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Gimmick or groundbreaking? Canadian academic libraries using chat reference in multi-user virtual environments

Amy Buckland, MLIS
Krista Godfrey, MA, MLIS,
McMaster University Library
Hamilton, Canada

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Abstract

Library users of the future, aka "digital natives" (Prensky), and the pervasiveness of Web 2.0's focus on the user, will require institutions and organizations to re-evaluate their service models to ensure they are positioned to best serve this new clientele, in new environments. One such environment is the multi-user virtual environment Second Life. This online "world" is created by its residents (represented by avatars) and currently has over 13 million registered users. Hundreds of librarians from around the world are exploring and volunteering their time in this virtual world, including offering reference assistance to Second Life residents.

By first examining face-to-face and chat reference, we can place virtual world reference within the reference continuum. Then, using McMaster University Library's pilot project, we aim to determine how reference could be offered by a single institution in a virtual world, what additional skills were required by such a service, and whether there was a need for it.

Introduction

The increase in electronic content in academic libraries demands that information and support for those resources also be available electronically. Though many students will physically go to the library and speak with a librarian, a growing number of the university population (including faculty) access these resources off-campus. These off-campus users, however, still have the same queries which need answering, despite the physical distance from a librarian. "If we went to all the trouble to erect these digital edifices, should not they too be staffed in some way?" (Francoeur, 2001, p. 196).

The development of services to digital users does not imply that we ought to forgo the traditional face-to-face service for which libraries are known. Digital reference in academic libraries must be built on the physical library – the collections and the staff. As faculty and students of the university now conduct research off-campus, the resources they need must also be available to them off-campus. "As libraries make more digital resources available over the Web, research is increasingly being conducted outside of the physical library

building. Consequently, virtual reference traffic is expected to increase, and improvements in the management of these services will be critical" (Moyo, 2002, p. 27).

What can be learned from the best aspects of both face-to-face and chat reference interactions and how can this be applied to new worlds, such as multi-user virtual environments like Second Life? Is it possible that "[r]eference services in virtual worlds could contribute another dimension to 'hyper-personalized' reference services that mediate between live interaction, technology, and convenience for geographically remote users"? (Bankhead, 2004, p. 213)

Terminology

Before delving into digital reference interactions and examining McMaster University Library's experience with virtual world reference, some terminology must be clarified.

Second Life

Second Life (SL) is an online multi-user virtual environment created by Linden Labs, Inc., where all content is developed by the users (called "residents") of this non-immersive 3D virtual environment. Residents navigate this virtual world using an avatar that they have customized in terms of appearance and certain behavioral traits (gait, poses, hand gestures). Most residents communicate via typed chat, though recently Second Life began supporting voice communication, much like VOIP technology. As this voice technology is recent, it has not been adopted by many residents, and is not considered the main form of communication in SL.

Access to Second Life is provided through a small computer program which connects to the virtual environment through the Internet. Second Life currently has over 13,000,000 residents[1] and boasts its own currency (the Linden dollar), which can be bought using US dollars (current exchange rate is roughly 264L$ per 1USD). Residents retain intellectual property rights over their creations[2] and thus an economy exists in Second Life as residents buy and sell their creations.

Digital reference

A definition for reference provided through digital means, which could be applied to email, chat, and reference interactions in a virtual world such as Second Life, is "the use of human intermediation to answer questions in a digital environment." (Lankes, 2004, p. 302). This definition does not try and define the two parties involved in the reference interaction (both Dee & Newhouse (2005), and Moyo (2002) cite the librarian and the user). This lends itself well to an environment like Second Life where those who may be using the services of a virtual SL library may not be the "real life" users of the library, but simply information-seekers.

Presence

The concept of presence as it applies to virtual environments can be summed up as "the sense of 'being there' experienced by users of advanced media" (Lombard & Jones, 2007, p. 198). While it is true that users of Second Life are aware that they are not in fact *in* the virtual world, psychologically they develop an attachment to the digital images they see,

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[1] Total Second Life residents as of April 18, 2008; 13,337,040 according to http://secondlife.com/whatis/economy_stats.php, accessed April 21, 2008.

[2] As stated in the Terms of Service for Second Life, found at http://secondlife.com/whatis/ip_rights.php, accessed April 21, 2008.

and feel as though they are present. Being present within the virtual environment increases the social richness (Lombard & Ditton, 1997) of the interaction and ensures more realistic behavior.

Avatar

According to the Merriam-Webster Online Dictionary, the term "avatar" comes from a Sanskrit, and means "an incarnation in human form" ("Avatar"). From this we now use the term to mean "a physical or graphic image that allows the user to be embodied in a virtual environment in real time" (Nowak, 2004). Others have defined avatars as "digital proxies of people" (Garau, 2006, p. 17), or simply the "[r]epresentation of a person in a virtual environment" which "may include movement and/or sound" (Swanson, 2007, p. 85). In Second Life, avatars can be customized by the user to appear as a wide range of forms – from very realistic human beings, to glowing orbs or animals.

Literature review

Reference interactions

According to Janes, users will use whatever technology is available to contact the library with reference questions (2008, p. 8). The advent of the telephone brought telephone reference, email brought email reference, and chat technologies brought chat reference. With the creation of virtual worlds like Second Life, it was only a matter of time before librarians were being sought out in that medium to answer questions.

Digital reference services have met a need within the library community. Users who are unable to get to the physical library, no longer need to rely on Internet search engines to find answers. The library's digital presence, if it aims to offer reference services, must realize that these "services will thrive only if it is as convenient to the remote user as a search engine; only if it is so impossible to ignore – so 'in your face' – that to not use the service is an active choice" (Lipow, 1999, p. 52)..

The availability of the service, however, does not mean that the traditional face-to-face (FtF) reference interactions are no longer of value. FtF interactions have many qualities that can't be replicated in a digital environment using chat or email. For instance, Ford (2002) found that due to the nature of the reference interview, FtF interactions had more instructional aspects involved and that librarians would go beyond simply answering the question to determine if the true information need was being met.

Users who found themselves using the FtF reference service did so because they valued the presence of the librarian and the librarian-user relationship. Ruppel & Fagan (2002) echoed this sentiment, finding that the personal touch of a librarian was considered a positive aspect of the FtF interaction.

While the presence of the librarian is the very thing which makes the FtF interaction so positive, it is also what can make it negative for some users. A number of authors have found that users do not like approaching the librarian with questions because they don't want to seem stupid (Radford, 1999; Ruppel & Fagan, 2002) or because of the unwelcoming body language of the librarian (Nilsen & Ross, 2006; Radford, 1999). These issues are crucial as Pomerantz (2005) has found that the FtF reference interaction is often "the solution of last resort, arrived at only after an individual rejects all other means of resolving an information need" (p. 1290). If the user does not find the librarian approachable, his information need will go unmet.

The synchronous nature of chatting emulates the give and take of a FtF interaction, which librarians also find more natural and comfortable (Janes, 2002; Pomerantz, 2005). The ability to co-browse, the speed of the interaction, the transcripts created by the interaction

(useful for establishing best practices and user needs assessments) and frankly, the appearance of being technologically "with it" (I. Lee, 2004; Lippincott, 2006), were all noted by Janes (2002) as positive aspects of chat reference. Ruppel & Fagan (2002) found that users rated chat reference highly due to the convenient access to a reference librarian (echoed by Pomerantz & Luo, 2006), and the users' ability to remain anonymous (possibly to not appear stupid, so the problem found in FtF interactions has not completely disappeared simply because the "face" is no longer present).

A major issue with digital reference is the lack of non-verbal cues (Francoeur, 2001; Janes, 2002; Luo, 2007; Broughton, 2001; Gilbert, Liu, Matoush, & Whitlatch, 2006). The inability to see the participants' faces increased the literality of the text typed into the chat interface, which provides more opportunity for misinterpretation. Some librarians met this challenge through the use of emoticons and abbreviations (Radford, 2006), while others decided to make the "level of politeness" a little lower in order to create a more casual atmosphere (Nilsen, 2002, p. 92), which though helpful to the user, made the librarians uncomfortable as it felt unprofessional (Francoeur, 2001).

The largest problem found in the implementation of chat reference services was the disappearance of the reference interview (Janes, 2008; Nilsen, 2004; Nilsen & C. Ross, 2006). Ford (2002) and Nilsen & Ross (2006) found that the speed of the interaction made librarians feel rushed and as though they had to get to an answer - any answer - as quickly as possible. In order to speed things up, they would skim through the reference interview. This perception may have been caused by the generation gap between the librarians and the users of the chat reference services (which in academic libraries will be students). Students, or *digital natives* as Prensky (2001) would call them, are accustomed to multitasking in a virtual environment (Broughton, 2001), and understand that there is a human at the other end of the chat interface, and that they will likely have to be patient.

In sum, the most positive aspects of the FtF interaction are the personal relation with the librarian and the thorough and instructional nature of the interaction. The fear of appearing stupid, or of bothering the librarian however, turned users away from the FtF interaction. Chat reference was convenient and quick, and offered some anonymity to the interaction, but the lack of non-verbal cues, and dismissal of the reference interview are worrisome.

Second Life

The virtual environment of Second Life (SL) has been open to the public since 2003. It didn't take long for librarians to bring their expertise to this new environment, since libraries seek to provide access to information through virtual reference services, it follows that they would do the same in a virtual environment (Grassian & Trueman, 2007).

Though Second Life is not a game, it falls in a new category of online environment where both gaming and education are possible. Cheal (2007) believes that SL "stands in the continuum of learning methodologies from lecture to active/experiential/problem-based/constructivist learning" (p. 207). Squire & Steinkuehler (2005), advocates of gaming as an educational medium, see a role for librarians in this new virtual world:

> In the past librarians have often been perceived as gatekeepers, arbiters of access to information. The digital cultures now emerging (with the helped of technologies such as games) suggest that the days for such an institutional role are numbered. Librarians must find creative ways to support people in forming sites of collective intelligence, searching information, working within social networks, and

> producing knowledge. If not, they run the risk of rendering themselves, for much of the public at least, largely obsolete. (p. 41)

The public have taken to Second Life and to the libraries found there in an enthusiastic manner. Alliance Library System of Illinois has established a set of library-related islands in SL (named the Info Island Archipelago), which currently receive over 5000 visits each day (Bell, Pope, Peters, & Galik, 2007).

Swanson (2007) believes one of the reasons residents visit the libraries of SL looking for information, instead of simply plugging their query into Google, is that the SL libraries exemplify Library 2.0 concepts: they offer service at the point of need, are free from many barriers, and are participatory and flexible (p. 81). The ability to do things which are impossible in real life, such as instantly reconfigure your library space to hold a book reading, is another reason why libraries should consider developing a presence in Second Life (Anderson, 2007).

Avatars and presence in virtual environments

The use of avatars to visually represent the users of Second Life fosters a feeling of presence amongst users. Yee, Bailenson, & Rickertsen (2007) evaluated the social perception of avatars and whether this perception was dependent on the human-likeness of the avatar. They found that the presence of a face was preferable to no face at all, and the realistic human-like representations produced more positive social interaction than representations with lower realism[3].

Bailenson et al. (2006) found that higher realism was found to increase the sense of presence, and that both avatar behavior and form are important to "elicit an experience of being with another person" (p. 361). They did, however, find that "people disclosed more information to avatars that were low in realism" (p. 368). Koda & Maes (1996) found that realistic human faces appear more intelligent and likeable (provided that they look "normal") and were only trumped by the presence of animal characters, which were considered even more likable. Those avatars which had human faces, were attributed human characteristics.

Discussion

The best qualities of the face-to-face interaction are the relationship with the librarian and the instructional capabilities involved with the reference interaction. This is paired, however, with the intimidation some feel when approaching a librarian.

Where chat reference is concerned, the speed and convenience of the interface, as well as the anonymity that is afforded during the interaction, are considered positive aspects of this service. Unfortunately, this service tends to result in the disappearance of the reference interview and the lack of nonverbal cues, which are important to the reference interaction.

Avatars can increase the feeling of "presence" in a virtual environment, which increases engagement and likeability of the virtual actor. Avatars ultimately encourage behavior that is similar to that which is witnessed in real life.

Thus it is possible that shifting chat reference services into a multi-user virtual environment, such as Second Life, might address some of the challenges of traditional reference services and increase the feeling of being part of the library – albeit a virtual one.

Though the presence of an avatar will not automatically rectify the communication issues inherent in the chat reference interaction, the fact that social norms do apply in Second

[3] Nowak (2004) found the opposite – that less anthropomorphic avatars were preferred by her test subjects, but agrees that this contradicts most other studies on the topic. She believes this may have been due to the fact that she was also testing embodied agents, and that when people were confronted with a realistic human likeness, but supported by an embodied agent, the interaction didn't meet the expectation of the "human" representation.

Life (Yee et al., 2007), makes it possible to incorporate some of the best aspects of the face-to-face interaction into a chat-based virtual environment. And according to Ruppel & Fagan, "[n]ew library services generally succeed when the 'best' aspects of traditional services are incorporated" (2002, p. 194).

The presence of avatars will likely improve the relations between the librarian and the information seeker. Since avatars in Second Life are animated to appear to be typing when they are answering a query, there will be less of a sense of rush imposed on librarians, as the user will be notified that the librarian is about to answer. And being able to actually "see" the information seeker (here in the form of an avatar) will likely personalize the interaction more and increase the frequency of the reference interview, something which is sorely lacking in chat services. Nowak (2004) also shows that the use of avatars facilitates turn-taking in discussions, which helps resolve a problem with the use of chat technologies where both users are typing at the same time and essentially, not waiting their "turn".

As Second Life is accessed through the Internet, it offers libraries the ability to function as a consortia. In fact, the Alliance Library System, which currently runs the Info Island Archipelago in SL, coordinates a staff of over 40 reference librarians to ensure that the main reference desk area is staffed over 80 hours per week. As the staff are spread out around the globe (indeed only a handful work for the Alliance Library System in real life), the goal of a 24/7 reference service is not far off (Bell et al., 2007; Grassian & Trueman, 2007).

Many libraries have implemented chat reference to address the needs of distance education students (Francoeur, 2001). Lipow (1999) states that "rather than thinking of our users as remote, we should recognize that *we* are remote from our users" (p. 52). Second Life is another forum that can bring information to users, while incorporating some of sociality of a human form.

While the literature suggests that avatars may make a significant difference in virtual reference interactions, it is essential to begin exploring reference service in virtual worlds such as Second Life and test the validity of this assumption. McMaster University Library was one of the first libraries to accomplish this.

McMaster University Library Reference Pilot

McMaster University Library acquired a virtual space in Second Life on Cybrary City Island in December 2006. The storefront building is used to provide links to relevant McMaster University Library resources, including websites, the library catalogue, and digital collections and exhibits, as well as relevant free resources and links to in-world resources. A reference buzzer was left out for users to leave questions for a librarian to answer when they next logged in to Second Life. This small service was first announced as a reference service but it seemed inadequate to call a reference buzzer a full reference service. McMaster University Library thus became the first individual library to implement a staffed reference service on Cybrary City in Second Life. Our objectives were threefold:

- To explore the potential of offering a virtual reference service in second life.
- To discover what resources and training are required to offer such a service.
- To learn the level of need for this service.

Existing Second Life reference service

The Alliance Library System has been a driving force in libraries' exploration of Second Life and has implemented numerous services to discover their validity in a virtual world. In September 2006, they launched a volunteer reference service which now offers over 80 hours of reference service by international librarians. The 2007 annual report (Peters, Bell & Gallaway, 2007) indicated the service had nearly 6500 visitors asking over 2200

Second Life reference questions (questions about Second Life) and 200 real reference questions (questions that might be asked at a real reference desk). This service was used as the basis for the McMaster University Library Reference Pilot.

Staff training and hours

One of the first objectives of the pilot was to discover if the provision of reference service in a virtual world required onerous special staff training. One must learn a new virtual space before one can provide adequate reference service and, while it does require several training sessions and exploration time, it did not appear to be too onerous for those involved.

Training was based loosely on training provided for the larger Second Life Reference Service. There were a total of three training sessions for volunteers. Prior to attending the first session, volunteers had SL installed on their work stations and were required to go through Second Life's Orientation Island to familiarize themselves with the basic movements and communication of SL. The first session reinforced the fundamentals of moving, communicating and changing one's avatar in the virtual world. Volunteers also explored McMaster's space and resources.

Communication for the reference service is accomplished in two primary ways, both very similar to chat reference already offered by libraries. Chat in Second Life requires an avatar to type into a text box. When this form of communication is chosen, anyone within a 20m radius can "hear" it (read it). Private conversations are accomplished through instant messaging. An essential skill for the provision of reference service in Second Life is the ability to multitask. There can be numerous conversations occurring around an avatar, as well as private instant messaging. McMaster University Library had been offering reference service through instant messaging for nearly two years and this may have helped some in their communication comfort levels.

The second session included the exploration of the areas around McMaster's space, largely the islands and buildings associated with Info Island (Alliance Library System's main island). Virtual notecards created for the larger reference service were provided to our volunteers, including a list of frequently asked questions. Notecards answering the most frequently asked questions were also provided. These notecards could then be offered to users and consulted again at a later time.

While notecards were a useful reference tool for volunteers and users, especially during a reference transaction, the ultimate training experience is exploration of Second Life. In order to adequately answer reference questions, one must be familiar with the virtual world they are working in. The final training session was devoted to exploration of Second Life and any questions remaining about working in the virtual environment.

It was decided that we would run our pilot from May 1 – July 31 2007, as this is a quieter time that would allow for appropriate training in a complex virtual world. The service was offered 6 hours a week during this phase. A call for volunteers for the McMaster pilot was sent to all library staff currently offering reference assistance at our research help desk. Four volunteers stepped forward to assist the lead librarian and one staff member was recruited from the IT department to assist with technical issues such as upgrading the software, bringing the total to six staff for the pilot.

Evenings are peak times for Second Life use but we were not prepared to offer service outside of regular 9-5 hours. At the time of the pilot, Second Life was frequently down on Wednesdays to allow for necessary platform upgrades, and thus no reference service was offered on this day. As it was unclear when the service might be most utilized, we decided to set our hours in the week to two 2 hour shifts during the morning and one in the afternoon, with the provision that we reexamine our statistics to see if these hours needed to

be changed at the halfway point. Afternoons did have slightly higher usage statistics and our hours were changed midway through the pilot to 2 afternoon shifts and 1 morning shift.

Phase One results

The spring term at McMaster is much quieter than the rest of the academic year. As such, there was little attention given to promoting and marketing the new reference service in Second Life, instead emphasis was placed on the logistics of offering the service. The service was promoted through a posting on our library's blog and was advertised on LCD panels in the Humanities and Social Sciences library.

Despite limited marketing of the service, statistics were higher than expected. Volunteers were required to keep track of Second Life reference questions (questions asked about Second Life or accomplishing things in the virtual world), Second Life directional questions (where is a particular location or event in the virtual world), and real reference questions (questions that might be asked at a library reference desk, such as locating information or a book), as well as the number of users that were assisted. It was decided that, based on the culture of SL, we would not actively ask who a user was, or where they were from in real life, although the information was generally noted if volunteered. Many of the users appeared to be Second Life residents or librarians exploring the virtual world for their own institutions. Volunteers did note that McMaster faculty, students, incoming students and alumni also visited our virtual space.

In this three month pilot, there were 93 Second Life reference questions, 5 Second Life directional questions and 23 real reference questions. This indicates that there does seem to be a need for a reference service in the virtual world.

Phase Two results

It was decided that the pilot would continue with a second phase running from September to April, a peak time for library use by students. Hours were increased to 8 hours of service a week, two morning shifts and two afternoon shifts, and another volunteer was recruited. In January, we increased the volunteers to eight and implemented a backup team to provide service if a volunteer could not fulfill their shift. Rather than install the Second Life client on the new volunteers' computers, the software was installed on a shared laptop, thereby reducing the workload on our IT staff. We had hoped to increase marketing of the service but were unable to accomplish this. The notice on the LCD panel was the only marketing outlet used.

The second phase of the reference pilot has seen a decrease in the questions. The September – March period has had 79 Second Life reference questions, 7 Second Life directional questions and 11 real reference questions.

Considerations

While the pilot indicates that there are indeed reference questions being asked within the virtual world of Second Life, it is unclear whether McMaster's faculty, staff and students are using the service. Despite changing and increasing hours, the numbers are relatively low. This may be attributed to the timing of our hours of service or the fact that some of the pilot hours overlapped with the general reference service offered on Info Island International. Reporting statistics from the pilot also seems be a hindrance. Many volunteers forgot to keep track or record statistics. This may be due to the fact that statistics are not recorded in world but must be done after the shift in an excel document.

McMaster University Library recently acquired an island, Steel City Island, to allow for further exploration of services. The reference pilot will be reexamined and consideration

will be given to moving the service to the island or splitting the service between Cybrary City and Steel City Island. Cybrary City itself receives numerous visitors including librarians and moving the reference service to a separate island may result in a decrease in statistics. As classes begin to be offered by McMaster University campus partners on the library island, we will also need to consider offering specialized hours of service around the class times. It is also hoped that we will be able to market the service more aggressively and that this will increase our statistics.

Voice has recently been added as a means of communication in Second Life. It was decided that for the pilot that we would not offer voice, as this would require further technical assistance and equipment. Although there did not appear to be a pressing need for voice reference service in out pilot, we will need to consider whether we should indeed be offering service in all Second Life communication avenues.

Implications for Second Life reference services

The provision of reference service must be considered carefully. Technical requirements for running Second Life are high and can be prohibitive. In order to offer an institutional service, one must have a building or island in Second Life, the cost of which may run from free to thousands of dollars per year. There is also cost in staff time. While offering reference service, staff can not accomplish many other tasks. It is often difficult, if not impossible, to run other applications while Second Life is running on a computer. One must also ensure that reference service in SL is not removing resources from existing, well-used reference services.

Do avatars make a difference?

Reference service in Second Life does not seem to differ greatly from general reference service. A reference interview is still required to assist users and is generally used within the virtual world. Further examination will be required to determine if the reference interview is shortened as it is with chat reference or if it follows more closely to traditional reference service. Voice will also have to be examined in more detail. McMaster's pilot did not utilize voice but there are certainly implications for the reference interview when voice is used. Will voice allow for a more traditional reference interview? Will the reference interview become more in-depth? Will the use of both avatar and voice allow for the kind of personal connection that is often created at the reference desk?

Conversation appears to flow easily in this virtual world. It is easy, and indeed often expected, to go up to a new avatar and begin a conversation. In many respects, this mirrors roving reference. There is no need to wait for users to come to ask a question, librarians can start the process easily. Anonymity also allows for easy interaction. Second Life residents are forced to choose a name and appearance that, while possibly similar to themselves, is never their true self. This anonymity allows individuals the freedom to ask questions without fear or embarrassment.

Interaction is further enhanced by the gestures and images that the virtual world can provide and which are lacking in other forms of virtual reference. The gestures avatars make when the individual on the other side of the computer responds provides a sense that the person is actually engaged. Conversations do not feel inherently rushed in this virtual world on account of these gestures. The ability to add extra gestures, such as laughing or waving, can also be used to enhance the interaction or clarify if text is misinterpreted. Furthermore, the ability to connect a visual image (the avatar) to a name also seems to provide a new level of connection that chat does not provide.

Is there a Future for Virtual World Reference?

Usage statistics at this point suggest that there is indeed a need for a reference service in virtual worlds. People are coming to virtual worlds for fun, entertainment or socialization but often find they have information needs once they are involved and are actively seeking assistance from the library community. In McMaster's pilot, we were able to offer service in a virtual world, along with traditional and virtual (chat and email) reference. Staffing issues will be dictated by staff resources and hours of service.

It is essential that libraries look ahead and prepare for the future. The Gartner Report (2007) suggests that by 2010, 80% of those online will have an avatar. While this does not imply that all will have an avatar in Second Life, it is the shift to virtual worlds and avatars that is important. Many believe that virtual worlds are the next step in the development of the Internet and it is essential that libraries be prepared for that possibility. This includes the provision of services in these new 3D virtual environments.

Conclusion

The presence of avatars in a chat reference interaction incorporates a number of positive aspects from both face-to-face and chat reference interactions. This is not to say that the use of Second Life would not be without it's own difficulties. The learning curve in Second Life is very steep, and the technology requirements may be prohibitive in some cases. But something important is happening in Second Life: even though the residents could just as easily turn to Google to get the answers to their questions (they are, after all, already on the Internet), they are actively seeking out libraries and librarians to answer their questions as they explore this virtual world. Libraries need to consider these new technologies and new worlds, because "[r]eference is more than question and answer; libraries are more than information repositories. In order to maintain the profession of librarianship and the existence of libraries, librarians must become proactively involved with patrons in the spirit of inquiry" (Bankhead, 2004, p. 211). Virtual environments such as Second Life offer an important means to engage with users in exploration and discovery.

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