



Sustaining learning for LIS through use of a virtual world

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Diane and Sheila in SL as their avatars Adra Letov (Diane, left) and Sheila Yoshikawa (right): this is where they met to discuss this paper

Abstract

The virtual world (VW) online education movement is well underway, and librarians have become major participants by developing services and resources for this novel information ground. In this paper we identify ways in which the VW Second Life (SL) is being used by librarians, and describe our teaching of LIS students in SL, and the value of SL for sustainable Continuing Professional Development (CPD). The VW has become the new LIS laboratory for innovation, outreach, career development, research and curriculum development, offering sustainable learning opportunities by saving space, time, funds, and resource consumption, and by increasing international and interdisciplinary interaction among programs, educators, librarians and students. LIS education can develop sustainable education practices by optimizing interaction with the VW library and educator and discipline-based communities active in SL, thereby providing a vibrant VW educational environment for students, educators and researchers. The benefits to students include, unprecedented access to geo-distant tutors, professionals and experts in every field; flexible meeting times; experiencing content in unique forms; and acquiring VW information literacy.

Introduction

In this paper we identify ways in which use of a virtual world (VW) can open new opportunities for teaching and for Continuing Professional Development (CPD) in the library and information science (LIS) field. We draw on our experience of teaching LIS students and organising Continuing Professional Development (CPD) events in the virtual world, Second Life (SL). As one facet, we will identify how virtual worlds (VWs) enable international collaboration: the co-authors Webber (based in Sheffield, UK) and Nahl (based in Hawaii, USA) have never met in person but they have worked together successfully in SL.

We start by describing the key features of SL, which is the VW that is currently most used internationally by university educators, and identify affordances of SL that match some of the requirements for LIS education. We indicate key ways in which it is being used by librarians and proceed to describe how we have used SL with our own students. Following this, we outline the many activities in SL that are relevant to CPD, and conclude with our own reflections on how using a VW has affected our lives, and the potential of VWs for sustainable learning.

SL and sustainable LIS learning

SL is a 3-dimensional VW and the trademark of Linden Lab. VWs have been characterised as persistent (existing whether or not an individual is logged in), multiuser, enabling representation through avatars, and facilitated via a wide area network (Robbins-Bell, 2008). Via their 3D avatars in SL, people can create and trade objects, rent land, and participate in a variety of activities organised by other SL residents. There is a main grid (for over-18s) and a teen grid for younger users. People can create avatars without charge, and a distinguishing characteristic of SL is that most things within it (virtual houses, clothes, educational tools, etc.) have been created by SL "residents" rather than by Linden Lab. However, if people want their own customised space, they have to rent this from Linden Lab for a monthly fee.

Whilst there are now many different VWs, SL is the publically-accessible VW that is most used by educators worldwide. This is, for example, evidenced in the regular series of surveys of the use of VWs in UK Higher Education (HE) carried out for the Eduserv Foundation (e.g. Kirriemuir 2009), which give examples of SL use in a wide variety of disciplines. J. Kirriemuir (Personal email communication, 9th August 2009) estimated that 90% of UK Higher Education institutions have some kind of SL presence. The largest SL campus is that of the University of Texas, which committed to SL as a major learning environment in 2009 (Aujla, 2009). Use of VWs generally has been growing, with young people using worlds such as Club Penguin and Habbo Hotel socially in increasing numbers: VW specialists Kzero estimated that there were 803 million VW accounts in the fourth quarter of 2009 (Kzero, 2010).

Jarmon (2008) has identified affordances of SL, including the variety of ways in which people can communicate (text, voice, instant message or visually), the tools which enable building and scripting, the embodied social presence created by customisable avatars and through personalised spaces, the options for organising, presenting and using content with interactive objects and live web pages, and the community which enables activities such as teaching, learning and fundraising. The opportunities to build environments have led to use of SL for simulations: Salmon (2009) notes that these “enable learners not only to see how a place looks, but also ‘feel’ what it is like being part of it” (Salmon, 2009: 532) and the ability to create simulations of environments and activities has led to use in diverse applications including training in midwifery, quarrying and border policing. In some cases it has gone beyond simulation: there is a reference desk in SL, with services provided by volunteer librarians globally, 70 hours a week.

Since it is a virtual platform, SL can provide a distance-learning environment. In a time of recession, distance-learning has become particularly attractive. Wilde and Epperson (2006) found that reluctance to relocate and unwillingness to quit a current job were the top reasons for LIS students to choose distance education. However, the importance of community building within LIS courses, and the particular difficulties in building community in online courses, have been identified through research (Kazmer, 2007; Luo & Kemp, 2008) and accounts of personal experience (Fortin, 2007). Holmberg and Huvila (2008), in their study of a Finnish LIS program, noted that learners viewed Second Life as better than Web-based learning environments for enhancing interactions between peers, and between students and instructors.

SL has attracted international participants, resulting in regions in SL which reflect the language and culture of different parts of the world, and there are opportunities for immersive language learning. With increasing emphasis on globalisation, this again makes SL an attractive environment for sustainable learning: sustainable in the sense that people can enrich their experience without using up environmental and financial resources on international travel.

Librarians are active in SL in a number of ways (Bell and Trueman, 2008; Grassian and Trueman, 2007; Mon, 2009; Ostrander, 2008). Some of these activities are carried out through the Community Virtual Library (CVL), which “provides free library resources and services to the residents of Second Life” (CVL, 2010) and is maintained by volunteers. Librarians in SL:

- Support academic staff and students who are teaching and learning in SL, through virtual information and library services (e.g. at Stanford University). Parker (2008) has proposed SL as the “Seventh face” of the library, alongside the physical (print)

collection; the learning and social space; the website; the university portal; the virtual (or managed) learning environment and social networking tools;

- Teach or co-teach virtual classes (e.g. at George Fox University);
- Run reader development activities and book groups (including author readings and exhibitions);
- Recreate historical or fictional environments (e.g. the Land of Lincoln);
- Create interactive learning objects;
- Run information and inquiry services;
- Use SL to plan and “mock up” new services or buildings (giving potential users a chance to try things out and comment, at low cost to the library);
- Use SL to provide extra space for students to meet and study in project groups;
- Organise, and participate in, Continuing Professional Development (CPD) activities;
- Participate in other aspects of the SL community. For example, one librarian designs and sells virtual jewellery.

As well as providing the “seventh face” of a library in an existing job, these activities have led to some new real life jobs: for example a part-time paid post as librarian on the SL island Karuna, which promotes HIV/AIDS awareness, funded by the US National Institutes of Health.

Two-dimensional online tools might offer some of these possibilities (e.g. real time advice via an online chatroom; links to resources from a web page; a lecture delivered via Elluminate). However, SL brings these together; for example, enabling a librarian to create a 3D exhibit on experiences of cancer, with information embedded in the exhibit and with links to web resources, as well as an interactive quiz to assess knowledge after interacting with the poster content. Creating and developing use of such material demands, and develops, skills in communication and information. Work in SL also often stimulates interest in use of other tools, such as image and video editing software, to enrich further the skill set of the library and information professional. Educators and librarians capture events with media including snapshots and animated video or 'machinima' of student activities for performance-based assessments.

In the next section we will describe how we are using SL to teach some of these skills to our own students.

Teaching students in SL

We have both taught students in SL as part of the formal curriculum. In this section we will describe the ways in which we have worked with them, and identify some benefits of using SL.

Webber (at the University of Sheffield) has taught two cohorts of students in SL, in three successive years 2007-2010: first year undergraduate students (taking the compulsory Information Literacy module as part of the 4 BSc Information Management) and Masters students (taking the optional Educational Informatics module as part of an MA Librarianship, MSc Information Management or MSc Information Systems). Activities were based on Sheffield University's SL island, Infolit iSchool.

There have been between 25 and 35 students in the undergraduate (freshman) cohort. The main activity requires each student to carry out a research interview with a SL resident, investigating that person's information behaviour in SL. The students analyse the interview transcripts and reflect on their performance as interviewers: this work is of one the principal

marked assignments for the module, which is taught with an Inquiry Based Learning approach (further details are given in Webber, 2010).

Additionally, in 2009/2010, these students undertook a group exercise in SL. The groups had already created powerpoints in which they presented their solutions to problem scenarios involving swine flu. As a follow up, they exhibited their slides in SL on 3D models of the SCONUL 7 Pillars of information literacy (SCONUL, 1999; a model used widely in HE in the UK) and showed visitors round their exhibits as part of Information Literacy Week in SL. Particular benefits to this cohort were access to a wider range of interviewees, from different countries, making the research experience more meaningful; encouraging students to think more deeply about the requirements of a good interview (comparing face to face and virtual experiences); and increasing understanding of information literacy, through having to explain their presentation, and the 7 Pillars model, to visitors from outside the university.



Sheila's students show visitors round a model of the 7 Pillars of Information Literacy

Webber's Masters-level Educational Informatics students studied SL as a teaching and learning environment, with 10-20 students taking the module each year, many of them international students. The main assignment for the class requires them to identify a learning outcome and propose how this could be met using different learning environments, including SL (other environments they study include WebCT and WIMBA). Webber created a virtual village for the students, with one of the first tasks being to select a home in the village. As well as participating in visits to educational sites in SL, students had to attend a session at the 2010 Virtual Worlds Best Practices in Education conference (a SL-based event which had several thousand delegates). Each student was asked to create a poster with a picture of their chosen session, and notes about it, and the final SL activity in the module involved going from house to house in the virtual village, where students talked about their experience.

Benefits of using SL included interacting with 3D models of educational concepts (e.g. an interactive build on multiple intelligences; a model of Inquiry Based Learning) which can help in developing understanding of abstract ideas; and opportunities (on the visits and at the conference) to hear from, and interact with, educators from around the world.

SL has also provided opportunities to give tours and guest lectures to students at other institutions and both authors have presented at various library conferences and meetings. Whilst this could also have been achieved by using a two dimensional learning tool such as WIMBA, SL enabled us to gain an impression of the personality and culture of the different universities and students, from the buildings, clothes and behaviour of those involved (for example, Webber enjoyed dancing at a University of Hawai'i virtual disco whilst wearing a free Hawaiian lei). In addition, expanded connectivity facilitates greater interaction at all levels of the profession, enabling faculty, students and practitioners to collaborate virtually and learn from each other in unprecedented ways.

At the University of Hawaii Nahl teaches four Masters courses using SL to deliver the course or with SL modules and assignments. MLISc in Library and Information Science students may take SL electives. Enrollment has averaged 10 students per elective course and 15 in a core course. The Human Dimension in Information Systems was taught in the spring term of 2009 and will be offered again in the fall 2010 term. Virtual World Librarianship was taught in the fall 2009 term and will be offered in 2011. Beginning in the spring 2010 term students in the core reference course, Introduction to Reference and Information Services, did a reference shadowing unit at the reference desk in SL. Students in the spring 2010 information literacy pedagogy course, Teaching Information Technology Literacy, designed and taught an inworld session to undergraduate seniors in a cyberpsychology course in SL.

These courses were taught in a computer lab on campus and included 30% completely online sessions. Students who on occasion could not attend class logged into Second Life to attend inworld, and distance learning students logged in remotely. The courses are taught within an active learning paradigm designed to increase engagement by blending multiple technologies, support from professional librarian mentors and guest instructors, and collaborative VW projects (Nahl, 2010a). For example, the VW librarianship course had a Google Group and used Google Documents to collaboratively plan SL events and record results at each step. Students planned and produced five professional events on the Info Islands and ALA Island, working with librarian mentors in several professional organizations, and using collaborative technologies to work in virtual teams with fellow students and librarians. The main activities vary for each course, but the aims of the VW librarianship course assignments were directed towards acquiring abilities common among professional librarians working in SL:

- Producing professional events, subject guides, and interactive exhibits for the library community of the Info Islands, American Library Association Island, and the University of Hawaii Island
- Shadowing and observing librarians at the Reference Desk on Info Island International
- Collaborating with professional organizations, librarians, and MLIS students in various programs
- Acquiring online and VW collaborative skills, reference skills, building and creation skills, communication and marketing skills, content presentation skills, and participant observation skills
- Integrating and managing Web 2.0 cloud computing for planning, collaboration, and archiving

The universal benefits for students of using SL in these four master's courses (LIS 601, LIS 665, LIS 677, LIS 694) include:

- learning and mastering innovative information technology;
- creating useful services, tools, and professional activities in a novel information environment.

In the past three semesters in SL MLIS students at the University of Hawaii have produced seven well-attended professional events for students, librarians, and educators.

- Alliance Virtual Library (AVL) LIS Career Fair with speaker programs and booths.
- American Library Association (ALA) Banned Books Week program with Dr. Rebecca Knuth speaking on book banning in the U.S.
- Alliance Virtual Library (AVL) Hot Topics Panel with Kansas public librarian Bill Sowers and Dr. Leon James speaking on managing judgment in SL.
- Special Libraries Association (SLA) Buzz Session Panel with Dr. Andrew Wertheimer, Librarian Ben Hoganson, SJSU MLIS student Chris Nelson, and SLA Librarian Cindy Hill discussing the relevance of LIS education to current workplace demands.
- ACRL Information Literacy and Web 2.0 Panel for Information Literacy Week in SL.
- Alliance Virtual Library (AVL) 50th Anniversary of Statehood Event and Exhibit with Professor Dan Boylan speaking on the history of the Hawaiian Sovereignty movement.
- LIS Student Poster Conference in Second Life (described below).

The students and instructor recorded events and activities of the class with photographs and posted those on a Flickr site in event sets. The Flickr site also serves to inform alumni and others of what the LIS Program is doing in VWs. The sloop site provides web-based Teleports into SL to specific locations. People can add locations (Landmarks) using a sloop HUD (Heads-Up Display worn by an avatar) that sends locations to the sloop website. Users add descriptive tags to the Landmarks that serve as keyword tags to find SL sites on certain subjects. Students and librarians use such tools to create annotated pathfinders in SL. The courses have a YouTube channel and website hosting student work and productions including instructional machinima. Students present their information behavior research and subject collections of SL landmarks for immersive sims on the topic to librarians and faculty at the end of each term.

The LIS Student Union (LISSU), founded January 2009 by Nahl, serves as a home base, building sandbox, resource center, meeting space and presentation area for all LIS students in SL. It is located on Info Island International near the main Reference Desk, the Learning

Curve orientation area, bordering the San Jose State University campus. The parcel and building were donated by Lori Bell, Director of Innovation, Alliance Virtual Library System (AVL), and is currently hosted by CVL.

The LISSU hosts student events such as the LIS Student Poster Conference in SL held in April 2010 on Info Island. Eight librarian adjudicators selected seven winning posters in five categories and provided feedback to students on their work, promoting rapport among students and SL librarians in widely dispersed locales. Winning posters remain on display at the LISSU. The poster conference event allows LIS students from various programs to present their research and practice professional communication skills.

The LISSU houses several collections, including an international LIS Careers collection and rotating displays of LIS student collections and projects from SL field research, and links to the Flickr, sloop, YouTube and web sites. It provides a variety of free SL educational tools (presentation viewers, speaker assistants, building tools, terraforming tools, etc.) needed by students and educators.

To sum up, between us we have students studying on different programmes, with diverse career goals, and of diverse ages. However they are all able to learn about using VWs as places for learning and work (Webber, 2008) giving them a competitive edge when they look for jobs in libraries, or in information and knowledge management, in different countries of the world. Other benefits we have identified for all our students include:

- involvement of a number of tutors, including librarians, who were able to “drop in” for an hour or two (Parker, 2008) whilst at desks which were, in some cases, very far away;
- showcasing students' work in exhibitions, for example, posters presenting Information Management or information behaviour research projects;
- enabling people to meet up with course tutors and each other outside scheduled times (e.g. at night) safely, and from remote locations.
- encouraging discussion on issues such as identity, ethnicity and communication (since in SL you may represent yourself how you want).

Mentor and Student Feedback

Students in Nahl's MLISc courses commented about a reference shadowing assignment during live VW reference service at the CVL on info Island international. One comment reflects an insight about the role of context in virtual reference "... *experience of information*, which SL is well suited to provide, can be more important to a patron than information alone." Another student concluded "In spite of the highly technologically mediated nature of personal interaction in SL, reference interviews were conducted in much the same way and were just as effective as interviews in "Real Life" (RL)." Regarding the differences in using text chat and voice a student points out "We react at various parts of other's sentences in real life with nods and short phrases throughout the conversation, but in SL sometimes someone is reacting to a specific part of a sentence in chat, not necessarily the sentence in its entirety."

In Nahl's courses librarians mentored students conducting group projects in SL. Esther Grassian, a senior instruction librarian at UCLA, mentored two students who produced an Information Literacy and Web 2.0 panel for ACRL on ALA Island. She gave comments to the students at several intervals through the project, consulting with them at the beginning, providing resources for content and names of potential panelists, giving feedback on goals

and objectives for the panel, checking in with them throughout the planning process and publicity schedule, then acting as moderator for the panel, and giving summative evaluations to the students.

Another team was mentored by members of the Special Libraries Association (SLA) in SL that hold a monthly CPD series called SLA Buzz. Three librarians mentored a student team by teaching the students how SLA plans, organizes, publicizes, produces and evaluates their professional events. The librarians shared planning documents, model email messages inviting presenters and publicity announcements, suggested topics for the panel and potential panelists. Mentors communicated with the student team throughout the project process and gave evaluative comments at the end. The librarian mentors provided the structure to support the work of the teams. By the end students felt they established a rapport with the professionals and informally asked them for career advice and letters of reference for scholarship and job applications.

Librarian adjudicators for the LIS Student Poster Conference in SL provided constructive feedback to students on their poster presentations. One librarian wrote the following about the winning User Services poster, "Professional layout, design, color, and balance. Enough text to be informative, but not overwhelming. Excellent references to the legislation-- definitely needed to convince administration to implement programs and buy equipment." Another commented "Excellent methodology statement summarizing the project. Good job mentioning the style guide! The subject, Archaeopteryx, was unique and I liked the photos which added visual cues to help identify and relate the word to the item it represents. The update was interesting, and I loved the reference to the reliable and prestigious Nature!"

CPD and networking in SL

A professional and social landscape has developed in SL that has some of the same characteristics as professional life outside the VW. Librarians in SL form inworld professional interest groups that host professional activities, events and meetings. Appendix 1 lists key groups that include librarians representing all sorts of RL institutions and collections. One of the functions of the groups is to enable one to find out about the many events that take place in SL. A very large number of CPD events are available, ranging from informal discussions to full scale virtual conferences with refereed papers. Some are priced, but the charges tend to be modest, and the majority of events are free of charge. The particular value of SL for CPD is:

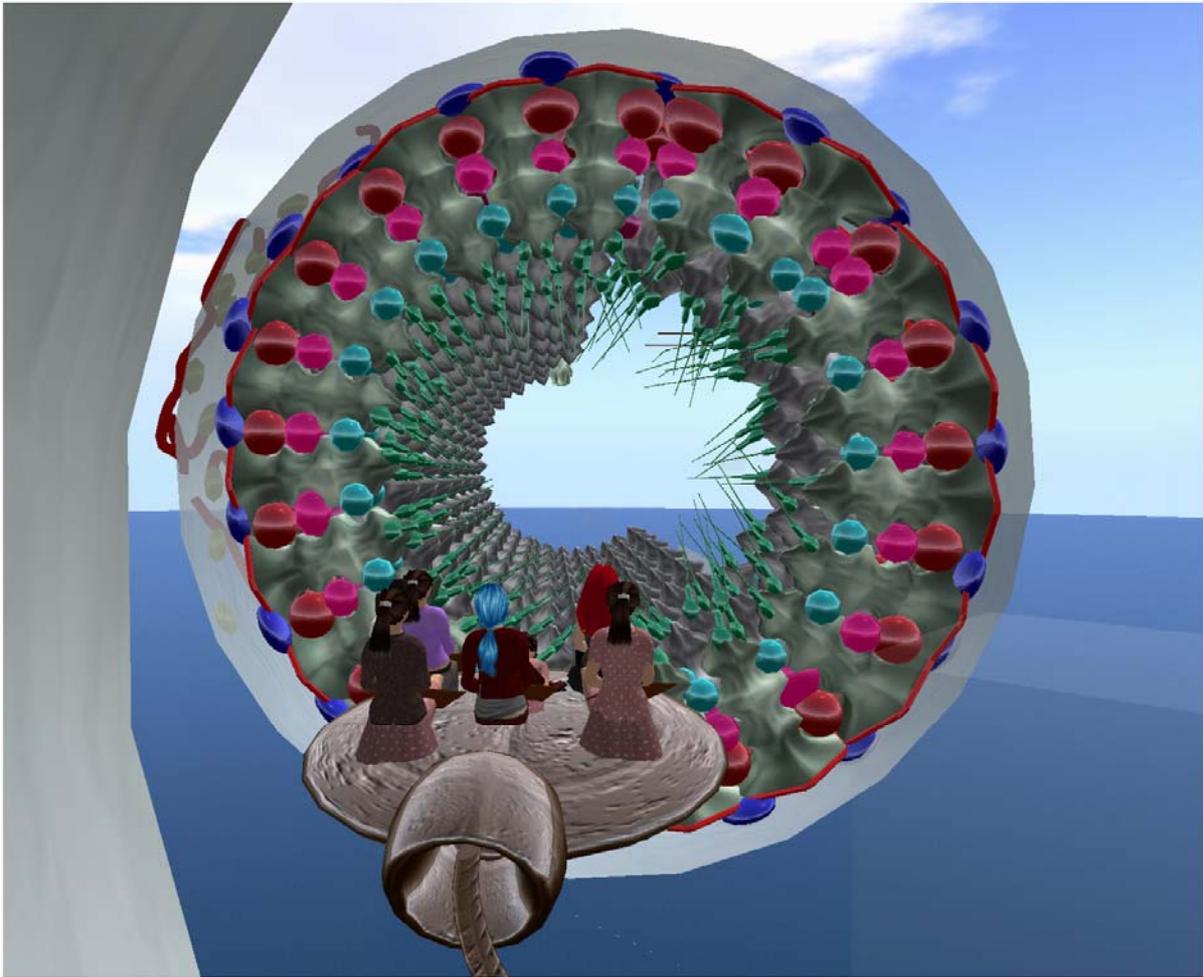
- it draws on expertise from around the world, for speakers and audience;
- there is no travel cost or travel time, means that you can participate in events more easily. As well as participating in more LIS events, it also means you may be able to attend more events outside the LIS area, e.g. educational conferences or conferences in your workplace sector (such as engineering conferences, if you work in an engineering firm). This may be particularly valuable for solo librarians who find it very difficult to find time away from work. With increasing pressures on time and budgets, though, anyone may be grateful to find additional ways they can network and learn from home or office.;
- "social presence" means that people can and do chat and get to know each other and engage in professional collaborations;
- The variety of formats. Below are examples of different types of event.

Major conferences

Some conferences now take place entirely within VWs. One of the largest is the Virtual World Best Practices in Education conference, which attracts thousands of people (represented by their avatars). In 2010 this was a continuous 48 hour event, enabling people from different time zones round the world to participate. There were formal presentations, demonstrations, tours, discussions, workshops and social events. Webber has been on the organising committee for two successive years, and in 2010 helped to run the exhibition area, which had 50 displays. The website (VWBPE, 2010) has links to machinima (videos) of some of the sessions, and selected proceedings are also being published.

Tours

People who want to find out what is going on in SL can benefit from tours, including regular tours (such as Info Island areas, which include SL libraries and exhibits) and tours of specialist areas. An example of the latter is the First World War Poetry experience created by Cambridge University. Visitors get free virtual soldier or nurse outfits, which they wear to enhance the experience, and fly down to the trenches, where they can hear and read poetry from the time, and learn about day-to-day life on the front line. Some other tours are automated: for example, you can get aboard a giant sperm to take the tour of the testis, flying through a giant interactive model created to teach biology.



Some of Sheila's students take the Tour of the Testis

Themed and Commemorative Events

Webber and Nahl each planned activities for Information Literacy (IL) Week in SL, a themed event in November 2009 sponsored by the Centre for Information Literacy Research at Sheffield's Infolit iSchool. Nahl's MLISc students produced a panel on Information Literacy and Web 2.0. The event featured a panel of four academic librarians and Webber, and interactive posters with information participants could take away. It was advertised to the groups listed in Appendix 1. and attended by 45 avatar librarians. The comments from the participants expressed their appreciation for holding an information literacy CPD that addressed their information needs at work. Participants gained ideas to apply in their RL libraries. Other IL Week events included a Spanish language discussion organised by a colleague in Colombia, an information-literacy focused educators' discussion, and a number of exhibitions.



Panel discussion for ACRL in SL, arranged by Diane's students

Event Series

Some events take place regularly. Webber has organised over 50 events on Infolit iSchool for the Centre for Information Literacy Research (of which she is Director), normally one hour discussions or presentations taking place every couple of weeks. The focus is on IL and learning: past events are listed on the Infolit iSchool wiki, and forthcoming ones on the Second Life Educators calendar. Another long running series is the Virtual Worlds Educators Round Table, which has a session every Tuesday at 2.30 SL time (relevant URLs for all these are given at the end of the article).

Short Events

There are frequent brief professional meetings on specific topics in SL. Some include openings of new college and university sims, monthly meetings of professional groups, and people presenting research in a wide variety of venues. For example, the Texas Woman's U. sim opened in April 2010 and held a panel session with five speakers on the theme "Adopting Virtual Worlds in Libraries and Education." The ACRL group regularly hosts meetings with speakers, for example, in 2009 Nahl spoke to the group about "Creating

Student Involvement with SL Professional Groups." Universities offer short talks allowing their faculty to share their SL work, for example a 2010 noon session presented in SL and RL with four panelists at U. Hawaii on "Active Learning in Second Life (SL): Teaching in a Multi-User Virtual Environment."

Training Courses

The University of Illinois offered a series of SL workshops between 2007-2009, including sessions on VW librarianship, establishing a library presence in SL, avatar development, managing a course in SL, and instructional tools for SL, among others. Many librarians and educators took these courses to gain VW building and teaching skills. The CVL offers free weekly skills classes for librarians, students and educators. The CVL Instruction Coordinator schedules and publicizes classes taught by CVL volunteer librarians. The classes are announced on librarian groups in SL, a google group and email lists. Free educator resources are available at the Virtual Learning Library on Info Island near the Learning Lab where classes are taught in a "sandbox" where new users learn building and creation skills.

Interactive Exhibits

Distinctive features in SL are the exhibitions that you cannot just look at, but also walk (or fly) round and interact with. These can be stimulating, informative, and can be experienced in the company of others. Two examples created by librarians are on health information literacy (by Brielle Coronet; SL name) and a multilayered exhibit on human trafficking created by Rolig Loon and Abbey Zenith (SL names).

There are limits to participation in these events, most notably that participants need good broadband connections and computers with good graphics and processing power to be able to connect. They also need to spend a little time learning how to function in a VW, and (if they want to get the most out of the opportunities) be willing to contribute something themselves, by organising or presenting. However, this is no different from any other kind of CPD: to get the most out of it, you generally have to put something in. Certainly, some feel this is very worthwhile. Ashford (2010), blogging from one of the Infolit iSchool events says that "I'm consistently amazed by the quality of professional development opportunities afforded me by participating in virtual worlds. ... I really love what I learn from such diverse groups of librarians in this way. I still can't believe I attend these discussions/presentations and some very large events all for no cost other than the time it takes me to login on my laptop. Truly an amazing time for educators to be able to connect like never before."

Reflections and conclusions

In conclusion, we each reflect briefly on what working in SL has meant to us, and summarise ways in which SL can support sustainable learning.

Webber writes "For me SL is an environment where I teach, learn, feel creative and also have fun. Through membership of the Educators' Coop (Gonzalez, 2010), and organising and attending educational meetings and conferences, I have had the chance to learn from educators in many countries, formally and informally. It has been much easier to meet academics in other disciplines, enlarging my disciplinary horizons, and to form friendships with people in countries that I have not visited much in person. This paper, written without having met in "the flesh" (and without using the telephone, video conference or skype) is testimony to the possibilities for sharing practice and ideas. The 3D nature of SL has enabled me to explore my own ideas about information literacy, by creating 3D models and

exhibits, and then sharing them with others. Being active in SL has also given opportunities to show how my discipline is innovative and tech-savvy. I feel that it is important for my students to be able to grasp all the opportunities there are for new types of job, and I also relish the possibilities for reaching out to new students through the medium of VWs."

Nahl writes "After entering Second Life in 2008 to write about its use by librarians for an encyclopedia article on the expansion of user-centered design (Nahl 2010b), I experienced an intensely stimulating induction period during which all of the librarians I encountered at the SL reference desk, on ALA Island, Infolit iSchool Island and other LIS sims readily taught me things I needed to know on demand, at the point of need (Nahl, 2010a). Their work in SL in reference services, collection development, exhibits and programming, community-building and CPD provide a rich and engaging information ground for learning how to operate as an information professional in a novel VW environment. In addition SL enabled me to attend many more conference programs, research presentations, discussion series, and professional meetings than ever possible in my geographic location surrounded by thousands of square miles of water and limited travel budget. The CPD experience allowed me to meet new research collaborators willing to work at a distance across time zones on projects of mutual interest. Through SL I have been able to expand the exposure of graduate LIS students to views, knowledge, and practices of librarians across the world, to find librarian mentors for students, and introduce students to an environment that sparks creativity."

We finish with some key reasons why VWs are valuable in supporting sustainable LIS learning. Firstly, we need to prepare for the next generation of virtual learners (currently 803 million 5-15 yr olds). These will be LIS students themselves, and will also be clientele for LIS professionals. We need to develop our own skills and understanding of being information literate and professionally competent in a VW, so we can support them and their virtual learning. We also need the pedagogical skills to teach effectively when our students are physically dispersed, but still want to feel "part of the course" and benefit from learning with students from different backgrounds and cultures.

Secondly, we need to educate librarians to create sustainable libraries, libraries which change and thrive. As part of this, we can seize opportunities to create services in virtual environments. There is a growing amount of content in VWs (bringing challenges for retrieval and preservation): already librarians are creating "born in-world" libraries. 3D worlds also provide opportunities to augment, but in some cases, eventually, substitute for physical presence of libraries and librarians.

Thirdly, we have already emphasised the opportunities for worldwide collaboration in formal learning and professional development. Finally, VWs enable us to create interactive and innovative tools, learning objects and learning environments, and share them internationally. Many places in SL are open for others to visit and use, so that Nahl's students have been able to visit and use the material on Webber's SL island (whether or not she is there) and similarly Webber's students are able to visit and interact with material created in New Zealand or the USA, all as part of the same immersive experience.

VW librarianship provides significant benefits in distance learning, reaching nonusers, communicating and collaborating with international communities, recruiting students, and greater accessibility for disabled users. Engaging with a VW may require effort initially, but we have found that this effort is repaid by an enriched professional life, and the warmth of new friendships, spanning the globe.

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Additional websites

Infolit iSchool wiki: <http://infolitischool.pbworks.com/>

Infolit iSchool in SL, SLURL: <http://slurl.com/secondlife/Infolit+iSchool/132/194/22/>

Infolit iSchool on Flickr: <http://www.flickr.com/photos/23396182@N00/collections/72157604063164433/>

Information Literacy in Second Life Wiki (also the focus for Information Literacy Week in Second Life): <http://infolit-week-in-sl.ning.com/>

LIS Student Union in SL, Sloop site: <http://www.sloop.org/avatars/id/Adra-Letov/places>

LIS Student Union in SL, Flickr site: <http://www.flickr.com/photos/lis-students-sl/sets/>

LIS Student Union in SL, Website: <http://www2.hawaii.edu/~nahl/studentunion/lis-su.html>

LIS Student Union in SL, YouTube Channel: <http://www.youtube.com/LISstudentunionSL>

LIS Student Union in SL, SLURL:

<http://slurl.com/secondlife/Info%20Island%20International/74/233/32>

SLED Calendar:

<http://www.google.com/calendar/embed?src=f3b7ubjteso0776u83v4i38qm8%40group.calendar.google.com>
<http://virtualworldsedu.info/>

Appendix 1: Selected librarian and educator groups in SL

- Librarians of Second Life [1,400+ members]
- Second Life Library 2.0 [2,200+ members]
- LIS Student Union [100+ members]
- Information Literacy Group [100+ members]
- ACRL in Second Life [100+ members]
- Virtual Worlds Education Roundtable [300+ members]
- LIS Educators in Virtual Worlds [50+ members]
- Library Reference Group [100+ members]

- ISTE: Educational Technology Association [6000+ members]
- Real Life Education in Second Life [4400 members]