Evidence Based Library and Information Practice

Article

Learning from Chatting: How Our Virtual Reference Questions Are Giving Us Answers

Lorna Rourke
Library Director
St Jerome's University Library, Canada
Email: lerourke@uwaterloo.ca

Pascal Lupien
Research and Scholarly Communications Librarian
University of Guelph, Canada
Email: plupien@uoguelph.ca

Received: 02 Dec. 2009 **Accepted:** 22 May 2010

Abstract

Objective - This research compares two types of online reference services and attempts to determine whether the same sorts of questions are being asked; which questions are being asked most often; and whether patron and staff behaviour is consistent or different in the two types of online reference sessions. Patron satisfaction with the two types of online reference services is also examined.

Methods - The researchers reviewed over 1400 online reference transcripts, including 744 from Docutek virtual reference (VR) transactions and 683 from MSN chat reference (IM) transactions. The questions were classified according to categories of reference questions based on recurring questions discovered during the review. Each transaction was also categorized as "informal" or "formal" based on patron language and behaviour, and general observations were made about the interactions between patrons and librarians. In addition, results from 223 user surveys were examined to determine patron satisfaction with online reference services and to determine which type of service patrons preferred.

Results - The analysis suggests that patrons are using VR and IM services differently. In general, VR questions tend to be more research intensive and formal, while IM questions are less focused on academic research and informal.

Library staff and patrons appear to alter their behaviour depending upon which online environment they are in. User surveys demonstrated that patrons are generally satisfied with either type of online reference assistance.

Conclusion - Both types of online reference service are meeting the needs of patrons. They are being used for different purposes and in different ways, so it may be worthwhile for libraries to consider offering both VR and IM reference. The relationship building that appears to take place more naturally in IM interactions demonstrates the benefits of librarians being more approachable with patrons in order to provide a more meaningful service.

Introduction

Virtual reference (VR) and Instant Messaging (IM) reference have become increasingly common in libraries. The Library at the University of Guelph, Canada has offered online reference services since 2001. The University of Guelph is a research-intensive and learner-centred institution with 18,000 full-time students and 16,000 distance education course enrolments. Virtual reference was introduced using Library Services and Systems Inc. (LSSI) and later using Docutek software; in 2006 an instant messaging (IM) reference service was added, using Windows Live Messenger (MSN), so users could choose either the Docutek or MSN option. The service is currently offered as part of "AskOn" online reference service, which is provided by a consortium of public and post-secondary libraries in Ontario.

Librarians at the University of Guelph have examined the provision of virtual reference services to gain insights into ways to make library users' experiences more productive, effective, and positive. Rourke & Lupien (2007) analyzed Docutek transcripts to determine the types of questions being asked and the language that patrons use during virtual reference transactions. The research presented here focuses on different methods of providing virtual reference services to provide evidence to help make decisions regarding future library service provision. This includes an analysis and comparison of transcripts from sessions offered using Docutek software (referred to here as VR) and MSN (or instant messaging, referred to here as IM) together with a survey of user views and preferences.

Review of the Literature

Virtual reference (VR) and Instant Messaging (IM) reference have become increasingly common in libraries and there is a wealth of literature on these services. Many of the studies have focused on analyzing the transcripts of either VR or IM sessions. These have looked at various issues, such as: types of questions asked; types of users and resources used to answer questions; and quality of responses based on standards such as those of the Association of College & Research Libraries (ACRL).

A number of studies have attempted to understand what users are asking by classifying questions into categories. Sears (2001) analyzed four months of transcripts to identify the types of users, types of questions, resources used by staff to answer the questions, and the extent to which library resources were used. Marsteller & Mizzy (2003) found that of the 425 transcripts they reviewed from Carnegie Melon University's VR service, 64% involved reference interviews. They also classified questions according to Sears' categories, and their results showed that policy and directional questions predominated. Using similar categories, Rourke & Lupien (2007) found that patrons are primarily using virtual reference services for higher-level research assistance, rather than using these tools to obtain quick answers to simple questions. The two most common types of questions required provision of

detailed information or instruction on a topic. More specifically, the most frequently occurring type of question was related to finding journal articles on a given topic. Broughton (2003) analyzed usage data and user surveys for one academic year at Bowling Green State University (BGSU). Included in that analysis was an examination of question type according to categories including: finding articles on various topics; patron records; university information; off-campus access; and finally, referrals. The librarians who provided virtual reference at the library in question created these categories.

Others have conducted similar studies of IM transcripts to analyse their contents. Foley (2002) described a University of Buffalo pilot project to determine the viability of providing a chat reference service. The service utilized America Online's Instant Messenger software and data was collected for a period of one academic year. Foley reviewed and categorized the questions as such: information literacy; catalogue; navigation of library website; general library information; technical issues; general web navigation; reserves; university information; research; ready reference; and, questions about virtual reference itself. Desai (2003) described the use of IM at Southern Illinois University by identifying the usage, the types of questions asked, and the impact of technology on the reference interaction. Similar to other studies, Desai categorized questions based on Katz's categorization of reference questions with the addition of an "other" category.

A few studies have focused on the language that patrons use, including how users understand library terminology and the differences in online communication styles between librarians and young people. Kupersmith's (2005) research focused on library websites with the goal of helping libraries "decide how to label key resources and services" so that users can "understand them well enough to make productive choices". Some of the important findings include the assertion that the average user success rate for finding journal articles or article databases from a library website is 53%. He attributes this relatively low success rate to library terminology. Other authors have discussed the differences in online communication styles between young people and adults. Maness (2007) conducted language analysis on IM transcripts to examine factors such as word choice, grammatical structure, and the use of emoticons. He found that the language used during chat reference service interactions was more formal than chat between students, but that in terms of user satisfaction, students seemed to appreciate more informal language. Fagan & Desai (2003) examined how effective communication strategies could be adapted to address common communication problems in online environments. Using transcripts to establish best practices, they argued that the skills needed to communicate effectively with patrons were different in online environments, and suggested that librarians must avoid using library jargon and "robot-like instructions" by "speaking the patron's language". They provided tips on adding a human touch to IM reference transactions, including the use of more natural language and emoticons. Part of their research focused specifically on language and grammar, and the authors warned that spelling- and grammar-conscious librarians might need to lower their standards when chatting with patrons in an IM environment. They argued that using common IM language, which may include abbreviations, shortcuts, and misspellings, could make the librarian seem "more approachable and less robotic" (Fagan & Desai, 2003). Similarly, Janes (2003) suggests that librarians must understand instant messaging lingo and culture to communicate effectively with young people. Radford's (2006) study of 289 virtual reference transcripts suggested techniques that make online reference more effective, including ways to compensate for the lack of nonverbal cues and strategies for building relationships. She identified helpful library staff behaviours to aid online interactions, including the use of humour, emoticons, and informal language. Radford also provides examples of library staff behaviours that diminish the

effectiveness of virtual reference sessions, such as ignoring cues that the user wants more help, providing robotic answers, and responding in a condescending manner to user inquiries.

While many studies have focused on analyzing the transcripts of VR and IM sessions, there has been little research that compares the difference with respect to how patrons use each of these services. Some have expressed concern that, due to the less formal and more familiar online environment, IM reference would be seen as a less "serious" service. This brings up important questions: do all patrons use VR and IM the same way? Do they ask the same types of questions? Do they use the same language while chatting with library staff? Given that many libraries are deciding whether to offer VR, IM, or perhaps both services, this represents a gap in the literature that this study will address. Understanding how patrons use these services should help libraries make decisions regarding the type of services to offer.

Methods and Context

The University of Guelph Library offered both VR and IM reference service from 2007 to 2009. A webpage providing access to both of these services was linked from every page on the library website. This webpage presented users with access to both services, with a brief description of each, making it clear that these were two separate services and allowing patrons to choose the service that most appealed to them. The same pool of staff members, comprised of both librarians and library associates, provided service for both VR and IM simultaneously.

Types of Questions Asked

All of the transcripts received during a one year period from both VR (Docutek) and IM (MSN) were analyzed and categorized into five broad categories based on Sears' adaptation of Katz's categories of reference questions (Sears, 2001; Katz, 1997), as outlined in table 1 below.

In an attempt to maintain as much consistency as possible, one person was responsible for the question categorization. While the focus was on the questions rather than on the answers, it was often necessary to examine the entire transcript to determine what the user was asking. Categorization of reference questions is a difficult task, as it is often the case that the question as it is asked is not necessarily the question that needs to be answered. Furthermore, many sessions involved more than one question. In such cases the session was categorized based on the original question and each session was counted in only one category.

Table 1
Categories of Questions Based on Sears' and Katz's Classification

Directional questions	Directing the user to a geographical location or to a place on the library website
Policy and Procedure questions	Inquiries about such topics as borrowing periods and fines
Ready Reference questions	Requests for factual information; can be answered using reference sources
Specific Search questions	Require detailed information or instruction on a topic; users are often referred to various sources; (e.g. questions about finding journal articles on a topic)
Research questions	Higher-level research that would normally be conducted by faculty or graduate students.

The categories were broken down into subcategories based on the topics of the individual sessions. A total of 39 subcategories were created across three broader categories, Directional, Policy and Procedural, and Specific Search. The subcategories were created based on the content of recurring questions, i.e., if there were a sufficient number of questions (more than five) on a particular topic, a subcategory was created to classify similar questions. The intention was to be as specific as possible about the types of subjects that patrons were asking about. This helped to determine, among other things, the most commonly asked questions. This process was completed for transcripts from both the VR and IM services. Once the analysis of questions from both services was complete, the percentages for each category and subcategory were calculated to facilitate comparisons between the two methods of service provision.

Language and Behaviour

Following categorization, the language used by patrons and the behaviour demonstrated for each question was examined. In comparing the VR and IM transcripts, the interactions were categorized as either "formal" or "informal". The researchers appraised language and behaviour by reviewing spelling, greetings, emoticons, punctuation, word and phrase choice, shortcuts, and goodbyes. Decisions on categorization were made based on the overall tone of the transcript, and took into account the behaviours previously noted. Once the language coding was completed, it was possible to compare the types of language used in both services.

User Preferences Survey

For a period of one year, users were surveyed about their satisfaction and preferences with respect to VR or IM. The surveys were pushed to users in VR through the Docutek software and the responses went directly into a Docutek database. IM users were provided with a link to an identical online survey, and completed surveys were stored in the library's own database. Users of both services were asked if they would prefer to receive service through the library's Docutek software or through MSN, and were asked how they rated each service (see Appendix 1).

At the end of the data collection phase the researchers reviewed 223 surveys, of which 151 were from VR and the remaining 72 were from the IM service. A simple Excel spreadsheet was used to track responses and to calculate percentages.

Results

Types of Questions Asked: Categories

The researchers reviewed a total of 1,427 reference transcripts, 744 from VR (Docutek) and the remaining 683 as IM (MSN) transcripts. An analysis and comparison of questions from both services demonstrates that patrons use VR and IM reference services differently (see figure 1). In VR, specific search questions make up nearly half (47%) of the questions asked by patrons in comparison to 31% in IM. These questions typically involve actual information seeking on the part of the patron. Policy and procedural questions comprise the next largest category in VR (35%), reflected by a similar number received in this category via IM (32%). The VR service received fairly few directional questions (13%) and even fewer ready reference questions (4%). Less than 1% of VR-based questions could be classified as higher-level research questions. In IM, there were far more directional questions (37%), more ready reference questions (10%), and no higher-level research questions. These findings suggest that patrons are using these services for different purposes. Whereas VR questions tend to be more research intensive, with a large number of patrons seeking information for academic purposes, patrons use IM to ask fewer information-seeking questions and more of the other types of questions.

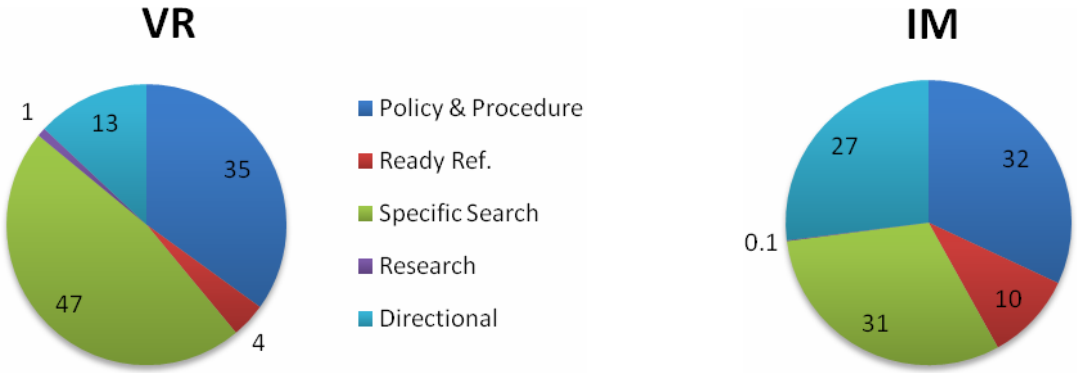

Fig. 1. Categories of Questions by Service, Shown as Percentages

The subcategorization of questions allowed for the development of lists of commonly asked questions for both VR and IM. For both services, finding information was the most common subcategory. For VR, the most frequent type of question involved finding journal articles for a paper (n=241). The second most frequent type of question was general information search (n=152). Questions were classified into this category when the focus was on finding any information on a topic, not specific to locating journal articles. Both of these subcategories belong to the Specific Search category. For IM, these subcategories were reversed, with the largest number of questions being requests for general information (n=152) and the second largest number being for assistance finding journal articles (n=73). However, even though these two subcategories occur the most frequently, the numbers are much smaller for IM than for VR, and this is reflected by the overall percentages for the broad categories discussed in the previous section. While questions from these two subcategories were the most frequently asked questions via IM, there were fewer of these questions overall, and therefore specific search questions made up a smaller percentage of the overall total.

Other than these top two subcategories, the most frequent questions were different in VR and IM, but all belonged to the Policy and Procedure or Directional categories. In VR, these top five most frequent questions made up nearly 75% of the questions asked. Again, this is reflected in the percentages: nearly half of questions are specific search, and most of those are finding journal articles or general search (the top two subcategories). In IM, the top five most frequent questions made up only half of all questions asked. This illustrates the much greater variety of questions asked via IM, which is demonstrated by the fact that the numbers for the top two subcategories are much lower.

Table 2
Top 5 Recurring Questions by Service (subcategories)

VR (Docutek)	**IM (MSN)**
1. Finding journal articles (n=241)	1. Finding general information on a topic (n=152)
2. Finding general information on a topic (n=152)	2. Finding journal articles (n=73)
3. Access problems/trouble accessing a particular resource (n=84)	3. Technical help (Word, e-mail, etc.) (n=55)
4. Circulation (n=44)	4. Citing sources (n=48)
5. Logging in from off campus (n=41)	5. Finding something on the library website (directional) (n=47)

Online Language and Behaviour

Researchers examined the online language and behaviour used in VR and IM reference interactions in order to help librarians better understand the patrons they may be helping. It became evident that the use of spelling and grammar in IM was predictably similar to the spelling and behaviour patrons would use in any casual MSN interaction, as with a friend. Typical IM transcripts included such 'shortcuts', words, misspellings, and expressions as:

- "Hey", "Yup", "thank u", "ya", "thx", "u 2"
- "bye4now", "☺", "yea", "hey baby", "sup"
- "sujestion", "convience", "can u verify", "emprirical", "bye for nowwwwwwwww I havr to go", "infromation", "familair", "capital punichment"

In VR, 149 transactions (21%) were considered to be informal, while 565 (79%) were formal. In IM, the percentages were reversed, as 498 (77%) of transactions were informal and 145 (23%) were formal. The pie charts in Figure 2 illustrate the near-opposite types of behaviour demonstrated across the two types of services.

Staff behaviour

The researchers noticed that library staff behaviour also changed depending on the online environment they were using. Staff members tended to use less formal language in IM than they did in VR, and were less careful with spelling and sentence structure. Staff also provided longer and sometimes more thorough answers in VR than in IM, perhaps because of the casual approach taken by both patron and user in IM sessions and the more formal approach taken in VR. For example, staff would search for information in several sources during VR interactions, while they tended to perform less detailed searches in IM sessions. The researchers observed that staff tended to refer patrons elsewhere in IM more frequently than they did in VR, sometimes commenting that the question was too complex to be answered in IM and that the student should visit a reference desk in the library. In some sessions library staff indicated that the patron would need to be shown how to use a database or other reference source in-person by library staff; this sort of assistance was not possible in the IM environment because of the limitations of the software. When questions could not be completely answered online, an offer by staff to follow up with patrons was made in about the same number of VR and IM sessions.

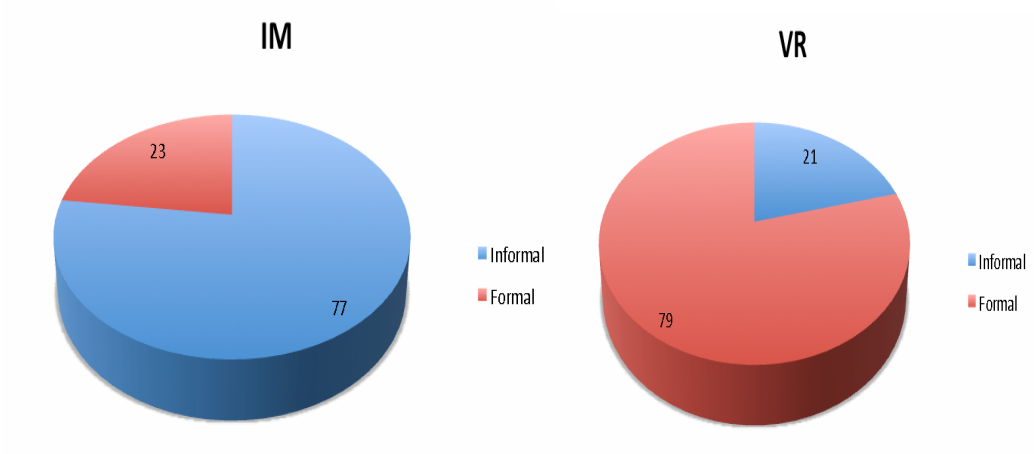

Fig. 2. Formal vs. Informal Transactions by Service

User Preference Surveys

Undergraduate students comprised 85% of the respondents to the IM survey, while 9% were graduate students. For the VR survey, 60% of respondents were undergraduates, followed by graduate students (19%) and people not affiliated with the university (17%).

The results showed that patrons were satisfied with both methods of service provision, as 70% expressed satisfaction with VR and 71% with IM. While the overall number of unsatisfied patrons was small, there were twice as many not satisfied in IM, at 16%, versus the 8% of VR respondents who indicated they were not satisfied. When asked about their preferences with respect to using these services, the majority of IM users preferred IM to VR. Close to 80% of users who answered the IM online survey said they would rather use IM than the library's VR software. More surprisingly, over 50% of VR respondents who used the VR software also claimed to prefer IM. However, a significant minority of VR patrons indicated their preference for VR service (about 40%).

When the numbers from both surveys are combined, 67% of online reference users preferred IM. Furthermore, when users were asked to choose from all of the methods of getting help provided by the library, IM was chosen by almost twice as many users (about 40%) as the next highest option, in-person reference, at just over 20%. It is essential to remember that these responses were from patrons who were already using VR or IM.

Discussion

This study was undertaken first to help inform decisions regarding future provision of virtual reference services, particularly whether one or both service-types should be retained, or if online reference should be discontinued. The study enabled library staff to make an informed decision and to determine if the same types of patrons were using the services for the same purposes. Secondly, the researchers wanted to develop their understanding of patrons' online behaviours in order to serve them better.
In terms of distinguishing between VR and IM, it is clear that these services are used differently in terms of both the questions asked as well as the online behaviours exhibited by patrons. The greater formality of the VR environment and the fact that more information-seeking questions were asked via VR are of particular interest. By extension, more instruction takes place in VR due to the types of questions being asked. If patrons are using VR for more "serious" academic work than via IM, librarians may need to account for this when considering which service is most appropriate for their libraries.

With respect to language and online behaviour, the more informal and approachable online environment offered by IM appears to be conducive to establishing strong relationships with users. In IM, patrons tended to come back throughout the day and to get to know staff on a first name basis, elements that were not apparent in the VR interactions. The relationship created in IM may provide some benefits for promoting the library as a welcoming place, and library staff as approachable people.

For many of the library staff members, their first exposure to online chat occurred when they began participating in online reference service. Most had not previously used MSN or any similar service. As a result, it was necessary for those individuals to learn the shortcuts and abbreviations used in MSN in order to provide good reference service. Expressions such as "brb" (be right back), "lol" (laugh out loud"), and "g2g" (got to go) were puzzling to staff at first, but as time passed they learned their meanings and became adept IM language interpreters. One of the IM transcripts used for this study demonstrated how participating in IM service can provide a learning experience not only for the patrons but for the staff as well. In this example, the staff person (who had incidentally grown up on a dairy farm) had a picture of a cow as his IM picture. The student's first comment in the IM interaction

was "Nice DP", to which the staff member replied "DP??". The student explained "Display picture", meaning that he liked the picture of the cow. The staff member took this in stride and responded "Ah! Gotcha! That's useful." This very informal interaction provides insight into the high comfort level of patrons in IM as well as the possibility for relationship building and light hearted communication between librarians and patrons.

It is important to consider the reasons for the discrepancy in behaviour between the two types of reference services. In VR, the online environment is a foreign one: it does not resemble other online communication venues commonly used by the patrons, such as MSN, AOL, Twitter, or Google Chat. Sessions do not begin until the student has entered a username, email address, and question, and the library staff member must accept the patron before the interaction can begin. Patrons are asked (but not required) to enter their University of Guelph email address and program of study, which means that they are usually not anonymous. The initial message the patron receives from the librarian is pre-scripted and is delivered to the patron as soon as the library staff member accepts them. It reads: "Welcome to your virtual reference session. I am looking at your question right now. I will be just a minute." The fact that the librarian is completely in control of the session and that the interaction begins so formally may set the tone for these interactions, and may explain, at least in part, why almost 80% of these exchanges are formal. Librarians and patrons tend to write in complete sentences and almost always use correct spelling. There is usually a formal goodbye, which includes the scripted librarian message: "Thank you for using our virtual reference service. Please do not hesitate to ask for help again in the future".

By comparison, IM sessions begin when the patron initiates the chat, and there is no need for the library staff member to accept the patron. Most interactions begin with the patron saying "Hey", "Yo", or a similarly informal greeting, or they launch immediately into their question. The IM environment is familiar to them, as it is one they use with their friends, so they are comfortable and do not hesitate to add the library staff to their "friend" list. There are no pre-scripted messages in IM, so library staff tend to use more natural language when dealing with patrons. While patrons use their real names and university email addresses in VR, their IM names and email addresses are of their own choosing and are often extremely informal. Some of the IM names used in the transcripts being studied demonstrate the casual nature of MSN. They include:

- *A day without sunshine is like, you know, night*
- *Procrastinators Unite Tomorrow!*
- *Association of Anti-Redundancy Association*
- *Last night I got hit in the head with a brick and woke up a Conservative*

One student's MSN name, "RIP Squeekers, My little man", led to a discussion between the student and librarian about a beloved hamster that had recently died. This sort of interaction humanizes the library and can lead to positive interactions between staff and patrons. In reviewing the ways IM sessions ended, many did not have any formal closure or goodbye. Patrons either closed the session once their question had been answered, said "bye" and closed the session, or in some cases they kept the conversation open all day as they popped in and out with questions. This last behaviour provided opportunities to build relationships, as the reference interactions became more conversational.

There is also the possibility, based on the type of language used in IM, that this service attracts younger users. In another survey conducted at the University of Guelph, researchers noticed a clear trend that younger patrons are far heavier users of IM and other social software (Rourke & Lupien, 2007). The more informal language and behaviour in IM may be a clue that this service is attracting a younger clientele.

The fact that staff behave more casually in IM interactions than they do in VR can probably be attributed to the same reasons that patrons behave differently. The online world is a distinct environment, and library staff take their behavioural cues from the patrons, although not to the same degree of informality. There are advantages and disadvantages to the fact that staff behave in a more relaxed manner in IM. For example, sessions are friendlier and library staff usually come across as approachable. However, the reference interview tends to be more casual and the service given may not be as thorough as that provided in VR. Researchers found that IM interactions tended to be more conversational and less probing.

With respect to user preferences revealed in the surveys, one can question why the patrons using VR who claimed to prefer IM had chosen to use the former. It is possible that they were not aware that the library offered reference service through IM, even though the availability of both services were displayed side-by-side on the library's website. Library statistics did demonstrate that the number or IM users steadily increased while the number of VR users was stagnant.

The transcript analysis project allowed librarians to learn from patrons' online language and behaviours. Understanding the language used in IM can help library staff serve patrons better by improving communication techniques in VR and IM, and with other types of social software as well. Users employ "chat talk" in various social software tools and the Web 2.0 environment (Facebook, MySpace, Second Life). Since libraries use these tools to deliver reference and other services, understanding the language used in these environments enables more effective communication between library staff and patrons. One of the criticisms of online communication is that it lacks the non-verbal cues of in-person communication, and further, IM conversations can be cold and impersonal, or stiff and robotic. Developing a better understanding of how patrons communicate online will allow library staff to overcome these weaknesses. As in the real world, librarians can make themselves approachable online by understanding the online communication style and using it to their advantage. Librarians and other library staff must ask themselves how they are going to approach future IM and VR interactions.

This article and others have examined the kind of language and grammar used by students and young people in online communication. Since the advent of VR service several years ago there has been some debate about whether librarians should actually be using chat talk to respond to patrons (Gorman, 2001; Coffman, 2004). The debate continued with the advent of IM service, since people are even more likely to use chat talk, including non-standard spelling and grammar, in that particular environment. Those who study reference services point out that librarians should always make an effort to speak the patrons' language (Katz, 2007; Fagan & Desai, 2003). The idea behind this principle is to make the patron feel comfortable, and therefore librarians should "speak the patrons' language" in the online environment. To what extent librarians should do that is a question still open for debate.

Future Areas of Study

While this research has provided insight into some aspects of online reference, there are other areas that could benefit from further study. For example, future research could focus on the differences and quality of answers provided in VR and IM environments. There could also be an investigation into the reasons for the increase in IM interactions while the number of patrons using VR is stagnant.

Conclusion

This study suggests that software-based VR and IM reference services are assisting different types of patrons and users who are looking for help with different types of questions. In general, VR interactions are associated with more "academic" types of

activities, such as finding journal research, and VR language and behaviour tends to be more formal. In contrast, IM was used more frequently for other, less "academic" types of queries, IM appears to be more popular with patrons, and interactions between patrons and library staff take a friendlier tone in the IM environment. There are therefore advantages and disadvantages for each service, and different libraries will have different issues to consider and may not all reach the same conclusions. Libraries looking to adopt or expand their reference services will have to make decisions according to their respective situations and their patron needs. Overall, however, this research suggests that the two types of service are complementary, providing evidence to suggest that both services should be continued.

Acknowledgements

The authors acknowledge the generous support given to their research by St. Jerome's University and the University of Guelph Library.

References

Broughton, K. M. (2003). Usage and user analysis of a real-time digital reference service. The Reference Librarian, 38(79/80), 183-200.

Coffman, S., & Arrent, L. (2004). To chat or not to chat: Taking yet another look at virtual reference**.** *Searcher*, *12*(8), 49-56

Desai, C. M. (2003). Instant messaging reference: How does it compare? *Electronic Library*, *21*(1), 21-30.

Fagan, J. C., & Desai, C. M. (2003). Communication strategies for instant messaging and chat reference services. *The Reference Librarian*, *38*(79/80), 121-55.

Foley, M. (2003). Instant messaging reference in an academic library: A case study. *College & Research Libraries, 63*(1), 36-45.

Gorman, Michael. (2001). Values for human-to-human reference. *Library Trends, 50*(fall), 165-182.

Janes, J. (2003). Digital reference for teens. *Voice of Youth Advocates, 25*(6), 451.

Katz, W.A. (1997). *Introduction to reference work, volume 1: Basic information service*. New York: McGraw-Hill.

Kupersmith, J. (2005) Library terms that users understand. Retrieved 29 Nov. 2009 from http://www.jkup.net/terms.html

Maness, J. (2008). A linguistic analysis of chat reference conversations with 18-24 year old college students. *Journal of Academic Librarianship*, *34*(1), 31-38.

Marsteller, M. R. & Mizzy, D. (2003). Exploring the synchronous digital reference interaction for query types, question negotiation, and patron response. *Internet Reference Services Quarterly, 8*(1&2), 149-165.

Radford, M. L. (2006). Encountering virtual users: A qualitative investigation of interpersonal communication in chat reference. *Journal of the American Society for Information Science and Technology, 57*(8), 1046-1059.

Rourke, L. E. & Lupien, P. (2007). Out of the question: How we are using our students' virtual reference questions to add a personal touch to a virtual world. *Evidence Based Library and Information Practice, 2*(2), 67-80.

Sears, J. (2001). Chat reference service: An analysis of one semester's data. *Issues in Science & Technology Librarianship, 32.* Retrieved 3 May 2010 from http://www.library.ucsb.edu/istl/01-fall/article2.html

Appendix 1

Virtual Reference User Survey, VR (Docutek) Service

Please help us improve our service to you by filling out this survey. Thank you.

1. **Please select the group that best describes you**

☐ U of G Undergraduate student

☐ U of G Graduate student

☐ U of G Faculty

☐ Other

2. **Which of the following Ask Us options would you prefer to use?**

☉ MSN Messenger Instant Messaging/Chat

☐ Current software (Docutek)

(In the IM survey, the "current software" was MSN and the Docutek was given as a second option)

3. **What would be your preferred method of getting Research Help? (Select all that apply)**

☐ Instant Messaging/Chat (MSN, Yahoo Messenger, GoogleTalk, etc.)

☐ Email

☐ Current software (Docutek)

☐ Telephone

☐ In person in-person

4. **How would you rate your overall satisfaction with the answer(s) provided to you in this service?**

☉ Not Satisfied

☐ Somewhat Satisfied

☐ Very Satisfied