debating Definitions of Information Literacy: Enough is Enough!" Library Review 54 (2005): 366-74. Research Library. ProQuest. Mount Saint Vincent University, Halifax, NS. 29 August 2008
<<http://www.proquest.com>>

---. "Information Literacy and the Academic Library: A Critical Look at a Concept and the Controversies Surrounding it." The Journal of Academic Librarianship 29 (2003): 219-

230. 24 August 2007

<[http://dx.doi.org/www.msvu.ca:2048/10.1016/S0099-1333\(03\)00040-5](http://dx.doi.org/www.msvu.ca:2048/10.1016/S0099-1333(03)00040-5)>

Piaget, Jean. Logic and Psychology Trans. W. Mays. NY: Basic Books, 1970.

Perkins, David. "The Many Faces of Constructivism." Educational Leadership 57.3

(1999): 6-11

Pyle, Jill. "MSVU PR class chats with CC chapman." [Weblog entry.] 3 February 2007.

27 November 2007

<<http://www.jillpyle.ca/blog/?p=58> >.

Shapiro, Jeremy J., and Shelley K. Hughes. "Information Literacy as a Liberal Art."

Educom Review 31.2 (1996): 31–35. Academic Search Premier. EBSCOhost. Mount

Saint Vincent University Library, Halifax, NS. 29 August, 2007

<<http://web.ebscohost.com> >.

Kimmo Tuominen, Reijo Savolainen, Sanna Talja. "Information Literacy as a

Sociotechnical Practice." The Library Quarterly 75 (2005): 329-345,376-378. Research

Library. ProQuest. Mount Saint Vincent University, Halifax, NS. 29 August 2007

<<http://www.proquest.com>>

Virkus, S. "Information Literacy in Europe: A Literature Review." Information Research

8.4 (2003): 25 August 2007

<<http://informationr.net/ir/8-4/paper159.html>>

Windelspecht, Micheal. "Technology in the Freshman Biology Classroom: Breaking the Dual Learning Curve". The American Biology Teacher, 63 (2001): 96-101. Research

Library. ProQuest. Mount Saint Vincent University, Halifax, NS. 29 August 2007

<<http://www.proquest.com>>

Young, Jeffery R. "Interview: How Cellphones Change the Way People Learn" [Weblog entry.] The Wired Campus. The Chronicle of Higher Education, 21 April 2008. 25 April 2008.

<<http://chronicle.com/wiredcampus/article/2925/interview-how-cellphones-change-the-way-people-learn>>.