

Second Life: Exploring the Immersive Instructional Venue for Library and Information Science Education

Lili Luo and Jeremy Kemp

A two-stage study was conducted to examine how Second Life (SL) can be used in delivering Library and Information Science (LIS) education. At the first stage, the study surveyed the early adopters of SL from other disciplines in terms of their teaching practice in SL, and found that most educators used SL to create an environment for constructive and experiential learning as well as distance education; then the results were shared among the faculty at San Jose State University School of Library and Information Science. A following study was conducted among the faculty with regards to their intention of bringing their classes to SL. Findings indicated that there were interests in using SL to teach classes in areas like reference, library services for children and young adults, and library history.

Introduction

Second Life (SL) is an Internet-based, general-purpose 3D virtual world where people interact with each other through motional avatars. It provides an environment that enhances sharing through interoperability and creates interactive experiences that would be hard to duplicate in real life.¹ As a Massively Multiplayer Virtual World (MMVW), SL is believed to promote constructivist learning, where knowledge is constructed by learners in an authentic context via social interaction, rather than as a result of traditional instruction.² In light of this positive learning prospect, educational pioneers from various fields such as computer science, media studies and foreign languages, have started exploring its potential in higher education by engaging their classes in the virtual reality environment.

The School of Library and Information Science (SLIS) at San José State University (SJSU) opened its sixteen-acre virtual campus on SL in the summer of 2007 and the faculty has been encouraged to move their classes to the immersive world since then. However, LIS educators are relatively new in adopting SL as an instructional venue and no empirical studies have been reported in the literature yet. Thus, SLIS faculty lacks a concrete understanding of the educational possibilities of SL in the field of LIS. In order to enhance SLIS faculty's perception of SL and better prepare them in discovering the potential use of SL in their classes, this article presents a study ex-

About the Guest Editors

Lili Luo (lililuo@slis.sjsu.edu) and *Jeremy Kemp* (jkemp@slis.sjsu.edu) are lecturers at the School of Library and Information Science at San Jose State University. Ms. received 12/2007; accepted 07/2008; revised 08/2008.

aming other disciplines' pedagogical practice in SL and exploring the design and implementation of SL-enabled education in LIS.

This study consists of two stages. As indicated in Figure 1, at the first stage, the experience of educators in other disciplines who have taught classes in SL is studied to present a holistic view of SL's educational application; at the second stage, the input from SLIS faculty is elicited in terms of how they want to incorporate SL into course delivery, after they are informed of the results from the first stage.

Background and Literature Review

SL offers an economic and social system that is similar to the real world, and has a large and growing user population. As of October 1, 2007, users had created 9.7 million avatars and SL's usage statistics for September 2007 indicated that people spent 682,963 hours using SL.³ The administration at SLIS SJSU became aware of the growing popularity of SL and its potential educational application in 2006 and organized a team to set up the SL campus. The SLIS SL campus models the real SJSU campus both functionally and spatially. It includes a reception area, classrooms, faculty offices, student lounges, libraries, an amphitheatre, and plenty of open spaces for students to work on their projects and for faculty to build interactive objects as courseware. Interested faculty can get help in planning and prepar-

Figure 1
The Outline of the Study.

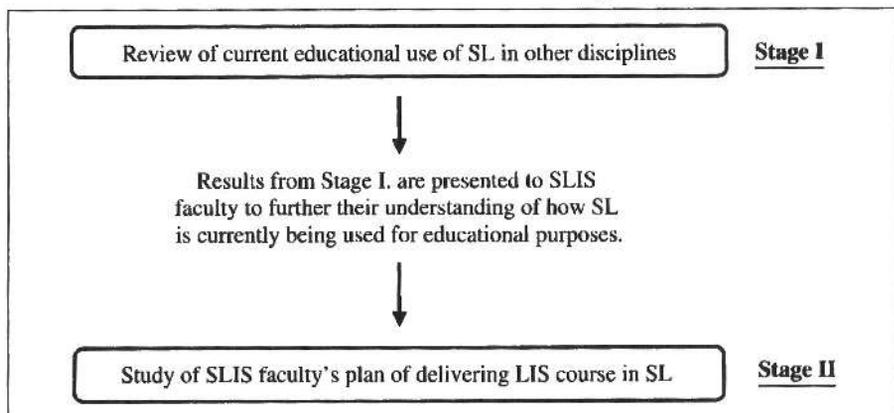


Figure 2
A Snapshot of SLIS' SL Campus.



ing course components in SL from student assistants who are skilled SL residents. Figure 2 presents a snapshot of the SLIS campus in SL.

Technical innovations in the area of virtual reality make possible broader functions and a wider scope of interaction for teaching and learning⁴. Customizable 3D platforms, among which SL is one of the most recent developments, allow teachers to recreate the real world in concrete terms or to build completely new environments, providing unique experiences to students learning abstract concepts or performing specific tasks. Educational uses of these platforms flow naturally from many years of development in virtual reality and virtual worlds.⁵ Educators have concentrated their work in a handful of such platforms and SL is the most popular one of them.⁶ By the summer of 2007, 71 educational institutions had purchased “land” in Second Life and 32 owned a dedicated simulator “island.”⁷ The Eduserv Foundation studied academics in the UK and categorized adopters into six bands:⁸

- Thinking about it but not planning
- Actively planning an SL presence
- Research within SL
- Developing tools within SL
- Staging an exhibition
- Departmental or Centre presence
- SL providing support structures for a course
- Building a campus-wide presence

Still, the exploration of SL in higher education is in its infancy, and the literature on the educational application of SL is mostly presented in the format of conference proceedings. There are several conference venues where educators exchange ideas and share SL teaching experiences:

- *Second Life Community Convention (SLCC)*—An annual conference initiated by a group of SL residents for the purpose of bringing the many representatives of the SL community together to network, build friendships and to discuss SL in a common forum. It has an education track for educators to present their studies of SL for teaching and learning. Most of the education papers contained in the SLCC '06 and '07 conference proceedings were case studies of making SL part of the classroom and establishing educational resources in SL such as museums and research labs.
- *EDUCAUSE sponsored meetings and focus sessions*—EDUCAUSE is a nonprofit association whose mission is to advance higher education by promoting the intelligent use of information technology. One of its interests is to investigate the educational possibilities of SL, and studies and reports on this topic have been presented at its annual and regional conferences. Its most recent effort of SL exploration was the EDUCAUSE Learning Initiative Focus Session in March, 2007, where a group of educators communicated their ideas of how to use the immersive 3D virtual learning environment to enhance interaction and engagement.
- *Second Life Best Practices in Education (virtually held in SL)*—This international conference was initiated and organized by a group of active SL educators, and was held virtually in SL on May 25th, 2007 for twenty-four hours. More than 30 presentations were delivered and about 1300 educators from around the world attended the conference in their avatars. The conference covered a large variety of educational topics, such as teaching different subjects in SL, introducing SL to K–12 education, and training faculties in using SL.
- *Second Life Conference 2007*—This conference was the first European conference about SL which intends to bring the virtual world into real life. One of the conference tracks was education and the potential of SL as a learning environment was discussed at the conference.

In addition to such conferences, in which educators across disciplines meet, share and learn, resources are available that could benefit the educational community of SL explorers. The most popular and frequently cited resource is “SimTeach: Information and Community for Educators using M.U.V.E.’s,” the official Wiki that collects information on every aspect of teaching and learning via SL. Educators new to SL may also go to SL itself for useful information. For example, there is a Virtual Education Center in SL that hosts an interactive display of the basic tips and resources of SL education. Furthermore, pioneering educators have discovered a number of

different ways to take advantage of the virtual environment and engage students in various learning activities, such as community-based learning,⁹ team-building,¹⁰ collaborative learning,¹¹ experiential learning,^{12,13,14} and creative learning.¹⁵

In the field of LIS, practitioners have started using SL in the provision and distribution of library services. In April 2006, the Alliance Library System, a consortium of 253 Illinois libraries, created the first virtual library in SL.¹⁶ This endeavor was soon joined by a number of other libraries and led to the establishment of Info Archipelago, the 17-island library world in SL where libraries and library partners not only promote existing resources and services to the virtual community, but also build new projects that take advantages of the immersive environments of SL and advance virtual library services to a new level.¹⁷

However, to LIS educators, SL is relatively new and its potential application in LIS teaching and learning has not been thoroughly researched yet. Thus, a summary of the pedagogical approaches currently employed in SL education will bring LIS educators closer to this new instructional tool and lay the ground for delivering LIS education via SL. To that end, this study seeks to examine how SL has facilitated teaching and learning in other disciplines, and explores how LIS educators might benefit from it.

Methodology

Stage I

Survey instrument was employed to collect data on current teaching practice in SL. The questionnaire contained eleven questions covering various aspects of SL-based instruction: the subject taught, size of the class, the extent to which SL is involved, the purpose of using SL, lecturing methods, examples of class activities, and the perceived advantages and disadvantages of SL as an instructional venue. Educators who have had experience delivering classes or class components in SL were the population of the survey study. However, there exist no well-maintained directories or lists that keep track of educators who bring their classes to SL. An educator named A. J. Brooks has created a Wiki, "Who Teaches What in SL," for educators to voluntarily fill in the information about their teaching activities in SL. However, there were only six entries by the time the study was conducted. Thus, this Wiki could not be used as the basis for random sampling. As a result, the individual members of SL educators are not identifiable and random sampling techniques are not appropriate in selecting a representative sample. Instead, the non-probability sampling technique "judgmental sampling" was used as the alternative under the circumstances. The researchers made the judgment that educators teaching in SL are likely to subscribe to the email listserv discussing topics related to SL education, and join the most prominent association of educators in SL. Thus, members of the SL Education (SLED) listserv, a rapidly growing listserv for educators who are interested in teaching via SL, and of the "Real Life Education in Second

Life” group in SL were selected to be the study population. The SLED listserv had 3,777 subscribers on August 9, 2007,¹⁸ and 331 authors submitted 1,170 posts in April, 2007, the month the study was implemented.¹⁹ “Real Life Education in Second Life” is an interest group of 2,945 members in SL where participants can exchange messages and organize virtual gatherings using communication channels in SL.

Admittedly, the judgmental sampling method has its own weakness and may yield a sample that is not representative of the population. Nonetheless, the bias could be reduced to a minimum by making the survey accessible to as many educators as possible. The survey was published on the Web and an invitation message containing the URL was sent to the SLED listserv on April 24, 2007, calling for participation. In the meantime, the same message was sent to the “Real Life Education in Second Life” group in SL as a group message, encouraging educators behind the avatars to complete the survey for the study. Two weeks after the launch of the survey, follow-up messages were sent to both venues, reminding educators of the survey and inviting more responses.

Stage II

Responses from the stage I. study were analyzed and presented to SLIS faculty in the form of a technical report disseminated via faculty listservs and a presentation at a faculty meeting, in order for them have a holistic understanding of how SL is currently being employed as an instructional venue. Then, a Web-based survey questionnaire was created for the faculty to provide their input on the viability of SL as an educational environment, their interest in and plan of incorporating SL in the delivery of their classes. The survey invitation message was sent to all faculty members, including both full-time and part-time faculty at SJSU SLIS.

Results

Study I—Current Teaching Practice in SL

A total number of 25 responses were received, which might appear to be a low response rate. However, as revealed in the literature, the exploration of SL in higher education has only been active since 2005 and the population of the educational pioneers is undeterminable; thus, there may not have been a large number of educators experimenting with SL. Hence, the size of the self-selected sample, although not necessarily indicating generalizability, is understandable and acceptable in this study.

Among the 25 responses, 21 came from educators who have actually taught in SL, whereas the other four respondents planned to bring their classes to SL but had not by the time of the survey. Since the study seeks to glean input from experienced SL educators regarding their teaching practice, the four responses from the future SL educators were excluded from the data analysis and only the synthesis of the 22 valid responses are reported in this section.

Subject, Size of Class, Level and Delivery Mode of Courses Taught in SL

The subjects taught by the 21 respondents can be grouped into 11 categories, as indicated in Figure 3.

It was not surprising that educational technology was the most frequently taught subject in SL since SL itself is a recently emergent venue to deliver education and has attracted attention from a rapidly growing body of educators. Media studies was a popular subject as well, given that SL provides a rich platform for 3D virtual media research. More interestingly, English as a Second Language (ESL) teachers have also brought their students to SL to practice their English in virtual conversations with avatars of native speakers—an experience difficult to duplicate in real life.

Among the 21 respondents, two were not teaching regular classes but advising student projects in SL. One of them (subject area: management) advised a group of 15 students' senior projects completed in SL; another (subject area: educational technology) was the advisor for one student's independent study conducted in SL. The remainder taught classes in sizes ranging from 5 to 152. However, most of the classes had no more than 30 students, as indicated in Table 1.

Regarding the level of the courses taught by the respondents, 14 were undergraduate-level courses, 4 were graduate-level course, 1 was a continuing education course and another was a course for faculty development. As for delivery mode, 12 were face-to-face courses, 6 were distance education courses, and 3 were hybrid courses where both onsite and online teaching were required. This statistics indicate that the majority of SL application takes place in undergraduate-level education delivered in face-to-face mode.

Figure 3
Subjects Taught in SL.

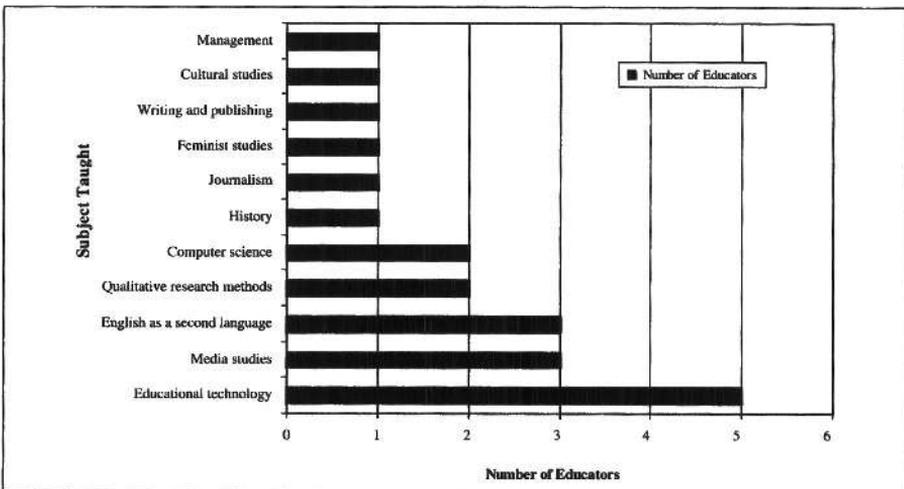


Table 1
Class Sizes.

Number of Students in the Class	# of Educators	% of Educators
Less than 10	5	29.4%
10 to 30	10	58.8%
31 to 50	1	5.9%
More than 50	1	5.9%

Level of SL Involvement in Classes

The extent to which SL has been employed in teaching varies among educators. Results from the study indicated that more than half of the respondents did not deliver lectures in SL but only used it for students to participate in class activities and complete exercises and assignments. This finding is echoed by what SL has been defined in the literature—a constructive learning environment where learners learn from interactive, reflective and collaborative experiences instead of from lecturing.²⁰

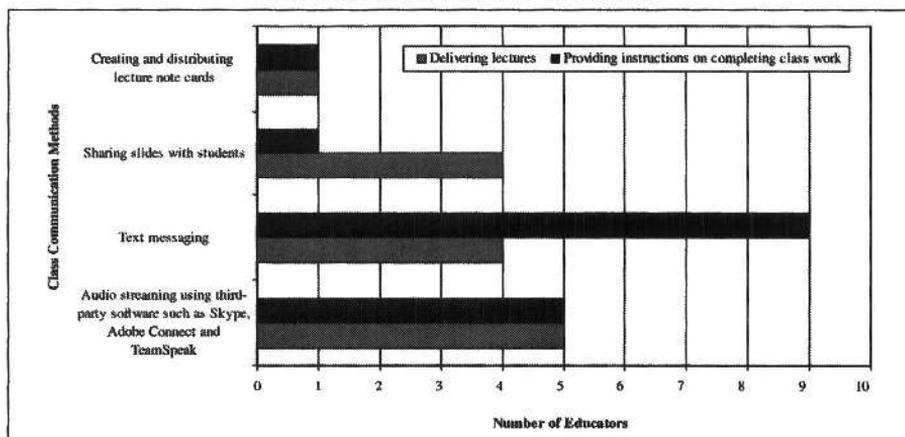
Still, eight of the respondents did deliver lectures in SL, and reported that they used a variety of methods in doing so, including streaming, text messaging and slide sharing (Figure 4). Those respondents who used SL only for class activities, exercises and assignments used the same communicative methods when providing guidance and instructions to their students in SL.

At the time the survey study was conducted, SL did not yet have integrated audio functionality; thus, educators resorted to external software to generate audio stream. However, since July 2007, SL has offered the audio chat feature to its residents, making it possible for educators to have voice-enabled classes with no need for other applications.

Table 2
Level of SL Involvement in Classes.

Level of SL Involvement	# of Educators	% of Educators
Second Life is used for class activities, exercises, and assignments only; lectures are delivered in other venues.	13	61.9%
Classes are taught in Second Life most of the time; but meetings are arranged in other venues to help students with their questions in relation to both course content and Second Life technical issues.	4	19.1%
Classes are taught entirely in Second Life and there are no class meetings in other venues.	3	14.3%
Second Life is used for holding guest lectures in addition to completing class activities.	1	4.7%

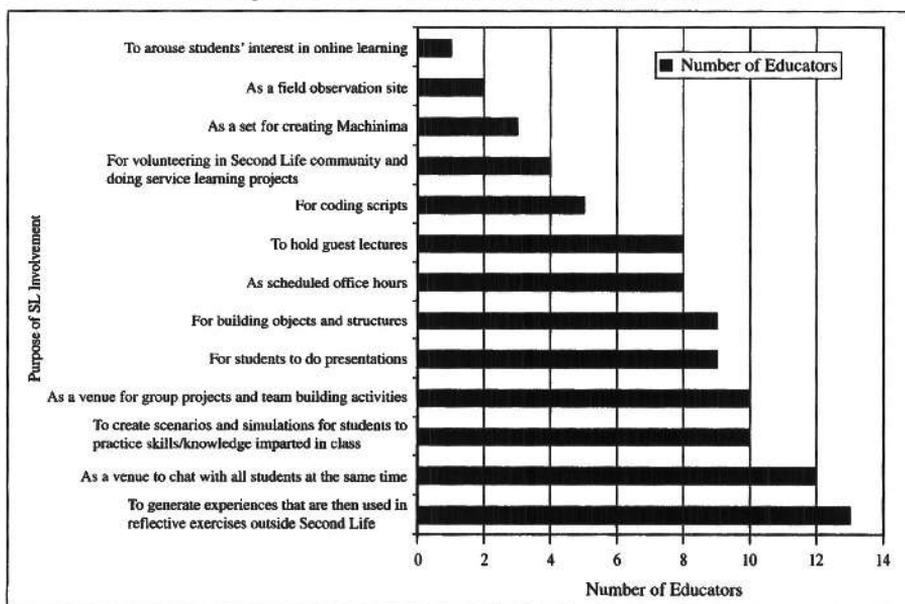
Figure 4
Class Communication Methods.



Purpose of SL Involvement in Classes

The purposes for which respondents engage SL in their classes can be grouped into thirteen categories. As indicated in Figure 5, the most widely ($n = 13$) shared teaching and learning purpose is “To generate experiences that are then used in reflective exercises outside Second Life.” The virtual reality of SL is based on an economic and social system that simulates real

Figure 5
Purpose of SL Involvement in Classes.



life. However, there is less geographical and physical limitation and more mobility in SL, which makes it an open field for experiences that are difficult to obtain in real life. This appeals to educators in that it generates constructive experiences for students to reflect on and learn from. For example, one respondent mentioned that she organized class discussions where students talk about how feminist research methods can be applied in understanding gender and race formations and interpersonal interactions in SL. Another respondent had his students document and report their experiences with regard to accessibility for persons with disabilities in SL. In both cases the students' learning was advanced by the reflection on their SL experiences.

The second most popular ($n = 12$) motivation for educators to involve SL in their teaching practice is to use it "as a venue to chat with all students at the same time." The 3D virtual environment in SL is certainly a richly interactive venue for communication, especially for classes where students are geographically dispersed. Furthermore, the choice of meeting locations is quite flexible. For example, one respondent commented that he often took his students to a relaxing location for class meetings.

"To create scenarios and simulations for students to practice skills/knowledge imparted in class" is a popular reason to bring classes to SL as well ($n = 10$). As mentioned earlier, SL is an environment for virtual reality and constitutes a solid basis for experiential learning. Thus, educators design exercises and activities in SL for students to practice what they learn in class. For example, one respondent asked his students to use the skills learned in class to respond to business clients' proposals, produce deliverables, and make presentations in SL. Another created simulations in SL so that his students could practice skills such as interviewing, reporting, journalistic researching, publishing, and circulation. In other words, SL is a fertile ground for field experience.

Educators are also attracted to the possibilities of using SL "as a venue for group projects and team building activities" given the abundant resources available in SL ($n = 10$). One respondent talked about using a convenient SL feature "note card" to distribute topics of group discussions and asking each group to write their discussion summary in a "note card" and return them to the instructor. Another one mentioned the most popular team building activity in her SL classroom was a speed building challenge, where the class was split into teams and each team was given just two hours to reconstruct a local landmark using their SL building skills. However, these collaborative experiences in SL are not limited to such intra-class group work. Some instructors bring their classes to SL to meet with students and faculty from other institutions who share their teaching and learning interests. For instance, a respondent in China collaborated with a teacher in Germany so that their English as a Second Language (ESL) students could meet in SL and practice their English skills via discussions and exercises.

A number of respondents ($n = 9$) designated SL as a venue for students to

make presentations. In the 3D interactive environment of SL, presentations can be enriched by the access to a vast inventory of features like object building, teleporting, and avatar-object interaction. The SL classroom provides more possibilities to diversify the elements in a presentation than other remote instructional software does, and students' creativity can be unleashed with fewer barriers in the virtual world. Similarly, some of the educators ($n = 8$) chose to hold guest lectures in the virtual environment due to the interactivity and novelty enabled by SL.

Quite a few respondents brought their classes to SL for the purpose of exploring a variety of functionalities of SL such as building and scripting. For example, some of the educators taught students how to construct objects (e.g. a robot, a sandbox) ($n = 9$) and code scripts ($n = 5$); some discussed Machinima creation with their students ($n = 3$). Not surprisingly, these educators mostly taught in subject areas like educational technologies and computer science, where SL itself is one of the learning objectives.

The strategy to use SL "as scheduled office hours" was adopted by several educators ($n = 8$). Again, SL is an interactive venue for communication and students' questions can be answered with the aid of demonstration and virtual tours. This is especially appealing for distance education classes.

Finally, a small number of respondents used SL "as a field observation site" ($n = 2$) and for students to "volunteer in Second Life community and do service learning projects" ($n = 4$). Both teaching purposes directly exploit the prominent characteristics of SL—simulation of real life in the virtual world, where students can benefit from experiential and constructive learning.

Perceived Advantages and Disadvantages

At the end of the survey, respondents were asked to provide their perceptions of the advantages and problems of SL as an instructional venue based on their experience. Four areas of advantages were identified:

Advantage I. Supporting Constructive Learning

Being able to support constructive learning is a key feature of SL and not surprisingly, it was widely acknowledged by the survey respondents. The keywords for constructive learning include interaction, collaboration, visualization, experience and reflection, and these keywords appeared in seven respondents' comments about the advantages of teaching in SL. In addition, another respondent pointed out that since education takes place in a 3D virtual world like SL, the social barriers to learning and sharing can be removed, and thus, the learning process can be more liberating.

Advantage II. Being a Creative and Engaging Venue that Motivates Learning

Novelty is a positive characteristic of SL acknowledged by four respondents and they expressed their appreciation of the new perspectives, unique experiences and creative relationships that SL has brought to their classes.

Another two respondents considered SL to be an engaging environment. The result of the creative and engaging aspect of SL is the increased student enthusiasm in learning. One respondent mentioned that his students' end products of the class "have been ten times better than the same type of project run without any involvement of SL."

Advantage III. Being a Multi-channel Distance Learning Platform

Distance learning can benefit from SL as well. Three respondents reported that SL is a rich platform for distance learning and one of them even explicitly claimed that "the ability for learner-to-learner interaction at a distance feels more 'present' than other distance learning venues." This feature relates directly to research conducted with text chat which shows that a greater sense of presence leads to greater satisfaction.²¹

Advantage IV. Providing an Informal and Relaxing Educational Environment

In SL, classes can meet in non-classroom settings, where the environment is informal and relaxing for learning. Two respondents mentioned that the informal way of communicating, the relaxed learning attitudes and creative and engaging aspects of SL motivated students' active participation in class.

In terms of the difficulties and problems encountered when teaching in SL, the opinions of respondents can be grouped into the following categories:

Disadvantage I. Technical Problems

The first and foremost obstacle to bringing classes to SL is technical difficulty. About 67% ($n = 21$) of the respondents mentioned a technical concern of one kind or another. The three primary technical problems reported by respondents are lag time, requirement for frequent updates, and inadequate hardware equipment on both the student and the school's end.

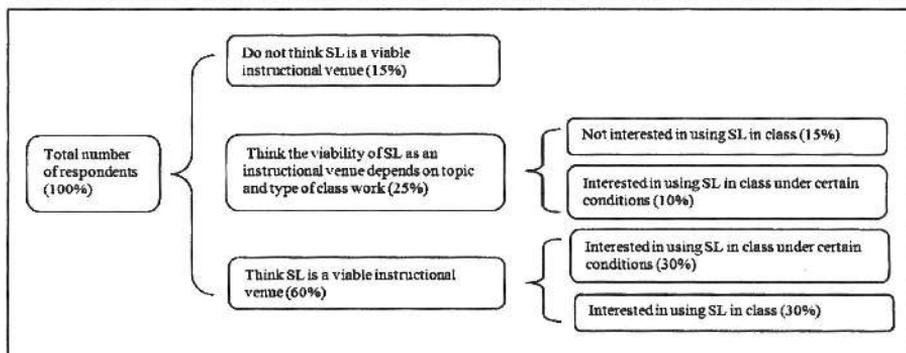
Disadvantage II. Steep Learning Curve and Slow Student Acceptance

Learning to skillfully navigate in SL is not an easy task. Six respondents reported that students have to go through a steep learning curve before they can comfortably have classes in SL.

Disadvantage III. Distractions in SL

SL is a 3D virtual environment and it models the real world in its running. Thus, the non-educational part of SL can become distracting in the learning process. Among the three respondents who acknowledged this problem, one stated that his students got distracted by avatar creation and other SL elements that are not related to education, and another mentioned that his classes, which were not held in a private space, sometimes were interrupted by random people.

Figure 6
Respondents' Perception of SL's Viability as an Instructional Venue.



Study II—LIS Faculty's Response to SL

In order for SJSU SLIS faculty to have a thorough understanding of how SL is currently being employed as an instructional venue, the findings from the previous study were presented to them by means of a presentation at a faculty meeting and a written report distributed to all faculty members via faculty listservs. Then, the faculties were surveyed about their ideas for using SL in their own classes.

In all, 20 responses were received, and Fig. 6 depicts the distribution of the responses in terms of respondents' perception of SL's viability as an instructional venue and their interest in involving SL in teaching and learning. Discussion of the responses is organized by respondents' attitudes toward the educational possibilities of SL—negative, uncertain and positive.

Those Who Said "No"

Out of the 20 respondents, 3 (15%) did not consider SL to be a viable educational environment. They provided 3 different reasons: (1) teaching in SL is a non-sustaining trend and it will pass; (2) the fact that students have to use avatar names instead of their real names in SL classes is not convenient for teaching; and (3) both students and instructors will go through major technological adjustment and thus it is not worthwhile.

Those Who Said "Maybe"

Five respondents (25%) felt that the viability of SL as an instructional venue depended on the topic taught and the type of class work. For instance, one respondent commented, "I don't see it as a replacement for what I'm doing with classes now, but I can see where it might be useful in helping create student community. For example, it might be appropriate for office hours, for colloquium lectures, etc." Another respondent noted that "the relevance of SL to a student's career will depend greatly on their track."

When asked whether they would be interested in using SL in their classes, 3 (15%) answered "No." Their reasons for lack of interest included: (1) disadvantages of SL outweigh its advantages; (2) current teaching venues are sufficient; and 3) course content cannot be effectively taught within the context of SL. Meanwhile, 2 respondents replied that they might be interested in bringing their classes to SL if they could see more illustrations of how SL has been adopted successfully in LIS education.

Those Who Said "Yes"

The majority of respondents (60%) believed SL to be a viable instructional venue. About half of this group indicated that they were interested in using SL in their classes, but not immediately. They would feel more comfortable with SL if SL skill training were provided, successful examples of how SL is used by other LIS educators were demonstrated, and information about students' acceptance of SL as a learning environment were available.

Another half of the "yes" respondents not only exhibited interest in incorporating SL in the delivery of their classes, but also discussed how they would use SL as an instructional venue. Table 3 presents an overview of the respondents' plan for possible SL involvement in the respective courses they teach.

As indicated by Table 3, the respondents' courses cover a wide variety of LIS areas and their comments on the possible use of SL in their classes suggest that they would take advantage of SL's simulation of the real world.

Simulation of Face-to-face Interaction

Communication in SL is enabled through the interaction between motional avatars, including voice-based and text-based chat. Among all virtual communication venues, the interaction between avatars resembles face-to-face interaction to the greatest extent. This freeform interaction using naturalistic social cues may help to reduce the transactional distance between students and the teacher.²² Though SL does not deliver facial expressions, the lack of visual cues can be compensated by gestures that avatars are programmed to perform. In a distance education program such as SLIS, SL's ability to simulate face-to-face interaction is especially appealing to the faculty, and some of them planned to hold office hours and deliver presentations in SL to benefit from the interactive richness.

Spatial Simulation of the Real World

Spatially, SL's 3D virtual world is modeled on the real world. Building virtual structures, however, is much easier than building in the real world. The SL viewer has built-in tools for constructing 3D objects including costumes, vehicles and buildings. Since SJSU SLIS has its own dedicated server, called an "island" within SL, the faculty can take advantage of the proprietary space to experiment with different facilities. Given SL's spatial simulation of the real world, some survey respondents expressed interest in designing library spaces for students to explore. The tool makes possible

Table 3
Respondents' Plan of Possible SL Involvement in Their Classes.

LIS Area	Specific Course Title	Possible SL Involvement
Social Aspects of Information	Intellectual Freedom Seminar	"I think it could be used for virtual face to face interactions. I think I could easily hold virtual office hours, etc."
Library Reference and Information Services	Reference and Information Services Advanced Information Resources and Services	"practice the reference interview" "I want students to explore the possibilities of reference services in SL. I would like them to spend time in the environment, interact with librarians, and envision how they could play a role."
Library Resources and Services for Children and Young Adults	Resources for Young Adults	"I plan to give students the exposure opportunity to see what SL is, I want them to create an avatar, navigate and tour a space I have designed, and to think critically about things they might offer their eventual clients." "SL might be useful when we discuss physical arrangement of children's and YA departments."
Library Management	Seminar in Library Management	"Scenario planning; presentations"
Library History	History of Books and Libraries	"I can envision having virtual tours of historic sites and displays relating to books and libraries."

learning exercises such as discussing the physical arrangement of young adult resources and services.

Functional Simulation of the Real World

SL attempts to simulate the social, economic and cultural functions of the real world. There are virtual libraries, museums and information services in SL where SL residents can retrieve information and embrace culture as they do in real life. For instance, the Info International Island in SL is dedicated to library and information services, and users can visit the virtual libraries there and talk to a librarian avatar at the reference desk for information assistance. Another example is Renaissance Island, a museum/reenactment site that vividly presents the Renaissance Era in 3D virtual space. The appeal of such simulations of the real world's social and cultural functions to educators is that students can easily engage in an experiential learning process without any physical and geographical restrictions. Some survey respondents noted the potential of SL's functional simulation. They reported plans such as having students experience the provision of reference services in SL, and guiding students around historic

sites of books and libraries to create an engaging learning experience for the studied topic.

Discussion

LIS educators never cease to explore new technologies to support education. The advent of SL heralds unprecedented educational possibilities and has attracted pioneers from various disciplines. The survey of early adopters of SL as an instructional venue indicates that a number of educators believe that SL is a viable educational environment for constructive and experiential learning, and provides an interactive platform for distance education. Although the steep learning curve and technical challenges may hinder the acceptance of SL among some students and instructors, the early exploration of SL's educational potential has demonstrated its value in supporting and delivering education. Apparently, LIS educators have become aware of the educational opportunities in SL and engaged in the movement of incorporating SL to LIS education.

SL's virtual simulation of the real world makes it a convenient ground for constructive and experiential learning. Various LIS subjects can benefit from a learning environment where students absorb knowledge by reflecting on virtual experiences that are hard to duplicate in real life. SLIS faculty has projected the use of SL in the teaching of subjects like reference, library services for children and young adults, and library history. Other ideas of SL-enabled LIS education may include:

Research Methods

Research Methods is a required course in most LIS graduate programs, and the teaching of certain methodologies can benefit from the involvement of SL. For instance, students can practice the non-probability sampling method "reliance on available subjects" and the data collection instrument "interview" by going to a gathering place in SL where potential subjects meet, and conducting interviews there; students can also experience the role of an ethnographic researcher by observing a virtual community in SL. Such learning experiences would be difficult to obtain in real life within the timeframe of a class.

Information Literacy

Some LIS schools have undergraduate programs, and information literacy education is usually an important component of these programs. SL's spatial simulation of the real world can be fully explored to organize engaging activities such as games to appeal to undergraduate students' interests. For example, a scavenger hunt can be organized for students to complete a search task, where they need to apply the search skills and knowledge of sources learned in class to interpret the hints and find the correct answer to the search query.

Since SL is a virtual space with fewer physical limitations, it adds one more option to the growing pool of distance education technologies. Having synchronous class meetings or offering office hours in SL can enrich the interaction among the class, compensating for the lack of face-to-face communication in online courses. The flexibility in choosing a meeting place in SL also enables instructors to bring their classes to a relaxing environment such as a simulated beach, or a rooftop bar in SL, for lectures or class activities. The virtual world of SL simulates the real life, and distance education programs can take advantage of the synchronicity, interactivity, flexible meeting venues, and support for constructive and experiential learning offered by the 3D simulation, so as to generate more engaging elements in online LIS courses.

While educators have exhibited enthusiasm in pursuing SL-enabled education, they are fully aware of the shortcomings of teaching in SL. Learning to navigate and socialize in SL is not an easy task, especially for people without any 3D gaming experience. The steep learning curve may lead to slow acceptance of SL as an instructional venue. In addition, strong computing power is required to run SL and not everybody's computer system can meet that requirement. Another issue that concerns educators is that there are many distractions in SL since it is not an environment solely dedicated to education. Learners may get distracted by the non-educational aspects of SL and not be able to complete the learning process successfully. Facing these obstacles in delivering education in SL, educators need to be well-prepared before adopting SL as an instructional venue. Open-mindedness and enthusiasm in exploring new instructional technologies are indispensable among educational pioneers; and willingness to embrace novelty and to help students familiarize themselves with a fresh learning environment is also crucial in introducing a new teaching tool.

The current efforts in exploring the educational possibilities in SL are exploratory in nature. In order to obtain more conclusive evidence to support (or not) the viability of SL as an educational environment, evaluation studies should ensue to assess teaching effectiveness and students' learning outcomes in SL. The study presented in this article provides a descriptive picture of how SL can be employed pedagogically, and future research should focus more on the efficiency and effectiveness of the pedagogical practice in SL so that a more thorough understanding of SL's educational potential can be achieved. In the meantime, in the field of LIS, more case studies should be conducted, since the lack of actual educational practice in SL is the principal factor that makes educators feel hesitant about incorporating SL in their classrooms.

Conclusion

Given educators' growing attention to the educational possibilities of SL, the 3D MMVW, this study examines the current teaching practice in SL and explores LIS educators' interests in pursuing SL-enabled education. Find-

ings from the study present a more concrete depiction of how SL is being used to support and deliver education, and how the teaching of LIS courses can benefit from it. This article can serve as a starting point for interested LIS educators to understand the appeal of SL as an instructional venue, and explore how to take advantage of it in assisting teaching and learning. In the future, after the faculty at SLIS SJSU have had an opportunity to experience with SL, a follow-up study will be conducted among them for an in-depth analysis of the use of SL in their respective courses, including the design of the course component in SL, the implementation, and students' learning outcomes.

Appendix: Survey Questionnaire of Current Practice of Teaching in Second Life

1. What is the subject area that you teach?
2. What is the course level?
 - Undergraduate
 - Graduate
 - Other, please specify _____
3. How many students do you have in your class?
4. Is your course a distance education course or a face-to-face course?
 - Distance education course
 - Face-to-face course
 - Other, please specify _____
5. To what extent do you involve Second Life in your teaching?
 - I teach the course entirely in Second Life and do not meet with my students in other venues.
 - I engage Second Life for class activities only and deliver my lectures in other venues.
 - I teach the course in Second Life most of the time but I arrange meetings in other venues to help my students with their questions in relation to both course content and Second Life technical issues.
 - Other, please specify _____
6. For what purpose do you engage Second Life in your class (multiple choices)?
 - To chat with all students at the same time
 - As scheduled office hours
 - To hold guest lectures
 - For students to do presentations

- For building objects and structures
 - For coding scripts
 - For volunteering in Second Life community and doing service learning projects
 - To generate experiences that are then used in reflective exercises outside Second Life
 - To create scenarios and simulations for students to practice skills/knowledge imparted in class
 - As a venue for group projects and team building activities
 - As a set for creating Machinima
 - Other, please specify _____
7. Please describe how you deliver lectures in the Second Life classroom (you may talk about whether you use typing, audio streaming or slidesharing in your lectures and all the other techniques/methods employed):
8. Please provide an example of class activities that you have organized for your students in the Second Life classroom:
9. According to your Second Life teaching experience, what do you think are the advantages of this immersive educational environment in facilitating learning?
10. What are the problems and difficulties that you have encountered in your Second Life teaching experience?
11. If you have any comments that are not addressed by the above questions, please leave them here:

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