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Virtual reference in a community college library: patron use of instant messaging and log-in chat services

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Graduate School of Education and Psychology

VIRTUAL REFERENCE IN A COMMUNITY COLLEGE LIBRARY: PATRON USE OF

INSTANT MESSAGING AND LOG-IN CHAT SERVICES

This dissertation submitted in partial satisfaction

of the requirement for the degree of

Doctor of Education in Learning Technologies

by

Alison Steinberg Gurganus

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Dr. Kay Davis, Ed.D. -Dissertation Chairperson

This dissertation, written by

Alison Steinberg Gurganus

under the guidance of a Faculty Committee and approved by its members, has been submitted to and accepted by the Graduate Faculty in partial fullfillment of the requirements for the degree of

DOCTOR OF EDUCATION

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DEDICATION

I would like to dedicate this document to my mother Beate Bermann-Enn. Her

unwaivering support and assistance has been my comfort and my strength every single day

throughout this entire process.

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San Diego County Office of Education
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ABSTRACT

In libraries around the world there are people asking librarians for research assistance. As technology has advanced and communication strategies have moved outside the physical library buildings, librarians now respond to reference queries online. This study analyzed two forms of virtual reference; instant messaging (IM) and log-in chat. The purpose of this study was to find out if there is any inherent difference between the way the patrons or the librarians used these two virtual services.

An exploratory research design focused on numerous aspects of virtual reference communication. During the spring terms of academic years 2011 and 2012 at a community college, 1,341 transcripts of IM and log-in chat sessions were recorded. Using a systematic sampling process, 320 transcripts were sampled and their content analyzed.

Findings indicate that a length of the transaction significantly affected the outcome of all transactions. Log-in chats were generally longer than IM chats and it was found that; they were more complicated, the librarians were more responsive and friendly, patrons were more satisfied and the librarian was generally able to conduct a reference interview more often. Additionally the findings indicated that both IM and log-in chat were very similar in three aspect; patron formality, completeness/accuracy of the librarians' answer and the reference interview adding/changing or clarifying the patrons question.

There were four major conclusions of this study: The log-in chat portal had longer online reference transactions and better overall outcomes; instant messaging portal queries, although similar in many aspects to log-in chat, were ultimately treated in a less formal manner by patrons; librarians gave reference interviews and complete/accurate answers equally in both platforms and there were similar overall success rates in both platforms.

Based on the findings in this study it is recommended that academic libraries serving a general population of students use both the IM and log-in chat portals on their library websites. Patrons appear to appears to be using each portal for different and equally important reasons. Further study of virtual communications practices is needed to enhance the findings of this study as more institutions expand their patron base beyond those who can physically meet with a reference librarian.

Chapter 1. Introduction

The generation that was born between the years 1977 and 1994 has been called Generation Y, the Net Generation, the Digital Generation, the Echo Boom and the Millennials (Gardner & Eng, 2005, p.405). The Milennial Generation has also been said to be born in or after 1982 and before 2000 (Howe & Strauss, 2000). Regardless of the ambiguity in exact birth dates the majority of this generation appear to be college aged. They have not known a world without cellular phones and cable television. In 2005 they made up 25 percent of the total population which was close to the 26 percent already taken up by the baby boom generation ("Millenials", 2006 , p. 1). Tapscott refers to them in his book "Growing up Digital" as having been able to use computers throughout their life experience. These students only know a life of computers as commonplace (1997, p. 3). This is the first generation in history with this background and their influence has changed the way people of all generations act, react and learn.

While the Millennials have been growing up, libraries have undertaken some of their most radical changes. From the 19th to mid-20th century finding library materials was accomplished by using a paper card catalog. They consisted of all of a librarys' material records printed on small cards in alphabetical order. They used such information as: title, subject or author as the descriptor to locate the card that had the information that would tell a patron where that item was housed in the library. Beginning in the 1970s these paper card catalogs were automated into online public access catalogs (also commonly known as OPAC's). These online catalogs allowed the user to retrieve data on any material housed in the library electronically, through a computer database (Rubin, 2000, p. 65). Physical libraries themselves have changed since the 19th century as well. During the 20th century they became more than simply the repositories of paper books. They also housed: audio books, music CD's, DVD movies, computers with access to the Internet, as well as wireless internet access for those who brought

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their own wireless devices such as tablet and laptop computers. With internet connected devices e-books and digital audio books could be accessed online as well as recent and back issues of newspapers and magazines which were retrieved through library databases.

It is not surprising that as the offerings of the library have changed so too has the library patron. The Millennial patron is less likely to come to the brick and mortar library due to the access they have with their own electronic devices. In 2002 a survey was conducted of college-aged students that concluded 73 percent were more likely to do their research on the Internet than go in to a physical library (Oblinger, 2003, p. 39.). In 2011 (p. 28-29) this decline was discovered to have continued, in the OCLC Perceptions of Libraries study it was found that there was an eighteen point decline in the use of the physical library space from their own 2005 study (p. 59). The study also showed 83% of college students began their information searches using search engines not library websites (p. 55). The problem with students doing their own independent Internet research is that although they have experience on the Internet they do not have knowledge that makes them "information literate". According to the Association of College & Research Libraries (ACRL, 2000) information literacy is the ability to:

- Determine the extent of information needed

- Access the needed information effectively and efficiently

- Evaluate information and its sources critically

- Incorporate selected information into one's knowledge base

- Use information effectively to accomplish a specific purpose

- Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally (pp. 2-3)

Although the document that contains this list is fourteen years old it is still used as the

standard for information literacy competency by the American Library Association. The need for an information literate society has grown to the point that in October of 2009 President Barack Obama declared by Presidential Proclamation that October be the countries' annual National Information Literacy Awareness Month (White House, 2009).

As important as they may be, information literacy skills do not tend to come naturally to those who simply surf the net and look for information through natural language search engine queries. The difficulty with "Google" searching and true, in depth research is, as Michael Gorman past president of the American Library Association, noted "the distinction between accessing knowledge and merely retrieving… how a search engine selects, organizes and presents information can destroy or invisibly distort the context." (Jeanney, 2007, p. vii).

As information literacy is not a standard on the national testing of K-12 students in the United States these students frequently find themselves entering college without the skills to successfully accomplish academic research tasks. Knowing that students do not tend to seek out the librarians at brick and mortar library reference desks for information literacy assistance (OCLC, 2011, p. 57; Kyrillidou, 2000, p. 432) makes it imperative to seek out the students on their own electronic grounds. For this purpose librarians created online forms of reference services to assist their patrons. In doing so every means of online communication has been attempted as it has become available and some have become commonly used throughout the college library community. It is from this place that college libraries now find themselves having to choose which services will best serve their college communities.

One form of online service that has become popular with libraries is online log-in chat. In order to participate the patron must contact the librarian through by filling out a form in the online portal on the library website. The librarian then responds to the patrons' query through

their end of the portal and they have an online chat. Another prevalent form of online communication with a librarian is instant messaging (IM). This is usually conducted through a widget that is placed on a page (or multiple pages) on the library website. From that widget the patron can contact a librarian immediately with no log-in information. This study will take these two forms of virtual reference (VR) and shed light on their similarities and differences so that future decisions and research can be informed with data that is not currently available. It is important for academic institutions to make these informed decisions so they do not provide services that are unneeded, unwanted and/or negatively impact their budgets.

Focus of the Study

The focus of this research was on academic libraries and their patrons in the virtual reference environment. The academic library is a place where students can turn information retrieval into their own repositories of knowledge. In order for academic libraries to be effective they must be able to address what students are now expecting from their academic institutions which is:

- Quality academic facilities and high academic achievement

- Customization of technology and research

- Integration of technology into learning

- The usage of new communication modes (Gardner & Eng, 2005, p. 416)

The front line of assistance to students by the academic library is their reference services. Traditionally, the role of the reference librarian, particularly in the public library setting, has been to supply answers to a patrons' research questions. In the case of academic libraries the librarian helps the student understand how to *find* the answer to their research questions (Toy, 1978; Kennedy, 2011). In the past a library patron had to physically come into the library or

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make a phone call to the reference desk in order to speak with a librarian. With the advent of computer assisted information retrieval the role of the reference librarian has had to adapt. The librarian has to bridge the digital divide that separates the information housed in the library and its digital coffers from the novice researcher. Moreover it is not just the ability to retrieve information electronically that has changed the research process, the college students themselves have changed, they have a different perspective on the way communication should occur. "Computing is not about computers any more, it is about living" (Negroponte, 1995, p. 8).

For example, it has been found that putting smart phones in the hands of a Millennial has far more social uses than with other generations. Research conducted by The Pew Internet and American Life Project called "Generations and their Gadgets" found that "most cell phone owners use their cell phones for two main non-voice functions on their phones: taking pictures and text messaging. Among Millennials, meanwhile, a majority use their phones also for going online, sending email, playing games, listening to music, and recording videos." (Zickuhr, 2011, p. 2). The challenge for academic librarians continues to be bringing the library into the computerized lives of their student patrons (Stanley, 2010).

Although libraries have been in existence for thousands of years arguably some of their most profound changes have taken place during the last forty. The first major development was the movement from paper "card catalogs" that housed information regarding each book in the library collection to computers. This migration began in the early 1970s but didn't take off universally until the late 1980s (Borgman, 1997). Then came library websites which allowed library patrons to access OPAC's from computers outside of the library, these websites did not become commonplace until the mid to late 1990s (King, 2009). The library websites allowed

patrons to access more than just the information regarding the physical collection housed in the library it also allowed patrons to access materials housed digitally within the libraries' online environment. Eventually the face-to-face reference service followed suit into the digital age; since 1999 web-based library reference services have become essential additions to traditional face-to-face and telephone reference assistance. "By the end of the 1990's, 99 percent of 70 academic libraries offered email reference and 29 percent offered real-time virtual reference services" (Tenopir, 2001, p. 38).

Although email was the first foray into electronic reference assistance it was not enough to keep up with the way in which Millenials communicated. Email was slow; it could take days for a reference question to be answered electronically. The Millenial student did not have that kind of electronic attention span they were immediate with their electronic communication and research access needs (Sweeney, 2005; Sykes, 2007). As early as 2004 The Pew Internet and American Life Project noted in "How Americans Use Instant Messaging" that of the Millenials age group surveyed, 46% reported using instant messaging more frequently than email, nearly two-thirds (62%) of the Millenial Internet users had sent instant messages, and 20% did it daily. In order for academic libraries to reach these students it became quickly obvious that instant forms of reference communication needed to be made available.

In 2002 Ruppel & Fagan noted that library patrons were increasingly turning to their electronic alternatives such as email and a synchronous form of online reference service called *virtual reference* due to their added conveniences of longer hours and the ability to get assistance remotely. By 2004 virtual reference (e.g. log-in chat, instant messaging and e-mail) had grown so much that they had become common features of both public and academic library websites (Johnson, 2004).

The library was not the only aspect of campus life that was effected by the electronic age. The Millenial students did not just expect instant access for their communicative needs they also expected education to come to them. In the 2000-2001 school year 56% of two and four year degree granting institutions reported having distance education programs (U.S. Department of Education, 2003). This number grew even larger in the following years. By the 2006-2007 academic year 66% reported having distance education programs (U.S. Department of Education, 2009). Today it is difficult to find an institution of higher education without some sort of distance education program. There are even colleges that operate entirely in virtual spaces with students who never visit a physical campus. The academic library exists to serve all students enrolled in the campus whether they are online, face-to-face, full-time, part-time or disabled. The shift to both a greater number of distance learners and the tech savvy traditional student that expects convenient and immediate online access to all of their services has added pressure to extend and strengthen online services through the librarys' digital environment.

As new technologies arise the academic library staffs' must assess what is needed and what is not. Two forms of on-line reference service have emerged as strong contenders for long-term library use and they are: log-in chat reference and IM chat reference. Each service has its own pros and cons.

The log-in chat reference service allows students and librarians to "co-browse" web pages, meaning they can both see and manipulate web pages at the same time in order to work together to resolve the reference question. When unable to co-browse the librarian can "push" a website page to the patron so they can see and manipulate it on their own during the chat. Additionally the log-in patron is prompted to provide their email address upon initial inquiry which allows the system to send them a transcript of the full chat conversation once it has been

completed. Lastly, the addition of the email address allows the chat to be forwarded to another librarian who can respond to the patron after the chat is complete in case the first librarian felt the patron needed additional assistance.

In contrast instant messaging is a much simpler system. Instead of being provided a log-in page where the patron needs to fill in information for the chat to begin. The IM chat has an added state of anonymity that is not given in the log-in chat because there is no email address requested however this also means that there is no transcript of the chat sent to the student or an opportunity for follow-up unless that patron supplies an email address voluntarily sometime within the IM chat transaction.

Both log-in and IM reference chat sessions are similar in that they both have a seemingly instant connection to a reference librarian. In both cases there is a degree of anonymity and the patron does not have to go to the library or even physically speak to an individual in order to get assistance. With both being so similar one might wonder if it is necessary to have both log-in and chat reference available at one institution or if a library can safely choose one with the knowledge that they will be meeting their students' needs with that choice.

Problem Statement

As online reference services become more commonplace it is imperative that we understand how these services differ from one another. Previous studies have addressed the differences between face-to-face and online reference services or have looked at facets of one online reference services. However, very few have directly compared the online services of IM chat reference and log-in chat reference to each other. This study will examine those two services both from a user and the librarians' perspective.

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Purpose of the Study

As academic libraries get their virtual reference services up and running there comes a time when the services that are being offered must be evaluated. Does one library need face-to-face, phone, email, log-in chat *and* IM reference services available for their patrons? From both a fiscal and a service point of view it is not prudent to haphazardly become involved in every new technology, some may be more useful to the academic audience than others. This study proposed to acquire data from the transcripts created by the involved parties: the individual students and the online librarians. These log-in and IM chat reference services are two of the most popular on-line reference assistance services available. With there being so many options available, budgets being continually scrutinized and librarians having to juggle their many responsibilities it is necessary to get more clarity regarding these options.

Studies in this area have mainly been focused on log-in chat reference and have been concerned with the quality of answers given by the online librarian (Foley, 2002; Katz, 2002; Kwon, 2007; Lankes, Gross, & McClure 2003; Radford, Connaway, & DeAngelis, 2011; Sears, 2001; Shaw & Spink, 2009; Warner, 2001). This research has been anecdotal in nature and while useful they do not take the perspective of the user into consideration other than the occasional satisfaction survey once the reference transaction is complete. While this study looked at the quality or type of question that was being asked in both log-in and IM reference portals it also studied the patrons reaction to the portals via variables such as;

- Type of question asked
- Showing satisfaction with the transaction
- general behavior or attitude
- length of chat sessions

Research Question

The principal question underlying this research is:

- Is there an inherent difference between IM and log-in chat reference transactions?

The following research questions were addressed:

1. What are the time parameters involved when using a particular service?

2. What is the level of formality of library patrons using each service?

3. Are there more heavily used "type of calls" in one service than in another?

4. What is the quality/depth of the questions being asked by patrons in each service?

5. Is there a different level of completeness/accuracy in the response of the librarian in either service?

6. Does the librarian respond differently (friendliness) to the patron depending on which service they are using?

7. Does the librarian give a reference interview more in one service than another? And If a reference interview is given does it add, change or clarify the question more in one service than another?

8. Does the librarian check with the patron for satisfaction in their query resolution more in one service than another?

9. Does the patron appear to have a higher level of satisfaction with the resolution of a query in one service than another?

Significance of the Study

As library services become increasingly decentralized they must continue to provide assistance in the area of reference research. In order to accomplish this task multiple methods of online assistance are being tested in libraries throughout the world. Although there have been

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methods that have been researched individually there are very few studies that look at the methods of online log-in chat reference and IM chat reference in direct comparison to one another.

By researching the similarities and differences of log-in and IM reference services the field will be provided with a picture of each service and how they might fit in to a library program. An institution may have the information they need to choose one of the services, both or neither depending on the outcome of the study and the needs of the institution.

This study will allow future research in the area of log-in and IM reference to have a baseline of understanding from which to gather new data. Additionally, it will open the door for institutions to make more informed choices regarding their on-line reference needs.

Conceptual Foundation of the Study

There are two theoretical foundations that provide support for this study. First is the nature and role of the reference librarian. While this study is not focusing on the librarian in particular it is focusing on the virtual tools and processes that are being used to provide information literacy instruction and assistance to the students. The librarian must manipulate the tool appropriately in order for the reference transaction to be successful therefore he/she is part of the study's issue. Thus, the second conceptual area is about the virtual tools. Chapter two focuses on the literature surrounding these modes of communication. Theoretical and operational definitions are presented below.

Library and Reference Service Definitions

- Paper Card Catalog: defined as a means for a library patron to look up materials housed in a library by using a card that is alphabetized using terms such as: author, title or subject as headings.

- Online Public Access Catalogs (OPAC's): Defined as "online catalogs allowed the user to retrieve data on any material housed in the library electronically, through a computer database".

- Library Databases: An online repository of materials such as newspaper and journal articles.

- Brick and Mortar Library: defined as a physical library.

- Information Literacy: Defined as "the set of skills needed to find, retrieve, analyze, and use information." (ACRL, 2012)

- Natural Language Search Engine Queries: Defined as putting words in a search engine box using the same language one would use to speak instead of the keywords that define the information that is sought after.

- Patrons: Defined as the people who are accessing the services of the library either physically or virtually.

- Reference Services: Defined as the process by which patrons gain information and/or resources from a librarian that fit the patrons information need.

- Online Reference Services: Defined as library reference service that are provided to patrons in an online format as opposed to a face-to-face format.

- Query: Defined as a reference question posed to a librarian by a library patron.

Virtual Communication Tools and Processes Definitions

- Online Chat: Defined as a library reference transaction that takes place online.

- Online Portal: Defined as the mechanism used to electronically connect the librarian with the patron for an online reference transaction.

- Instant Messaging (IM): Defined as a means of communicating electronically that allows people to connect instantly and send text messages back and forth.

- Widget: Defined as an electronic application that can be placed on a web page that allows users to access an online reference service.

- Chat Reference: Defined as assisting a patron with their reference question in an online format as opposed to a physical, face-to-face, environment.

- Log-In Chat Reference (to be called Chat reference in this study from this point forward): Defined as an online reference service by which a patron must fill out an online form and enter it in order to initiate a chat reference session.

- IM Reference: Defined as a box used for instant text communication placed on a website that a patron can input their question and get a reference librarian to respond back immediately.

Chapter Summary

During the 20th Century technology tools were created that changed the way libraries run and students learn. As these advances continue to affect academia the tools that are being put into place must be studied for effectiveness and efficiency. This study will take two popular online reference tools and research them from both the user and librarian perspectives in order to gain a greater understanding of their preferences and behaviors.

Chapter one of this study addresses the focus and purpose of this study as well as the research questions. Chapter two will review the relevant literature and studies that have been written in the field of virtual reference. It will provide a background and understanding for the purpose of this study in the field of library science.

Chapter 2. Literature Review

The importance of this chapter is to present the history and relevant issues surrounding virtual reference in academic libraries. This chapter will provide an examination of the fundamental aspects of library reference service as well as the history of academic reference services as they pertain to the changes that have occurred due to the advancements in technology. There will be specific attention given to the literature surrounding log-in chat and instant messaging reference services for the purpose of better understanding the underlying technologies that this study is based on.

The Changing Face of Library Reference Service

From the first library in Alexandria Egypt in the 3rd century B.C. until today there have been librarians to help make sense of the seemingly endless information that is housed within (Canfora, 1989). The act of librarians assisting patrons in finding the information they need is called *reference service*. For centuries reference services were conducted face to face, with the advent of the telephone, reference questions could be answered from a distance. However it was not until the 20th century with its technological advances that reference services truly turned the corner to a new horizon. Instead of waiting for a local librarian to be available to assist the patron there were options to ask ones question anytime and be answered within 24 hours if not instantly.

In the 21st century more options have become available regarding reference services and the libraries need to begin choosing which modes of communication they will use. The more technology has been involved in reference services the easier it has been to get statistical information to drive the decisions regarding which services to provide. This is true for all types of libraries but for the purposes of this study we will be focusing on libraries in higher education known as *academic libraries*. The Association of Research Libraries (ARL), a not for profit

organization within the ALA comprising of the leading research libraries in North America, began taking statistics of academic libraries: collection sizes, library expenditures, staffing and services in 1961 (Coyle, 2007, p. 602). Starting in the late 1990s declining statistics for face-to-face reference transactions was cited as evidence that the landscape of reference services was changing (Broughton, 2001; Coffman, 1999; Coffman & McGlamery, 2000; Helfer, 2001; Lipow, 1999; Oder, 2001; Saunders, 2001; Tenopir & Ennis, 1998; Wilson, 2000).

By 2002, 60.5% of Americans who use the Internet considered online technology to be a very important or extremely important form of information retrieval (Lebo, 2003, p. 35). As early as 2001 a Pew Internet and American Life study confirmed that students thought the Internet satisfied all of their information needs (Simon, Graziano & Lenhart, 2001). As time has passed students have kept this view, in 2010 a study called *How College Students Evaluate Information in the Digital Age* found that students "considered themselves adept at finding and evaluating information, especially when it was retrieved from the Web. However, students reported difficulties getting started with research assignments and determining the nature and scope of what was required of them" (Head & Eisenberg, 2010, p. 1). This indicates that although the Internet provides a wealth of information students often do not know what to do with it in an academic context.

The fact that students are turning to the Internet for research assistance may mean that they have literate computer skills but this has been proven not to be the same as being *information literate* (McDonald, 2004; Messineo & DeOllos, 2005; Goodfellow, 2007; Rowlands, Nicholas, & Huntington, 2007). Additionally, when Millenials are unable to find information on their own it has been found that they tend to "find peers more credible than teachers" (Manuel, 2002, p. 208). However, with their peers sharing the same knowledge base

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regarding academic research skills they don't necessarily get the assistance they are looking for. Therefore instructors are charged with teaching students to recognize that they need assistance and knowing where to find it.

The ever-presence of "just in time" research assistance in the form of search engines, which are at the students fingertips wherever they are via their electronic mobile devices, has created the "concept of *disintermediation*, where library users seek and retrieve information without the assistance of the librarian" (Agee & Antrim, 2003, p. 477). Lack of patrons using reference library services can partially be blamed on the lack of students in the physical library space. "The absence of library users in the building means fewer library users receive expert human-mediated interaction; lost opportunities for instruction in an educational environment" (p. 474). One might consider disintermediation to be more of an issue with off-campus students because their physical proximity to the library is more likely to be further than the on-campus student. However, those who reside on campus have also shown a preference for using online resources instead of coming in to the library building (Kelley & Orr, 2003). In an attempt to combat the problem of student disintermediation libraries are bringing their reference services to the students via their chosen online technological devices. The goal being to give the students the assistance they need on their technological terms.

Knowing that students are going online to answer their questions and knowing that they are using the physical space less and less for research means that the library needs to be in their digital space. The question ultimately became: Where to put the access points for the students to find the library online. Lewis and DeGroote (2008) discovered that the more access points were added to the library and institution website the more likely students were to use the online library services.

The Reference Interview

The technological advancements of the late 20th and early 21st centuries have not diminished the popularity of the academic library. What was once a building known for its silence and well categorized paper tomes is now a bustling virtual and physical space. Throughout these changes there is still a need for reference librarians to assist students with their research assignments. Be it face-to-face or online many students find that expert assistance is necessary to be successful. When a student seeks assistance from a librarian they must have what is called a *reference interview* with the student. This is when a patron seeks assistance from a librarian and the librarian "interviews" the patron to find out what it is the patron is truly seeking to find out. It is "a problem-solving process that is collaborative. Few library users, even experienced ones, have ever heard of the reference interview or know that they are being interviewed" (Ross, 2003, p. 38) however it is a critical component for effective in depth research assistance.

In order for the reference interview to be successful the librarian must have an air of approachability. The Reference & User Services Association (RUSA) of the American Library Association (ALA) explains in their *Guidelines for Behavioral Performance of Reference and Information Service Providers* the importance of *approachability* both in person and online in the reference interview:

> In order to have a successful reference transaction, patrons must be able to
> identify that a reference librarian is available to provide assistance and also
> must feel comfortable in going to that person for help. In remote environments,
> this also means placing contact information for chat, email, telephone, and
> other services in prominent locations, to make them obvious and welcoming to

patrons. Approachability behaviors, such as the initial verbal and non-verbal

responses of the librarian, will set the tone for the entire communication

process, and will influence the depth and level of interaction between the staff

and the patrons. At this stage in the process, the behaviors exhibited by the

staff member should serve to welcome the patrons and to place them at ease.

The librarian's role in the communications process is to make the patrons feel

comfortable in a situation that may be perceived as intimidating, risky,

confusing, and overwhelming. (RUSA, 1996, section 1.0)

Before technology was a ubiquitous part of everyday life librarians only needed to know

how to be approachable in a face-to-face or phone conversation. The new technological

environment requires the ability to be approachable without being physically seen or heard

(Fagan & Desai, 2002).

In the face-to-face environment approachability is visual and once the patron breaches the

barrier of introduction the interview begins. Tone of voice, facial expressions, and body language

have proven to be cues that ensure approachability (Katz, 1997). These cues are so important in

fact that it has been proven that patrons are more satisfied with a friendly reference librarian that

gave an incorrect answer than a librarian who made them feel ill at ease, unwelcome or appeared

to be judge their question even when they gave the correct answer. In fact, the patrons were more

likely to return to the librarian that gave the incorrect answer than the one that did not (Durrance,

1989, p. 35).

In the online environment the barrier of introduction is different. Patrons can feel

anonymous and therefore they are less likely to feel judged regarding the content of their

question. Additionally, opinions are less likely be formed by the librarian regarding race, age,

gender or appearance. This puts a great emphasis on the writing technique of both the patron and the librarian as well as the inviting nature of the website.

It is counterproductive for an online library patron to find the look and/or feel of the website intimidating, this may cause them to decide not to ask their questions before they've even begun. Additionally, once they have asked their question they can be misunderstood due to lack of visual or audio cues. Differences in the behavior patterns of face-to-face and online reference interviews are well documented (Bobrowsky, Beck, & Grant, 2005; Fagan & Dasai, 2002; Jensen, 2004; Kwon & Gregory, 2007; Straw, 2000). Marstellar and Mizzy (2003) also found that online reference librarians *felt* that patrons would have a negative response to clarifying questions because chat patrons were using the service for the sake of a quick transaction. In actuality they found that in only 5 of 270 transcripts did users display a negative response to clarifying questions, it was the convenience, not the speed that caused patrons to choose online reference transactions.

In the physical world of reference students enter the library and go to the reference desk when asking their research question. In the electronic world the patron must find the access point that will allow them to find the available reference librarian. It has been found that unlike the physical environment where there may only be one reference desk it is better to have many access points in the digital world wherever service may be needed both in and outside of the library web page (Lewis & DeGroote, 2008). Along with available points of access the look and feel of the user interface that will connect them to the librarian needs to be appealing (George, 2008). "The Web interface should be clear and uncluttered, easy to maneuver and provide built in redundancy to accommodate different learning styles" (McMullen, 2001, p. 7). The student

must feel welcome and unintimidated by the user interface it is not until the student crosses the digital divide and asks their question that the reference interview can begin.

Integrating Library Reference into the Digital Age

Digital products are becoming more ubiquitous with each passing month, as the world gets used to living in a digital space service providers are creating new products to satisfy an ever expanding and technically savvy market. "As librarians adapt new technologies that are useful to students, students are more willing to see the importance of the library in the process of information retrieval" (Lukasiewicz, 2007, p. 825). The question is how to get the online services of the library to the end user so they can experience it. Fortunately, "it must also be stressed that even if end-users are placed in a position to search for their own information, not all will take the opportunity… it can therefore be predicted with some certainty that not all end-users will want to do their own information searching. It can also be assumed that the greater awareness of the availability of information will increase end-users' expectations of *quality* services and their demands for training and support" (Fourie, 1999, p. 14). This brings two items to the forefront of importance for libraries: making the online library services available and visible to the patron as well as providing quality services to the patron once they decide to use the library's online environment. In this study *quality service* is referring to the reference service provided to the patron by the librarian who must assist them virtually.

RUSA Guidelines

In 1996 RUSA developed *the Guidelines for Behavioral Performance of Reference and Information Services Providers* (RUSA, 1996). These guidelines were created "to be used in the training, development, and evaluation of library professionals and staff" during the face-to-face reference process (RUSA, 1996, p.1). In the years that followed the RUSA Guidelines were

studied and found to correlate with high success of reference transactions. They have therefore

become the only guidelines widely recognized and used in library reference transactions (Gatten

& Radcliff, 2001; Saxton, 2000; Schachaf & Horowitz, 2008b). The 1996 guidelines were based

around five components:

- *Approachability*: The ability to recognize that a reference librarian is available to assist a

  patron and lowering the barriers that may make the patron feel uncomfortable going for

  the help.

- *Interest*: This is when the librarian must show a high level of interest in the patrons

  inquiry in order to get the result of a more satisfying transaction from the users point of

  view.

- *Listening/Inquiry*: This is when a librarian exhibits good listening and questioning skills

  during the reference interview. Librarians need to keep the patron at ease while

  discovering the true nature of the inquiry.

- *Searching*: When the librarian exhibits superior search skills and can effectively come up

  with valid results from the patron inquiry.

- *Follow-up*: This is when the librarian brings proper closure to the reference transaction

  by verifying the patrons' satisfaction and assisting them with additional locations of

  information that may not exist at their library. (RUSA, 1996, p. 3)

By creating these guidelines RUSA allowed librarians throughout the country to have a

common set of rules to follow for a more successful face-to-face reference transaction. In 2004

RUSA published *Guidelines for Implementing and Maintaining Virtual Reference Services*

(2004a) where they reiterated the need to adhere to the RUSA *Guidelines for Behavioral*

Performance of *Reference and Information Services Providers* (See Appendix A) while assisting

online reference patrons. Additionally, in 2004 RUSA updated their *Guidelines for Behavioral Performance* of *Reference and Information Services Providers* to include email and chat reference services (2004b). They have since been revised further "to anticipate developments in reference services using a broad approach, and yet maintain enough specificity to be useful" (2013). Included first in the 2004 Guidelines and retained through the 2013 revision were both an *in person* section and a *remote* section with advise on how to handle each of the five components mentioned above.

For example in the updated 2004 guidelines in the section regarding approachability the in person section stresses: eye contact, proximity, visibility and tone of voice. Whereas the remote section on approachability states: "Should provide prominent, jargon-free links to all forms of reference services from the home page of the library's Web site, and throughout the site wherever research assistance may be sought out. The Web should be used to make reference services easy to find and convenient." (2004b, section 1.8)

As the RUSA Guidelines have become a standard for reference service training. The question becomes: Does following the RUSA Guidelines actually make a better learning outcome for library patrons? It has been generally found that adherence to the RUSA Guidelines by reference librarians creates a more effective reference transaction and a patron that is generally more satisfied with the service provided (Hughes, 2010; Oakleaf & VanScoy 2010; Zho, Love, Norwood, & Massia, 2006)

Digital Reference Services

Digital reference service (DRS) has been defined as "a mechanism by which people can submit their questions and have them answered by the library staff member through some electronic means (email, chat, Web forms etc.), not in person or over the phone" (Janes, Carter & Memmott, 1999, p. 146). RUSA defines digital reference as a "reference service

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initiated electronically, often in real-time, where patrons employ computers or other Internet technology to communicate with reference staff, without being physically present" (RUSA, 2004a, section 1).

The first form of digital reference made available to library patrons was email. The patron would type their query as a free form email and send it off to the library reference department. It would usually get answered in the order received which depended on the staffing of the electronic mail queue and answered to the best of the librarians ability depending on how the initial query was worded. In 1993 Abels conducted some of the first published research regarding email reference in academic libraries (1996). The study was mainly concerned with controlling the lack of a reference interview when the patron emailed their reference question. They found that instead of providing an email address and letting the student create their own free form query it was more productive to create an electronic form for the student to fill out that guided them to be more specific with their research needs.

Email was the only electronic option a patron had when DRS was in its infancy. They were able to have their question answered via email instead of having to wait for library operating hours that would allow them to call or walk-in to a library in order to communicate with a librarian and it was found that users valued this additional service (Bushallow-Wilbur, DeVinney, & Whitcomb, 1996). Although email reference was a popular subject for the library literature of the time it was not a popular form of reference service to patrons; looking at the number of emails received per day, most studies were reporting an average of one (Bushallow-Wilbur et al., 1996; Schilling-Eccles & Harzbecher, 1998; Still & Campbell, 1993) additionally the email service was not found to become more popular as time went by (Bristow, 1992; Bushallow-Wilbur et al., 1996).

As colleges increased their number of online students, some of which would never step foot on their brick and mortar campuses, DRS became more important. Between 1997 and 2000 the number of distance education course enrollments doubled (Johnson & Magusin, 2005). Additionally in the 2000-2001 school year the National Center for Education Statistics (NCES) reported that distance education courses had risen to between 20-50 per cent of the total enrollments at Universities in the United States (US Department of Education, 2001, p. 3). Librarians knew that if email services were not working online something else was going to have to come in and provide reference services to online patrons.

Online Chat Reference History

In 1985 a service emerged in retail that would later become useful to libraries. It was a live online chat service where consumer questions were answered and assistance was provided for searching their databases (a service that is common for library reference today). This service was provided by a company called Telebase that was paired with the company Compuserve (Ware, Howe, & Scalese, 2000).

Libraries took longer to begin using this chat based service for answering reference questions. As mentioned previously the first form of digital reference was email and it did not begin being used in libraries until the early 90s. This did not evolve into the use of live synchronous chat until the mid-90s. In 1995 the Internet Public Library used a text based virtual reality system called a MOO to create a live on-line reference service to their patrons during specified hours (Sloan, 2006). The first academic library to use live chat reference was in 1998 at SUNY Morrison, New York. Using Internet Relay Chat (a chat room version of instant messaging) and software created on campus they were able to create a service called "Talk Now" (Kresh, 2003).

In June of 2001 the first online, 24/7, library reference services, began offering online assistance. On June 11th 2001 *Clevnet* was launched in Ohio with a public library service they called *Know it Now*. It served 10 counties in northern Ohio online, twenty-four hours a day, seven days a week. Eight days later on June 19th of 2001 the Metropolitan Cooperative Library System's launched their 24/7 reference service for public libraries in the Los Angeles area. Both turned to a consortia model in order to have the services manned at all times. In the Metropolitan Library System this meant that 31 member libraries staffed the service "with the larger libraries handling more of the hours and local librarians freelancing out of their homes for the late night shifts" (Flagg, 2001). By the Spring of 2002 it was reported that 28% of thirty academic libraries surveyed were offering some form of real-time online reference (Tenopir & Ennis, 2002).

The Growth of Instant Messaging

A form of communication that was growing in popularity at the turn of the century was Instant Messaging (IM, also widely known as text messaging or Short Message Service [SMS]). IM is defined by Foley (2002) as:

> real-time online communication between two or more people. The medium
> enables people to 'chat' via the Internet by rapidly exchanging text messages. One
> user chats with another user by typing a message into a specialized window, or
> 'chat room,' generated by IM software. The message appears almost immediately
> on the other user's screen. The recipient reads it and replies by typing a response.
> Only an Internet connection is required to access basic chat systems.

In 2004 the *Pew Internet and American Life Project* reported that Millenials (people between the ages of 18-27) were using Instant Messaging (IM) 46% more frequently than email. Additionally, of those that were using IM 31% were reported to be sending links of articles and

websites to friends and colleagues. This study made it clear that college aged students were moving away from email and towards more instant forms of communication. Additionally they were becoming more at ease with the transfer of information through IM. In 2003 Marshall Breeding wrote in the journal *Computers in Libraries* "The pervasive presence of instant messaging will be ignored only by organizations willing to risk irrelevancy. Many individuals - mostly, but not exclusively from the younger generation- prefer instant messaging to email" (p. 38). By 2006 Fox and Madden were estimating from their Pew Internet and American Life study that 75% of teenagers who had access to the internet were using instant messaging and 47% of adults with access to the internet were doing the same. In 2009 a Nielsen Report noted "the average U.S. mobile teen now sends or receives an average of 2,899 text-messages per month compared to 191 calls" (Nielsen, 2009, p. 8). Finally, by 2011 it was found that "95% of 18-29 year olds use the text messaging feature on their phones, and these users send or receive an average of 87.7 text messaged on a normal day" (Smith, p. 3).

As early as the year 2000 case studies were emerging from libraries who were piloting the use of IM as an additional reference service to face-to-face in their libraries (Fagan & Connoway, 2001; Foley, 2002; Ruppel & Fagan, 2002). For an IM service to be successful the library and the patron needed to be signed up, and have installed, a proprietary piece of software such as America OnLine (AOL) or MSN Instant Messenger. This, in itself, required a level of technological knowledge and hardware that was not available to everyone and therefore excluded a certain population. Additionally, in order to use the service both parties needed to be logged into the same texting software and accepted each other into their chat spaces for one-to-one conversing. On the positive side texting was better than a phone call because a user could attach a file and send websites to the other participant. With texting already being a popular medium of

communication it is no wonder that those who adopted IM reference found that their overall use of reference went up when texting was added to the tools a patron could use to communicate with a librarian (Bedwell, Rodrigues, Duggan, & Orlov, 2008; Brietbach, Mallard, & Sage, 2008; Doan & Ferry, 2007; Foley, 2002; Stahr, 2010).

The convenience of digital reference is that the patron does not need to be on campus in order to make their reference query to a librarian. However, like the face-to-face service in its early stages online reference librarians had to be *at work* in order to answer the incoming question therefore the service was usually only available during library business hours (Davis, 2007; Desai, 2003). Additionally, like the face-to-face and telephone environment there was usually no transcript of the transaction allowing for the patron or the librarian to review exactly what was discussed during the reference question session. Statistics were also not compiled by the service and therefore had to be kept by hand. Ruppel & Fagan (2002) found that the "top advantage of IM reference service was convenience and not having to get up from their workstation or give up their computer and 15 percent of the users liked the anonymity… 29 percent thought staff did not look helpful at the physical reference desk and 17 percent did not want to go to the library building to do their research" (p. 190). In 1995 Durrance noted that reference staff were much more likely to have a successful face-to-face reference transaction when they looked approachable and they showed personal interest in the patron, any form of anonymity on the part of the librarian proved to be more of a hindrance. However, Desai (2003) found that the IM librarian always appeared available and therefore approachable she also found that anonymity is an advantage for the instant messaging patrons as long as they were greeted in a personal manner, making the patron feel at ease.

In 2005 a company called Meebo was founded ("About Meebo," 2011). This company

allowed the user to put a *widget* on their desktop or a webpage that would integrate most of their instant messaging tools. In this way a person could be signed up with multiple texting accounts and get them all in one window. Therefore if friends were signed up with one text messaging account and the library was set up with a different text messaging account service they could both be seen at the same time by the patron. Later technology emerged that allowed "users to insert chat widgets on to any web page by inserting code into the (web) page in HTML. The code calls forth an application… known as a widget" (Breitbach et al., 2008). This widget allows any user to simply begin typing in the text box provided and send it instantly to the librarian. No set up is needed.

Online Library Chat Reference Technology

As technology became more sophisticated another form of virtual reference emerged commonly known as *chat reference*. Unlike IM reference, the patron had to go to an *intake* page and fill out the necessary fields which would get forwarded to the librarian immediately before the chat began. Essentially this was call center software that began as a service that was available for real time reference "chat" during the hours of operation with an email back-up when the library was closed. However, the goal for many libraries was to turn the chat reference service into a 24/7 resource that would work in consortial service with other libraries around the country (Blank, 2002). In 2001 Francour conducted a survey that noted "272 libraries were being served by a chat reference service, 210 of which (77 percent) were served by one of eight chat reference consortia" (p. 190). In his survey *chat reference* was referring to both forms of virtual reference but it does speak to the growing popularity of the medium. Chat reference was being discussed in the literature along with its sister technology IM as early as 2002 (Blank, 2002; Maxwell, 2002) they were most genrally studied separately (Blank, 2002; Francouer, 2001; Radford, Connoway,

Confer, Sabolcsi-Boros & Kwon, 2011; Ward, 2004). In 2005 Houghton and Schmidt published

an article that evaluated chat reference software and IM software from the libraries' point of

view with IM turning out to be the unanimous favorite under most criteria such as; speed of

interaction, cost, training, computer requirements and connection to the community of users. A

study by Ward & Kern (2006) had both IM and chat reference available simultaneously at The

University of Illinois at Urbana-Champagne in order to determine if users had a preference. It

was found that both choices were very popular and attracted different audiences and therefore

warranted continued use. Doan and Ferry (2007) were using log-in chat reference software first

with little buy-in from staff and little use from students at the Kresge Library in the University of

Michigan's Ross School of Business. After trying two separate kinds of chat software they chose

a complete switch to IM for their virtual reference program and that was the catalyst that turned

their virtual reference program around for both the students and librarians. Similarly Bedwell et

al. (2008) were part of a consortium using log-in chat software with little success. They were

disappointed with both the unreliability of the software and the lack of popularity. Once they

switched to an IM client with a multiple protocol platform that could accept IM's from several

major IM services their consortium decided to switch to an IM service completely until

something more stable could be produced by the virtual chat reference providers. Brietbach et al.

(2008) did the same with their virtual service after trying Meebo as an alternative. One

interesting note in their study was that Meebo transactions took significantly less time than their

QuestionPoint log-in chats and they did not know why.

IM vs. Chat Reference in Libraries

IM chat had a lot of pros and studies showed that there was some preference by patrons

to using IM, one might wonder why log-in chat was still a service that librarians felt was worth

offering. The differences between log-in chat reference and IM reference were minimal in some respects but noteworthy in others. As mentioned previously IM software had to be loaded on both the library and patron computers whereas with log-in chat reference only the library had to install software and a portal was made available on the website for logging into and chatting. The IM software was usually free whereas the log-in chat reference software required that the library pay the company that was providing the service. IM produced a portal that the patron simply typed into, there was no need for logging in. It was an instant, two-way chat. Once logged into the log-in chat reference service a patron had to begin with an initial question, which was sent out to reference librarians who were manning the service. The librarians could have previously created responses that were held in the software system that they might pull from to save time in answering regularly asked questions. These responses "can include instructions that are frequently sent (for example, how to connect to databases from off-site) or even standard questions used in reference interviews" (Francoeur, 2001, p. 193). This made log-in chats slightly easier on the librarian as they typed their responses.

Current log-in chat reference software often allows librarians to push Web pages on to a user's screen and some also allow the patron to push pages to the librarians screen creating a *co-browsing* experience. Transcripts of a chat reference transaction can also be generated for review and for forwarding to the patron if an email address is provided. Transcripts cannot be provided with IM.

Cooperative On-Line Library Reference Assistance

Today, the largest provider of 24/7/365 online reference service is QuestionPoint (QP), they are owned and administered by the Online Computer Library Center (OCLC). QP became
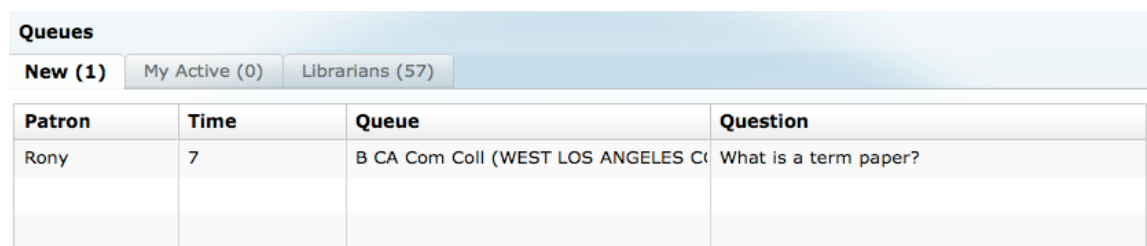
available as a log-in chat service in June of 2002 as a collaborative network of subscribing libraries to a consortia (Dee & Allen, 2006). A subscription to QP in 2003 would get a library:

- Access to a professional community of librarians working together to develop standards, best practices, and the QuestionPoint service based on their experiences and needs.

- An interface that enables libraries to offer online reference services locally and to refer questions to libraries locally, regionally or globally.

- Tools to support synchronous and asynchronous digital reference including walk-up questions, email, web-based forms, and live chat including the ability for librarians to see and talk with patrons over the Internet.

- The ability to route and track the status of questions, including system views for the patron, the librarian and the administrator.

- Local and global knowledge bases that store previously asked and answered questions for later retrieval and use as a reference resource.

- Usage statistics and reports to help librarians implement and maintain Question Point successfully in their libraries.

- Integration with other virtual reference systems that participating libraries already use.

- A customizable administration module. (Penka, 2003, para 9)

Additionally, each library that took a session was responsible for the accuracy of the response given. To ensure quality QP staff monitor chats and libraries themselves have the ability to review their own transcripts of both their libraries chats and the chats of their library patrons taken by other member librarians (Penka, 2003). All the library and the patron needed to
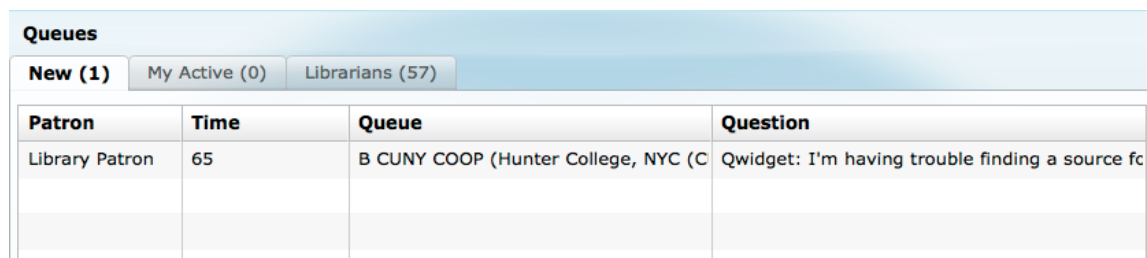
successfully launch the service was a Web browser. QP has had over 1,000 member libraries

spanning the globe for some years now (Radford et al., 2011) and the system generally runs in

the same manner it did upon opening with changes made to the libraries administrative end for

more sophisticated management.

An additional service was added to QP in 2008 called the *Qwidget*. This was a web based

widget you could put on any library webpage that would work as a kind of text messaging

system for instant chats that did not require a log-in page or ask for an email address

(Introducing Qwidget, 2008). On the patron side it looked very similar to a Meebo or any similar

instant messaging widget. From the librarian side it looked like any other log-in chat with the

exception of an incoming tag with the initial query that noted it as a "qwidget" question (See

Figure 1 and 2). As with other IM technologies the Qwidget does not allow for web pages to be

pushed to the patron or vice versa.

Figure 1. Librarian page showing a chat coming in from the log-in chat in-take page.

Figure 2. Librarian page showing a chat coming in from the IM Qwidget.

Few studies have been done using the OCLC QuestionPoint service and the Qwidget. An

exhaustive search by this researcher yielded one study conducted by Virginia Cole of Cornell

University (2010). She studied the added service of the Qwidget to a college that had originally only had log-in. Her study focused on increased traffic to the overall online reference service and found that unlike other studies where IM was added, they had no increase in traffic but they did have students switching to the Qwidget instead of using the log-in service. She also found that the Qwidget was being used for short answer questions as opposed to the log-in chat which was being used for more in depth questions. Additionally it was found that Qwidget questions tended to be shorter in duration, approximately 8 minutes or less and the log-in chat averaged 12-24 minutes. The down side of this study is that it only took place over a two and a half week period. The first day of the study was the first day that they put the Qwidget in a prominent spot on the home page of the library therefore it was not an established service. Additionally this time period was during the last few weeks of classes and finals therefore potentially changing the nature of the questions.

An additional study was found that looked at an MSN instant messaging portal and a log-in portal with a service called Docutek at a single institution over a one year period of time. This study looked at question classification, formality and patron satisfaction. Their analysis suggested that patrons used each service for a different purpose. They found that the log-in chat or virtual reference (VR) questions were the more in depth or research intensive queries. They also found that both their librarians and their patrons used different behaviours in each portal. Lastly, they surveyed their patrons for overall satisfaction and found that generally they were satisfied with both services. In this study the librarians did not have a single portal to answer both questions they were either answering the IM questions or the VR questions. This might account for the difference in mindset by the librarian when answering in each portal. The satisfaction survey by the patron is also questionable in that the patron may have been answering

what they felt the college wanted to hear and therefore self reported satisfaction (Rourke & Lupien, 2010). Being the only study that used a large amount of transcripts and the full one year period of time this study is important when comparing the two services.

Assessing The Quality of Reference Service with The 55 Percent Rule

As mentioned previously the reference interview plays a major part in the success or failure of a reference transaction. Hundreds of studies have been conducted to discern if librarians are successful at conducting these transaction. In 1986 Hernon and McClure published a landmark article regarding the accuracy of reference transactions. They studied a total of 26 academic and public libraries throughout the United States. Unobtrusive test questions were used which are "reference questions (for which answers have been predetermined) of library staff members who are unaware that they are being evaluated" (p. 37). They determined that accurate answers were provided by reference librarians only 50-60% of the time. This became known as the 55% rule and sent a ripple of concern throughout the library reference services community. This was not the first time that low accuracy numbers had been mentioned in literature (Crowley & Childers, 1971; Gers & Seward, 1985; King & Berry, 1973; Myers & Jirjees, 1983; Ramsden, 1978; Schmidt, 1980; Weech, 1984) but it was the first time it had been labeled and published in one of the most highly read publications in the library community: Library Journal. They went so far as to state:

> If the 55 percent reference law is a fact of life, critical issues about the
>
> quality of reference services in a particular library, and the role of
>
> information services, in general, in the larger professional context must be
>
> re-examined…perhaps in the rush to embrace new technologies, resource
>
> sharing, faculty status, and assorted other issues and concerns, a number of

staff members have lost sight of a primary mission of the academic and

public library-meeting patrons' information needs. (Hernon & McClure,

1986, p. 41).

Hernon & McClures (1986) article made an impact on an international scale among reference librarians. It was difficult to believe that professional librarians with advanced degrees in library science were unable to answer reference questions correctly 45% of the time. In 1987 Bailey wrote the first of many articles that were to span the course of twenty years (Hubbertz, 2007) denouncing the unobtrusive testing methods used by Hernon & McClure. Bailey (1987) noted specifically:

- Observer Bias: Which is the personal bias held by the trained proxy asking the question of the reference librarian. He argued that no matter how well trained, the observer would bring in their own personal bias and shade the perceived results. He suggested that a second observer or many observers would more accurately view the transaction.

- Random Errors: Such as time of day, staff experience, staff member bias/beliefs. He argued that in Hernon and McClures study there was no way of knowing "the magnitude of random error- any better than we know the magnitude and source of any constant error " (Bailey, 1987, p. 280).

- Questionable Ethics: Which he explained by stating "surreptitious observation eventually will uncover flaws in even a paragon of professionalism" (p. 281).

- A Better Approach: Bailey noted that psychologists were not using unobtrusive testing because they "have trouble believing in its validity and shy away from using it, then why should library researchers do differently?" (p. 281).

- Realities of Reference not Black and White: Hernon and McClure marked each question either 100 percent correct or 100 percent incorrect. If the question was not answered 100 percent correct no credit was given at all to the librarian.

- Proxy Attitude: Bailey states that the attitude of a student approaching the reference desk will influence the way in which the librarian answers the question. Therefore if different proxies were to approach the desk with different attitudes they would not get the same answer to the same question.

- Librarian Attitude: "the reference librarian in a better mood, a less harried atmosphere at the desk, or the proxy desperate for an answer are all factors that could have upgraded the 55 percent rule" (p. 281).

- An Honest Answer: Bailey surmised that librarians may have made a first utterance of "I don't know" and been marked as not wanting to help when that statement may have meant that they wanted to help but honestly did not have the answer. Therefore an "I don't know" answer would not necessarily have been a negative answer as had been perceived by the study.

- Length of Interview: The study marked any reference transaction that was under five minutes as too brief when in actuality Bailey believed "the best reference librarians will comprehend a question immediately and may take no more than a minute to satisfy the patron" (p. 281).

In 1988 Douglas denounced the 55 percent rule stating mainly that unobtrusive testing chose specific questions, particularly brief and factual ones and ignored other requests for service such as the need for general information on a topic. He conceded that there were "failures in the provision of reference services (however), we do not know what the incidence of these failures

is" (p. 96). Durrance joined Douglas in 1989 writing in a Library Journal article titled: *Reference Success: Does the 55 Percent Rule Tell the Whole Story*. She argued that success in a reference interview was relying too heavily on accuracy and that the environment that reference services take place in plays a heavy role in the way a reference transaction will develop. The environment causes the librarian to rely on interpersonal skills which, as has been mentioned previously, can be a heavily weighted factor in a patrons feeling of satisfaction with the transaction. In this study patron's requests will be received by librarians from the same environment, there will be one community college with one online reference service intake page for online chat and one IM widget for the Qwidget questions. By removing the environmental concern more emphasis can be put on accuracy in terms of the quality of a question being studied.

Ways of Assessing Quality Reference Transactions

For decades librarians have been trying to accurately measure the quality of reference transactions. This is important because reference services are one of the main public duties for a librarian. After the uproar created by Hernon & McClure's article regarding the '55 percent rule' more attention began to be paid to how quality is measured in a reference transaction.

For many years one of the main measures for assessment of quality reference service was tabulation of the number of reference questions received at the reference desk. It was believed that if the number of reference questions increased then the level of good service must have been increasing as well (Robbins-Carter & Zweizig, 1985). However, as Hansel (1990) has pointed out, reference librarians not only admit that their self reporting of reference transactions is inaccurate, a rise in the number of questions asked could mean that the patrons are finding the library to be disorganized and need additional assistance where none would be needed otherwise.

Satisfaction surveys given to patrons upon the conclusion of reference transactions have also been used as a gauge of quality (Brudenall, 1976; Bunge, 1985; Howell, Reeves & Van Willigen, 1976; Johnson, 2004; Ruppel & Fagan, 2002; Strong, 1980; Weech & Goldhor, 1984). There is confusion, however, regarding the accuracy of these surveys: "If a simple satisfaction survey comes back positive it could mean that the user's original expectations of the service quality had been very low" (Bicknell, 1994, p. 78). Additionally, patrons satisfaction can be hard to determine via a survey due to the fact that their needs are often ill-defined and changing therefore, in quality control terms, customer satisfaction can be an ill-defined moving target (Haywood-Farmer, Duffus, & Downing, 1985/1986). For these reasons this study will not be using the number of chats received as an indication of quality nor will it be seeking out the user satisfaction surveys taken at the institutions of their chats received.

Behavioral and attitudinal aspects of the librarian during the reference process can have significant impact on the accuracy of the reference transaction. These aspects are: the librarian probing for the actual information needed, showing interest and being attentive, making the patron feel comfortable, and asking follow-up questions to verify that the patron found what they were requesting (Gers & Seward, 1985; Crews, 1988). The RUSA Guidelines for Implementing and Maintaining Virtual Reference Services discusses service behaviors in section 3.3. More specifically in section 3.3.4 which states "staff should follow interpersonal communication practices that promote effective provision of reference service as articulated in the RUSA Guidelines for Behavioral Performance of Reference and Information Service Professionals" (RUSA, 2004b). These practices are:

1.0 Approachability: "… patrons must be able to identify that a reference librarian is available to provide assistance and also must feel comfortable in going to that person for help…"

2.0 Interest: "…the librarian should be interested in each patron's informational need and should be committed to providing the most effective assistance…"

3.0 Listening/Inquiring: "…The librarian must be effective in identifying the patron's information needs and must do so in a manner that keeps patrons at ease…"

4.0 Searching: "…the portion of the transaction where behavior and accuracy intersect. Without an effective search, not only is the desired information unlikely to be found, but the patron may become discouraged…"

5.0 Follow-up: "…The librarian is responsible for determining if the patrons are satisfied with the results of the search, and is also responsible for referring the patrons to other sources…"

The RUSA Behavioral Guidelines are the standard that has been set for librarians by the American Library Association and have been used in studies to effectively determine the level of reference service that has been provided to the patron (Duinkerken, Stephens & MacDonald, 2009; Harmeyer, 2007; Ronan, Reakes, & Ochoa, 2006; Scachaf & Horowitz, 2008b; Zho, Love, Norwood, & Massia, 2006; Walter & Mediavilla, 2005; Ward, 2004). Many more studies have not mentioned the RUSA guidelines specifically in their methodology but have measured effective reference transactions using similar evaluative behaviors (Arnold & Kaske, 2005; Bolander, Connoway, & Radford, 2006; Houlson, McCready & Pfahl, 2006; Lee, 2004; Marstellar & Mizzy, 2003; Platt & Benson, 2010; Pomerantz & Luo, 2006; Ryan, Dougherty, & Mauldin, 2006). Due to the wide acceptance of and successful studies using the *RUSA*

Behavioral Guidelines this study will also be using those guidelines to measure the quality of service provided to both IM and chat reference patrons.

Summary

As the technological landscape changes libraries need to be mindful of their mission and their patron needs. Digital reference services have now become a part of the library landscape. The key to discovering which DRS is best for any individual library has to do with the culture of the library patronage and the information that has been discovered from the studies of DRS that have been conducted. This study seeks to find any inherent differences from the user and librarian perspectives in the day-to-day sessions of both log-in chat and IM reference transactions. The goal is to give a clear picture of both the IM and log-in chat landscapes so that librarians can make knowledgeable choices when looking at both services.

Chapter 3. Methods

The purpose of this study was to gather data in order to examine whether there were any inherent difference between IM and log-in chat reference transactions. This chapter describes the procedures for conducting the research and the specific methods used to answer the following research questions. The central research question was:

- Is there an inherent difference between IM and log-in chat reference transactions made by community college students?

The specific sub-questions were:

1. What are the time parameters involved when using a particular service?

2. What is the level of formality of library patrons using each service?

3. Are there more heavily used "type of calls" in one service than in another?

4. What is the quality/depth of the questions being asked by patrons in each service?

5. Is there a different level of completeness/accuracy in the response of the librarian in either service?

6. Does the librarian respond differently (friendliness) to the patron depending on which service they are using?

7. Does the librarian give a reference interview more in one service than another? And if so, does it change, add or clarify the question more in one service than another?

8. Does the librarian check with the patron for satisfaction in their query resolution more in one service than another?

9. Does the patron appear to have a higher level of satisfaction with the resolution of a query in one service than another?

Research Design

An exploratory design was used to examine the transcripts of community college students'
use of two different library reference web portals. The study was exploratory as opposed to
being only descriptive because it focused on careful analysis among factors as they influenced
and interacted with each other. Greater understanding of the two forms of virtual reference
services was the major goal in this research as opposed to coming up with definitive
conclusions about the individual users. Additionally, this study was retrospective as the data
involved online reference transcripts from 2011 and 2012.

Many studies have analyzed virtual reference (VR) transcripts using anywhere from one
(Radford, Radford, Connaway, & DeAngelis, 2011) to eight hundred and fifty transcripts
(Radford, Connaway, Confer, Sabolcsi-Boros, & Kwon, 2011). Previous research of online
reference transcripts includes a study by Arnold and Kaske (2005) that studied the overall
service provided to library patrons. Research has also focused on studying the quality of
answers given by the librarian (Logan & Lewis, 2011; Maximiek, Rushton, & Brown, 2010;
Shachaf & Horowitz, 2008a). Only one study used 1400 transcripts and studied both IM (from
an MSN portal) and VR (from Library Services and Systems Inc) it studied the difference in
question classification, formality and patron satisfaction. This study had the librarians
answering patron queries either in IM *or* in log-in chat, not both at the same time, and patron
satisfaction was discovered through a survey (Rourke & Lupien, 2010). In this study the
librarians were answering both IM and log-in chat questions at the same time in the same
response portal. This helped lower the possibility of the librarian being in a different mindset
depending on which service they were assisting. Additionally, patron satisfaction was not self
reported by the user in this study it was discovered by the researcher through transcript analysis.

This researcher could find no study that analyzed chat transcripts with a main focus on the users perspective. This study did so in order to gain a better understanding of what the user wanted or expected of each service portal. As there are a number of online options available librarians need a better understanding of how their users are handling the services. This study's main focus was to discover if there is an inherent difference between IM and log-in chat reference transactions made by community college students.

Target Population and Sample

The targeted population for this study consisted of transcripts of online chats between reference librarians working within the OCLC Question Point service system and the patrons who utilized this service through the San Diego Mesa College web portal. The chat transcripts were from the calendar years of 2011 and 2012. There were 1,341 transcripts available that were created when an IM or log-in chat request was accepted by a librarian and an attempt at a conversation was made. Any abandoned chats that did not have an attempt at a two-way conversation were excluded from the sample that was studied. The final sample consisted of 320 transcripts. They were comprised of 160 transcripts from each calendar year 80 from each of those were from log-in chat and 80 were from the Qwidget portal.
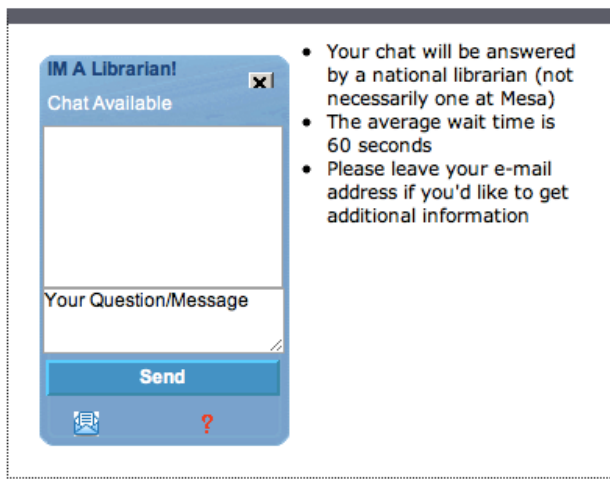
The Southern California Community College involved was San Diego Mesa College which had a full time equivalent (FTE) Enrollment as of Fall 2011 was 24,667, 58% of the population was between the ages of 18-24 with the second most prevalent age group of 25-29 years old coming in at 19%. Approximately 50% of students attending the college planned on transferring to a university for a four-year degree (San Diego Community College District Institutional Research and Planning, 2012). FTE for Fall of 2012 was 25,468, much like the previous year 57% of the population was between the ages of 18-24 with the second most

prevalent age group of 25-29 years old making up 18% of the population. Again, approximately 51% of students attending this college planned on transferring to a university for a four year degree (San Diego Community College District Institutional Research and Planning, 2013).

Data Collection and Instrumentation

The Reference and User Services Association (RUSA) of the American Library Association (ALA) defines a reference transaction as "information consultations in which library staff recommend, interpret, evaluate, and/or use information resources to help others to meet particular information needs." (RUSA, 2008). In this study transcripts were used from virtual reference transactions where the patron made at least one response to the librarians' initial greeting. There were 1,341 transcripts that were housed in a password protected OCLC Question Point databases. Each transcript was stripped of all identifying features and given a new identifying code prior to any analysis. The actual sample of transcripts to be analyzed had chats where the patron responded to the librarians greeting indicating that the call was not abandoned.

There were two forms of transcripts involved in this study. One was from the instant messaging (IM) portal. The library patrons accessed the instant messaging portal on the home page of the library website (see Figure 3)

Figure 3. IM chat window that was located on the home page of the San Diego Mesa College library website (2012).

The second type of transcript was taken from the transactions originating from the log-in Chat

portal: *Ask A Librarian* on the library website (see Figure 4).

Figure 4. The log-in chat portal that was located on the Ask A Librarian Page of the San Diego Mesa College library website (2012).

Analysis Process

The over arching goal for this study was to determine if there was an inherent difference between IM and log-in Chat reference transactions. The content of each transcript was analyzed for evidence of nine specific characteristics: session length, formality of the librarian, type of call, quality/depth of question, completeness/accuracy of the librarians answer, friendliness of the librarian, did the librarian give a reference interview and if so did it change, clarify or add a question? Did the librarian check for patron satisfaction? And, did the patron appear to be satisfied with the transaction? Once questions were coded in the HyperResearch™ software reports were run to determine if either portal displayed a stronger use pattern.

The *length of chat session*, was defined in this study as the amount of time a session took from the time the librarian answered the patrons initial query until the last contact in the chat session whether it was from the patron or the librarian. The system itself noted when the patron first logged on and posted their question and when the librarian closed the chat and posted a resolution code. This system generated time code however could not be used as is due to the fact that librarians don't always respond to queries as soon as they are posted nor do they post their resolution codes immediately upon ending the chat. The transcripts were manually reviewed to determine their actual length of time and were calculated by hand for accuracy.

Formality classifications were selected based on the work of a previous study by Westbrook (2007) who defined four levels ranging from *very formal* to *informal*. Westbrook described informality as being represented with abbreviations, acronyms, emoticons, slang, excessive punctuation, contractions, dropped punctuation, dropped words, or emphatic punctuation. Formality was defined by the opposite of the above, "express use of capitals, full sentences and complete words" (p. 643). Each transaction was carefully read for the nuances of formality or

lack thereof and coded accordingly in the HyperResearch™ software. Later, analysis reports were run to determine the formality of users in each portal.

Type of calls were defined using the Katz, Marsteller et al. question classification (as cited in Arnold and Kaske, 2005, p. 179). The question types were:

a) *Directional/General*: this is a general informational question. One that takes a negligible amount of time to answer, "the answer rarely requires more than geographical knowledge of key locations" (2005, p. 179). This also includes such general information questions as hours and wifi access.

b) *Ready Reference*: These are questions "that require only a single, usually uncomplicated, straightforward answer. The requested information is normally found without difficulty in standard reference works, ranging from encyclopedias to almanacs and indexes" (2005, p. 179).

c) *Specific Search*: Unlike ready reference questions that can be answered with a short piece of information from a reference book. A specific search needs more detailed materials such as a book or document to satisfy the query.

d) *Research*: "research questions differ from other inquiries in that most involve trial and error searching or browsing" (2005, p. 180) this is usually because the patron has not fully formed their query or narrowed their search so a larger amount of back and forth is involved to resolve the question.

e) *Holdings/Do You Own?:* This is when a patron is asking for a specific title of a book, journal, article, video or the like.

Each transaction was read by the researcher and categorized into at least one of these categories. On occasion the reference interview caused the patron to ask another question in that

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case it would be coded as a second question instance. This data was input into the HyperResearch™ software for analysis in order to determine if either portal had a larger number of questions in any one category.

Quality/Depth of the question classifications were created to determine which questions required the librarian to use more resources. There were five possible categories ranging from *query was simple/no need for probing* to *query was complex*. Also included was a category for *no query of note* because some transactions did not have a question that related to the library or research. These classifications were created by the researcher using 17 years of professional experience asking reference questions to library patrons. Each transaction was read and coded by the researcher to reflect the *quality/depth* of the question(s) that were asked by the patron. The coding was input into the HyperResearch™ software where a report was later ran to determine if either portal had more *in depth* questions than the other.

Eight categories were created in the area of *completeness/accuracy* to determine if the librarians were responding differently in either portal in terms of their answers to the patrons' query. The range of categories went from *librarian blew off question/sent to home library* to *librarian was thorough in their answer*. The researcher using the experience gained from five years of reviewing online reference transcripts also created these categories. Every transaction was read and analyzed by the researcher to determine the level of *completeness/accuracy* of the answer given by the librarian. They were coded and reports were run in HyperResearch™ in order to determine if the librarians answers were affected by which portal they were choosing to answer questions in.

Friendliness of the librarians during the reference transaction was described by RUSA in their behavioral guidelines as "effectively identify(ing) the patron's information needs in a

manner that puts the patron at ease" (2013, section 3.0) and to "communicate[s] in a receptive, cordial and supportive manner" (2013, section 3.1.1). Question Point trains their online reference librarians to "create a welcoming atmosphere" (2013, section 5). Librarian *friendliness* is a very important part of the reference transaction in terms of having a satisfied patron that will return to the service. In this study there were three classifications of librarian friendliness: *all business/no personality, moderately friendly* and *very friendly*. The researcher analyzed each transaction for the level of *friendliness* the librarian demonstrated to the patron and coded them into HyperResearch™ reflecting the level of *friendliness* that was displayed. Reports were run with this data to determine if the librarians acted differently toward the patrons in one portal than the other.

The *reference interview* is described by RUSA as "the heart of the reference transaction and is crucial to the success of the process" (2013, section 3.0). Virtually every reference question should have a reference interview of some kind but it is known that this does not occur in every transaction. In this study the reference interview was analyzed and coded into HyperResearch™ for each transaction in order to record if the librarians engaged the patrons more in one service than in the other. There were two initial categories in this area of coding, which were: *there was a reference interview; there was not a reference interview*. The researcher then took this query one step further by coding: If a reference interview was given did it *change, add or clarify the question.* This additional question was asked in order to discover if either portal created an environment that fostered additional information to be brought forth by the patron. When the reference interview did change, add or clarify the question it too was coded into HyperResearch™ as a separate category. Reports were run for both categories to determine how often the reference interview was given and if it effected the initial question.

Checking for *patron satisfaction* has also been called the *follow-up question* (Ross, Nilsen, & Radford, 2004). The follow-up question is usually administered to either find out if the user needs additional assistance or to discover if their needs have been met. Although the user does not always get an answer that they find satisfactory it has been found that simply asking the follow-up question can make the user feel better about the transaction (Nilsen, 2006). In this study every transaction was read to determine if the satisfaction question was asked and then recorded into the HyperResearch™ software by coding whether it *was* or *was not* asked. Reports were later run to determine if the librarian asked the follow-up question more in one portal than the other.

Lastly, there was a category to determine if the patron appeared to be *satisfied* with the outcome of the transaction. This category was created to discover if one of the portals seemed to have a more satisfied patron in general. Each transcript was coded as: *Patron seemed satisfied with the resolution, Patron seemed dissatisfied with the resolution, Patron had no satisfaction indication* or *Patron disappeared before the resolution*. The coding determination was then input into the HyperResearch™ software and later reports were run to determine if either portal appeared to have more satisfied patrons.

Reliability of the Coding Process

There were two phases of transcript analysis. First, the researcher gathered all transcripts, reviewed them for appropriate inclusion in the sample, removed any identifying information and transferred them into a Word document. The length of each transcript transaction was then determined and put into a spreadsheet in order to calculate the length of each transaction.

The second phase of coding began with the involvement of two other college librarians. Each had experience as a reference librarian and also had familiarity with qualitative analysis

procedures. Each of the nine research questions and their classifications were reviewed in-depth by each librarian to check for usefulness and validity. The process was conducted collaboratively so as to arrive at an agreement regarding how the transcripts would be coded. Once the research questions and classifications were decided upon the researcher coded each transcript using the HyperResearch™ software.

Assumptions of the Researcher

In order to analyze the transaction data and make general and definitive determinations certain assumptions were made by the researcher:

- The San Diego Community College online reference portal patrons were students, staff or faculty of said college.

- Patrons came to the online service portals knowing that they would be chatting with a librarian for information or research purposes

- That the librarians were properly trained in online reference protocols and proper reference interview techniques.

- That the San Diego Community College online reference patrons were characteristic of other community college communities.

Human Subjects' Considerations

This research was conducted using archival transcripts of chat conversations between patrons and online reference librarians from a single community college. It was conducted in compliance with federal and state guidelines for the protection of the welfare and dignity of human subjects (Department of Health and Human Services: National Institutes of Health: Office for Protection from Research Risks, 2005). All personal identifying information was redacted and removed from every transcript before any review or coding of content. Each transcript was

assigned a new transaction number so that the order could be maintained within the transcripts but not traced back to their origin within the database they came from.

The study met the criteria for exempt research due to the fact that there was no risk to individual students. Specifically, the research qualified based on Title 45 Code of Federal Regulations Part 46.101 subpart B section 4 [45 CFR 46.101(b)(4)]. There was always a chance that there could be a breach in procedure regarding the de-identification of the transcripts. Fortunately, the nature of these transcripts was neither sensitive nor related to personal or professional reputation or performance. Approval was received from the University's Graduate and Professional Schools' Institutional Review Board in May, 2013 (see Appendix B).

CHAPTER 4. RESEARCH FINDINGS

Studies regarding various aspects of academic library chat reference have been published since 2001 (Flagg, 2001) however the need to understand the patrons' response to different forms of online chat service has been generally overlooked by the academic research community. The purpose of this study was to examine if there is any inherent difference between IM and log-in chat reference transactions. The intended outcome of this research was to understand if there is a need to have both services at one institution or if one is more advantageous than the other. Understanding this outcome will assist both fiscally and operationally when administering online library research programs.

Sample Population

The study used transcripts created by the Question Point online chat service from the San Diego Mesa College IM and log-in chat portals. The reference transaction transcripts were chosen from the Spring terms of the years 2011 and 2012. The Spring term was selected due to the potential learning curve for both user and librarian in the Fall. It was more likely that both the librarians and the patrons would have experience with the reference chat system by the Spring thus giving the researcher a wider base of user knowledge. There would certainly be first time users in the Spring term but there was a greater likelihood that there would be a larger number of skilled users than in the Fall.

There were 1,341 total log-in and IM chat transcripts available in the Spring terms of 2011 and 2012. The transcripts for the study were chosen using a multistage stratifying process. Initially all transcripts from each Spring term were read to determine if they fit the criteria to be used in the study. Transcripts were excluded if the chat was abandoned before a two-way conversation could be started. Once the set of usable transcripts was created they were stripped of identifying information and numbered in order to distinguish each in a unique but anonymous

fashion. The final transcripts were chosen randomly by way of a number generator that can be found at http://random.org/lists. Three hundred and twenty total transcripts were chosen, 160 transcripts from each calendar year, 80 from each of those were from log-in chat and 80 were from the Qwidget portal.

The 320 transcripts used in this study were broken down into four groups of eighty (Table 1). One Qwidget group from 2011 and one from 2012 as well as one log-in chat group from 2011 and one from 2012. The years 2011 and 2012 were chosen because they were the most recent years available with a completed Spring term.

Table 1
Transcript Breakdown

	2011 Log-in Chat	2011 Qwidget	2012 Log-in Chat	2012 Qwidget	Total
Available	323	611	122	285	1,341
Usable	126	297	109	121	653
Chosen	80	80	80	80	320

The qualitative data from the 320 transcripts was analyzed using a qualitative analysis tool called HyperResearch™ (2012). This tool allowed the researcher to code and conduct analysis of data in a systematic and organized format. Using this software the researcher was able to create a "code book" that allowed for grouping of the classifications in each research question (see Figure 5). Each transcript was then individually read and coded for classifications from each research question which could later be organized and analyzed for frequency and themes. Two other librarians reviewed the code book and participated in a review of coded transcripts. Any discrepancies were discussed with modifications as needed to ensure a reliable process. A sample of a coded transcript can be seen in Appendix C.
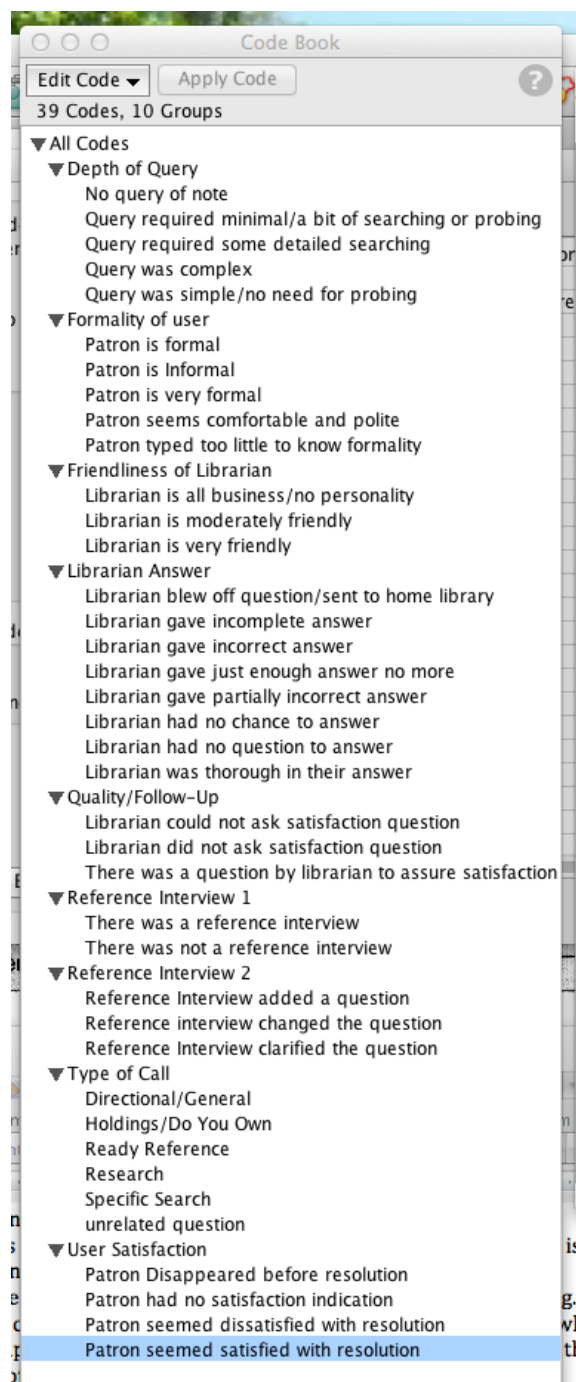
Figure 5. The Code Book Used to Analyze Qualitative Data

Research Questions

The central research question underlying this research is:

- Is there an inherent difference between IM and log-in chat reference transactions?

The specific sub-questions were:

1. What are the time parameters involved when using a particular service?

2. What is the level of formality of library patrons using each service?

3. Are there more heavily used "type of calls" in one service than in another?

4. What is the quality/depth of the questions being asked by patrons in each service?

5. Is there a different level of completeness/accuracy in the response of the librarian in either service?

6. Does the librarian respond differently (friendliness) to the patron depending on which service they are using?

7. Does the librarian give a reference interview more in one service than another? And if so does it add, change or clarify the question more in one service than another?

8. Does the librarian check with the patron for satisfaction in their query resolution more in one service than another?

9. Does the patron appear to have a higher level of satisfaction with the resolution of a query in one service than another?

Findings

Time spent in log-in chat and qwidget sessions. The time that was spent in either the log-in chat or Qwidget portals had an effect on all of the research questions. Actual time spent on-line varied on average between log-in chats and Qwidget sessions with log-in chats lasting more than five minutes longer than the Qwidget sessions (Table 2). The range for each log-in chat session (Table 3) was between 1 minute and 2 seconds to 59 minutes and 9 seconds (range =

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58 minutes and 9 seconds). The range for Qwidget sessions (Table 4) being 1 minute and 52 seconds to 51 minutes and 49 seconds (range = 49 minutes and 9 seconds). There was more variation in the log-in chat sessions with a standard deviation of 10.44 as opposed to the Qwidget which had a standard deviation of 7.44.

Table 2

Time in Qwidget and Log-in Chat Session Lengths (N=320)

	N	Time
Average Log-in Chat Session Time	160	14 minutes 09 seconds
Average Qwidget Session Time	160	9 minutes and 33 seconds
Difference	320	5 minutes and 24 seconds

Table 3

Time in Qwidget and Log-in Chat Session Ranges (N=320)

	N	Time	Range
Log-in Chat Session Range	160	1 minute and 2 seconds to 60 minutes	58 minutes 9 Seconds
Qwidget Session Range	160	1 minute and 52 seconds to 51 minutes and 49 seconds	49 minutes 9 Seconds

Table 4

Time in Qwidget and Log-in Chat Session Standard Deviations (N=320)

	N	Standard Deviation
Log-in Chat Session	160	10.44
Qwidget Session	160	7.44

User and librarian response to the portal environment. The way in which the

librarians and patrons responded to the portal environment was represented by the level of

formality of the patron and the degree of *friendliness* of the librarian.

User formality. The formality of an online reference session was rated using the scale by

Westbrook (2007) which defines four different levels ranging from *Very Formal* to *Informal* as

well as acknowledging that some exchanges would not provide sufficient information in order to

rate the actual level of formality (Table 5).

Table 5

Definitions of Patron Formality

Very Formal	Using full sentences, proper grammar and punctuation and showing respect to the librarian as an instructor not a peer.
Formal	Very polite, mostly correct grammar and punctuation.
Seems Comfortable and Polite	Treated the librarian with respect however as more of a helpful peer. Might have used some emoticons or slang.
Informal	Treats the librarian as a peer or tutor. Writes in a casual manner. Might use: slang, emoticons, abbreviations for multiple words, emphatic language.
Typed Too Little to Know Formality	Patron did not write anything that would put them in a formality category.

Table 6

Patron Formality in Sessions (N=320)

	Log-in Chat Sessions (N=160)		Qwidget Sessions (N=160)		
	N	Percentage	N	Percentage	Difference
Very Formal	0	0%	2	1%	1% More in Qwidget
Formal	46	29%	45	29%	No difference
Seems Comfortable and Polite	83	51%	49	30%	21% More in Log-in Chat
Informal	15	10%	16	10%	No Difference
Typed Too Little to Know Formality	16	10%	48	30%	20% More in Qwidget

There were only two sessions in the Qwidget portal that were rated as *Very Formal* and none in the log-in chat portal. There were an equal percentage of sessions rated *Formal* in both log-in chat and Qwidget and an equal rating for *Informal* exchanges. The only variations involved a higher percentage (21% higher) of log-in chat sessions being rates as *Comfortable and Polite* than the Qwidget sessions though it should be noted that there were 20% more of the Qwidget sessions deemed to have too little information in order to rate the level of formality (Table 6).

To illustrate these levels of formality numerous examples are provided. All study transcripts are copied as written in the chat, spelling and grammar were not corrected

Very Formal: *(from Qwidget case 10, 2012)*

> *Patron:* I would like to submit a request for a book I find interesting. May I do it using this media?
>
> *Patron:* The book is relevant as introduction to contemporary philosophy or art:
>
> *Librarian 1:* Hi! I am a librarian in xxx and I will be assisting you today. Your librarians have asked our librarians to staff this 24-hour service when they are unavailable. I am reading your question right now to see how I can help you.

Patron: Explaining Postmodernism: Skepticism and Socialism from Rousseau to Foucault (Expanded Edition) (Hardcover) by Stephen R. C. Hicks

Patron: Hello Ma'm!

Librarian 1: Since I could not find this in your catalog, you can request the book via interlibrary loan.

Patron: Wonderful! What do I have to do?

Librarian 1: I am looking though your policies page - still searching

Librarian 1: I did find a suggestion for purchase but that is not ususally the fastest option http://www.sdmesa.edu/library/suggest-purchase.cfm

Librarian 1: Here is the ILL page
http://libcat.sdccd.edu/hipres/sdccd/illservicepolicy.html

Patron: I'm sorry that I am taking so much of your time.

Librarian 1: Not a problem - does this help?

Librarian 1: I can refer this to your college reference librarians who can help you further.

Patron: Yes! thank you very much. Have a wonderful weekend.

Librarian 1: Can I help you with anything else?

Patron: You already did. Thank you!

Librarian 1: Thank you for using our service. If you need further assistance, please contact us again. Goodbye for now...

In this transcript the patron addressed the librarian as "Ma'am" and generally used correct spelling, grammar and punctuation. The tone is respectful, not casual. It is interesting to note that this is one of only two examples of a *very formal* chat in all of the 320 transcripts and it was in a log-in chat transaction.

Formal: (Qwidget Case 14, 2011)

> *Patron*: i lost my student ID would i get charged to get a new one?

> *Librarian 1*: Well, let me see if I can find that out.

> *Librarian 1*: Yes, it looks like there is a $5 charge:
> http://www.sdmesa.edu/admissions/csid.cfm

> *Librarian 1*: Is there anything else I may help you with?

> *Patron*: no that is it thank you very much

In this Qwidget transcript the patron is asking a straight forward Directional/General type of question. There is no indication that they want to be on familiar terms with the librarian nor is there any indication that they feel particularly comfortable in the IM environment. Full sentences are used and the patron closes the transaction with formal politeness

Seems Comfortable and Polite: (Qwidget case 42 from 2011)

> *Patron*: hi i wanted to know if i can check out a book 'aims of arguement'

> *Librarian 1*: Hello, I'm xxx, a librarian at xxx University, and I'm happy to help!

> *Librarian 1*: I'm reading your question now....

> *Patron*: oh thank goodness

> *Librarian 1*: :)

> *Librarian 1*: Are you a student at San Diego Mesa?

> *Patron*: i am a student at mesa college and dont have this text book (ordered online)

> *Librarian 1*: Oh, and so you want to see if anyone has it so you can borrow it?

> *Patron*: yes

> *Librarian 1*: okay, let me see what I can find first at your library

> *Patron*: if i can check it out at the library... sadly it seems like they have an old

edition...but its ok

Patron: i wanted aims of argument 7th ed... they have the 6th ed

Librarian 1: looks like there is a copy on reserve for ENGLISH 205

Patron: yes that is my course...

Patron: does that mean i can check it out?

Librarian 1: yes. you will only be able to have it for a limited time - a couple of hours, or overnight, i can't tell from the info

Librarian 1: let me send you the record from the library catalog

Patron: oh... ok... will go to the college and see...thanks

Librarian 1: what's your email address?

Patron: xxx@xxx.com

Patron: can i put it on hold?

Librarian 1: usually they don't allow holds, it's first come first served

Patron: ok... thanks... going rt away

Patron: bye

Librarian 1: does say "checked in" which is good.

Librarian 1: If you need further assistance, please feel free to contact us again. Thank you for using our service. Goodbye!

In this Qwidget transcript the librarian and patron chat back and forth in a friendly and comfortable manner. The patron uses phrases that make him/her seem at ease such as: "if i can check it out at the library... sadly it seems like they have an old edition...but its ok" and later when he/she states "ok... thanks... going rt away" capitalization is not used by the patron however punctuation is used regularly. The patron clearly seems comfortable with the format and is polite to the librarian.

Too Little To Know Formality: (Log-In Chat Case 79, 2011)
> *Patron*: how many books can i check out
>
> *Librarian 1*: Greetings! I am assisting your library by answering this service, let me find out the answer for you. One moment please.
>
> *Librarian 1*: The policies are on this webpage: http://www.sdmesa.edu/library/circulation.cfm
>
> *Librarian 1*: Looks like you can check out a maximum of 10 books for a two week period.
>
> *Librarian 1*: Is there anything else I can help you with today?
>
> *Patron*: thank you thats all
>
> *Librarian 1*: Thanks for using our service! Have a good night.

This Patron had one simple question which was answered fully and to the apparent satisfaction of the patron. There is simply not enough text written by the patron to know if they are formal, informal or comfortable with the service.

Librarian friendliness. In the Guidelines for Behavioral Performance of Reference and information Service Providers created by the Reference and User Services Association of the American Library Association; "friendliness" can be seen described in section 3.0 *Listening/Inquiring*. In it the Guidelines state:

> The reference interview is the heart of the reference transaction and is crucial to the success of the process. The librarian should effectively identify the patron's information needs in a manner that puts the patron at ease. Effective listening and questioning skills are necessary for a positive interaction (RUSA 2013).

The Guidelines continue in section 3.1.1 stating "Communicates in a receptive, cordial and supportive manner."

The Question Point Best Practices For 24/7 Reference Cooperative Sessions web page

states under the first bullet in section 5 *Interpersonal skills* "Create a welcoming atmosphere"

(2013).

Table 7 defines *friendliness* as it was used in this study.

Table 7

Definitions of Librarian Friendliness

Librarian is all Business/No Personality	This is when the librarian is the equivalent of monotone in their response to the patron.
Librarian is Moderately Friendly	This is when the librarian shows some empathy or interest in the patron and their needs.
Librarian is Very Friendly	This is when the librarian shows interest and/or empathy with the patron. The librarian might be reassuring or sympathetic in their responses.

Table 8

Log-in Chat and Qwidget Friendliness Frequency (N=320)

Librarian is	Log-in Chat Sessions (N=160)		Qwidget Sessions (N=160)		
	N	Percentage	N	Percentage	Difference
All Business/No Personality	79	51%	89	56%	5% more in Qwidget
Moderately Friendly	49	30%	59	37%	7% more in Qwidget
Very Friendly	32	19%	12	7%	12% more in Log-In Chat

Table 8 notes that in the *Librarian is All Business/No Personality* classification there is only a 5% difference between the transcripts in log-in chat and Qwidget. Additionally *Librarian is Moderately Friendly* is only slightly higher at a 7% difference. In the classification of Librarian *is Very Friendly* however there is a difference of 12% between log-in chat and Qwidget with log-in chat librarians getting the higher percentage.

Examples of the friendliness classifications are provided. Not all transcripts are represented in full. All study transcript examples are quoted directly with no corrections.

Librarian is all Business/No Personality: (from Qwidget Case 21, 2011)

> *Librarian 1*: …Do you have the book in front of you?
>
> *Patron*: no, i'm using online library catalog: Books and More
>
> *Librarian 1*: What are you being asked to do with the book bibliography and the index?
>
> *Librarian 1*: Are you asking about how to find a book with references and an index?
>
> *Librarian 1*: Or are you asking about how to find the references and index in a book that you're using?
>
> *Patron*: yes I'm asking about how to find the references and index in a book that you're using and learn to research books in the library web site
>
> *Librarian 1*: The references and index will be at the back of the book.
>
> *Librarian 1*: You'll use the library's online catalog to decide which books you want to use. Then, if it's a print book, you'll go to the library to get it. If it's an eBook, you'll access it through the library's catalog.
>
> *Patron*: thank you for your help

In this case the librarian is thorough enough but shows no empathy for the students confusion. The librarian does not reassure the patron that this question can be confusing as not all books have indexes. The patron received facts from the librarian, perhaps not enough facts, and they both moved on in a very matter of fact, efficient manner.

Librarian is Moderately Friendly (from Log-In Chat Case 4, 2012)

> *Librarian 1*: …Hi xxx! You can check library course reserves here:
>
> *Librarian 1*: http://libcat.sdccd.edu.libraryaccess.sdmesa.edu/ipac20/ipac.jsp?&profile=msrbr#focus
>
> *Librarian 1*: either search by course, or you can change the "course" selector and

search by professor's name instead

Patron: ok thank you. Doesnt look like any of my professors have books on reserve

Librarian 1: That's too bad. Can I help you with anything else?

Patron: thats it, Thank you

Librarian 1: You're welcome!

Librarian 1: Thank you for using our 24/7 Ask Us Now service. Come back again if you need help, we're always available. Goodbye.

In this transcript the librarian shows friendliness in the form of empathy by stating "that's too bad" and responding to the patron with "You're welcome!" and encouraging them to return if they need assistance.

Librarian is Very Friendly (from Log-in Chat Case 3, 2011)

Patron: Im trying to find a communication journal about personal relationships

Librarian 1: Let me see if I can help you. What do you mean by a "communication journal?

Patron: If thats not clear enough, the directions for the assiment reads as follows: find a copy of a journal article at the liberary that fits your interest in communication theory.

Librarian 1: And what kind of personal relationships.

Patron: any.... I guess.... the it says examples of communication journals : com education, com monograhps, personal relationships, journal of com, journal of language and social psychology, jornal of non verbal behavior

Patron: acutally I like the journal of non verbal behavior a

Patron: so either one will do

Librarian 1: Ok. Let's do this together. Let's go into the database EbscoHost.

Patron: ok

Patron: wait. how do i get there

Librarian 1: Are you at the Library's website?

Patron: ok

Patron: yes

Librarian 1: Click on the left hand side where it says ARTICLE DATABASES.

Librarian 1: Then select EBSCOHOST.

Patron: ok

Patron: got it

Patron: ok

Librarian 1: I am going to type in communication personal relationships and click on full text and click on scholarly articles or journals.

Patron: k

Librarian 1: Now I only retrieved one article and I don't think it is what you are wanting. So we need to select more specific terms. What do you want your article to be about?

Patron: non verbal behavior

Librarian 1: OK. let's type in non-verbal behavior.

Patron: ok

Librarian 1: Click on BASic Search and be sure to click on full text and scholarly journals.

Patron: k got some

Patron: the 1st one

Patron: deceptive responses

Librarian 1: How do they look to you?

Patron: so how do I find them?

Patron: great :)

Librarian 1: Please notice that the journal title is in italics.

Patron: yes

Librarian 1: You have them in full text if you clicked on the full text.

Patron: ok

Librarian 1: At each hit it will say PFD or Full tect. Just click on that and you will get the full text. Try it.

Librarian 1: Are you able to retrieve it?

Patron: yes

Patron: I want to print it but I dont have cash, is there anywhere I can get money back or atm?

Patron: or is there a hard copy I can look at?

Librarian 1: Let me check. By the way you can always e-mail the article to yourself.

Patron: yes ! I forgot about that hahaha

Librarian 1: To e-mail it to yourself, double click on the blue title. The option to e-mail it will be on the right hand side.

Patron: ok

Librarian 1: AS for the ATM, I don't see anything about it but you could call the Reference Desk at 619-388-2660

Librarian 1: Can I help you with anything else?

Patron: Nothing else, thank you youve been a great help!

Patron: Have a great day!

Patron: bye :)

Librarian 1: Good! Good luck with your paper.

This librarian was not only very helpful but patient. The statement "Ok. Let's do this

together" is reassuring to the student that they will not be left trying to figure it out for themselves. The librarian gave additional information to make the students future research easier by letting them know "By the way you can always e-mail the article to yourself". Lastly, the librarian showed personal interest in closing by stating "Good! Good luck with your paper."

Transaction content classification and quality/depth of question. The questions that were posed to the librarians were classified into six categories. Patron queries had varying degrees of depth meaning the query required the librarian to spend more or less time searching and retrieving information with the patron.

Classification of patron question. The patron transactions were classified into six different categories depending on what type of information was being asked.

The questions are defined and described in Table 9 using the Katz, Marsteller et al. question classifications (as cited in Arnold and Kaske, 2005, p. 179).

Table 9

Definitions of Question Classification

Directional/General	These questions were generally about the library building and services that were offered.
Holdings/Do You Own	This is when a patron asks for a specific journal or book title. It was also applied to more general holdings questions where the patron knew what they wanted but did not know the exact title.
Ready Reference	These are general reference questions that normally require a single source to answer such as an encyclopedia or almanac. There is not much searching necessary on the part of the librarian
Specific Search	Unlike ready reference this question requires a more detailed search and the answer comes from a more unique source such as a book or journal
Research	This question involves the most trial and error. Usually the patron has not fully formed their research question and needs the most assistance narrowing their topic and/or searching multiple sources for their needs.
Unrelated Question	This is a question made by the patron that is unrelated to the library or research.

Table 10

Qwidget and Log-in Chat Question Classification Frequency (N=3)

Patron is	Log-in Chat Sessions (N=160)		Qwidget Sessions (N=160)		Difference
	N	Percentage	N	Percentage	
Directional General	58	36%	75	47%	11% more in Qwidget
Holdings/Do You Own	15	9%	39	24%	15% more in Qwidget
Ready Reference	25	16%	14	9%	7% more in Chat
Research	29	18%	10	6%	12% more in Chat
Specific Search	31	20%	17	11%	9% more in Chat
Unrelated Question	2	1%	5	3%	2% more in Qwidget

Directional/General and *Holdings/Do You Own* Questions are generally the easier and more straight forward questions to answer. They were asked 26% more in Qwidget than in log-in chat. Subsequently the higher level question that require more searching and working with the patron: *Ready Reference, Research* and *Specific Search* were asked 28% more in log-in chat than in Qwidget. Unrelated Questions were only asked 2% more in Qwidget than in log-in chat. The questions that were unrelated to library reference service were only asked in 4% of the total transcripts (Table 10).

Excerpts of transcripts exemplifying the question classifications are provided. All study transcripts are copied as written in the original transaction, spelling, grammar and punctuation were not corrected.

> *Directional/General*: (*from Log-In Chat Case 26, 2012*)
>> *Patron*: "is there a way to renew my checked out books without coming into the LRC?"

> *Holdings/Do You Own*: (*from Qwidget Case 34, 2012*)
>
>> *Patron*: "Hi, can you tell me the link to find out if you have "Tibetan Book of the Dead for Reading Aloud" available for check out, not the reserve copy?"

> *Ready Reference*: (*from Qwidget Case 79, 2011*)
>
>> Patron: "how do u say butler in Spanish"

> *Specific Search*: (*from Log-In Chat Case 34, 2011*)
>
>> Patron: "where can i find an article from a medical journal on duchenne muscular dystrophy"

> *Research*: (*from Log-In Chat Case 41, 2011*)
>
>> Patron: "i need help researching about bottled water trends and overview"

> *Unrelated Question*: (*from Qwidget Case 24, 2012*)
>
>> *Patron:* If I took a class this semester, is it possible to take it again later?"

> ***Quality/Depth of patron query***. During the process of coding the type of questions for

their classification it was also important to find out if the librarian had to use more resources (i.e.

quality/depth) in one online portal than another when answering these queries. The

Quality/Depth classifications were created by the researcher using 17 years of professional

experience asking reference questions and are defined in Table 11.

Table 11

Definitions of Quality/Depth Question Classification

No Query of Note	The patron usually does not ask a question or asks a question that does not require an answer.
Query Was Simple/No Need for Probing	These Questions are straight forward such as Holdings/Do You Own.
Query Required Minimal/a Bit of Searching or Probing	These are Questions that require a few extra mouse clicks to answer such as Ready Reference.
Query Required Some Detailed Searching	These questions require some reference interview skills on the part of the librarian in order to get at the actual research need.
Query Was Complex	The complex query takes research and reference interview skills on the part of the librarian. These questions are often multi-layered and scholarly.

Table 12

Depth of Log-in Chat/Qwidget Question Frequency (N=320)

Query	Log-in Chat Sessions (N=160)		Qwidget Sessions (N=160)		Difference
	N	Percentage	N	Percentage	
None of Note	0	0%	4	2%	2% more in Qwidget
Was Simple/No Need for Probing	64	40%	84	53%	13% more in Qwidget
Required Minimal/A Bit of Searching	51	33%	54	34%	1% more in Qwidget
Required Some Detailed Searching	33	20%	14	9%	11% more in Chat
Was Complex	12	7%	4	2%	5% more in Log-In- Chat

The classifications of: *Query was Simple/No Need for Probing* and *Query Required Minimal/A Bit of Searching* were asked in 14% more in Qwidget transcripts than log-in chat. Whereas the classifications of: *Query Required Some Detailed Searching* and *Query was Complex* were asked 16% more in the log-in chat portal (Table 12).

Excerpts of depth classification questions from log-in chat and Qwidget Transcripts are provided. No change was made to grammar, spelling or punctuation.

No Query of Note: *(from Qwidget Case 25, 2012)*

Patron: there's a old man in the library that was watching porn! regulate!

Query Was Simple/No Need for Probing: *(from Qwidget Case 10, 2011)*

Patron: what is the process for checking out a book?

Query Required Minimal/A Bit of Searching: (from Log-In Chat Case 57, 2012)

Patron: I am looking for journals on sex addication and am kind of lost

Query Required Some Detailed Searching: (from Log-In Chat Case 72, 2011)

Patron: I have to write an essay about how social class affects children's success, but I can't find suitable articles...Can you please help me!!!! I use these words in my search: social class, children, success, kids, education, but they did not work.

Query Was Complex: (from Log-In Chat Case 72, 2012)

Patron: I am looking up the following: Origins of Sikhism (religion).

Librarian 1: I'd be happy to help you find some good articles

Patron: Also, Sikhisms relationship with Hinduism and Islam

In this last Query it is the last sentence that turns this reference question from relatively simple to complex. Although the question seems relatively straight forward there is quite a bit of researching necessary.

Completeness/Accuracy of a question and the reference interview. Once the *type* and *quality/depth* of the query was recorded it was important to look at how the librarian answered the question in each portal. Librarians are taught to give complete and correct information in

their reference question responses and the researcher wanted to study if the type of portal being used changed the *completeness/accuracy* of their response. Librarians are also taught to give a reference interview (discussed in chapter two of this study) in order to understand fully what the patron is truly asking for. The researcher studied whether the type of portal being used affected the librarians' ability to give a reference interview. Additionally, the researcher wanted to study if giving the reference interview *changed, clarified or added* a question to the transaction and if that happened more in one portal than another.

Completeness/Accuracy of the librarians' responses. A *complete/accurate* answer from a librarian fully answers the patrons query with information that can be verified. The *completeness/accuracy* classifications and their definitions (Table 13) were created by the researcher using the experience gained from five years of reviewing online reference transcripts for these characteristics.

Table 13

Definitions of Librarian Answer Completeness/Accuracy

Librarian Blew off Question/Sent to Home Library	This is when a librarian chooses not to go through with the reference interview process and instead sends the query to the home librarian to follow-up on at a later date.
Librarian Gave Incomplete Answer	This is when a librarian does not fully answer the question.
Librarian Gave Incorrect Answer	This is when a librarian does not give the patron the correct information.
Librarian Gave Just Enough Answer, No More	This is when the librarian answers the query but gives a minimal response when more could/should be shared with the patron.
Librarian Gave Partially Incorrect Answer	This is when a librarian gives some correct information and some incorrect information in their response.

(continued)

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Librarian Had No Chance to Answer	This is when the patron either disappears or finds the answer on their own before the librarian is given the opportunity to respond.
Librarian Had No Question to Answer	This is when a patron does not make a query that can be answered.
Librarian Was Thorough in Their Answer	This is when the librarian fully answers the patrons query or succession of queries.

Table 14

Log-in Chat and Qwidget Librarian Answer Completeness/Accuracy Frequency Average

(N=320)

Librarian	Log-in Chat Sessions (N=160)		Qwidget Sessions (N=160)		
	N	Percentage	N	Percentage	Difference
Blew Off Question/Sent To Home Library	4	3%	4	3%	No Difference
Gave Incomplete Answer	8	5%	16	10%	5% more in Qwidget
Gave Incorrect Answer	8	5%	3	2%	3% more in Chat
Gave Just Enough Answer and No More	25	15%	15	10%	5% more in Chat
Gave Partially Incorrect Answer	5	3%	3	2%	2% more in Chat
Had No Chance To Answer	3	2%	10	6%	4% more in Qwidget
Was Thorough In Their Answer	107	67%	107	67%	No Difference
Had No Question to Answer	0	0%	2	2%	2% more in Qwidget

There is no more than 5% difference in any *completeness/accuracy* classification in the

log-in chat and Qwidget portals (Table 14).

Excerpts from Qwidget and log-in chat transcripts are provided and give an example of the *completeness/accuracy* classifications in context as well as explanations regarding why that transaction was classified as it was. The transcript examples have not been changed in any way from the original.

> *Librarian Blew off Question/Sent to Home Library*: (*from Log-In Chat Case 21, 2011)*
>> *Patron*: …i also need to find the largest non clonal (mass) thing to have ever lived , and what is the longest living non clonal thing on earth ? and what they have in common where can i find that ?
>>
>> *Librarian 1*: I had a student with the same question last night is this a class assisgnment there is not much online about that?
>>
>> *Patron*: yes its a class assignment . well its more like one of many , our teacher gave us a list of things to find and those two are the ones ive [*sic*] been having most trouble with because i dont want to use google or any of those search engines
>>
>> *Librarian 1*: I would suggest you consult with your instructor about those questions, if you cannot find any information in the databases
>>
>> *Librarian 1*: I'd be happy to pass your question along to the local staff and have them email you back with an answer. Would you like me to do that? What's the latest date that you can use this information?…

In this case the librarian does not ask any reference interview questions that might assist in answering the question. The fact that the librarian had this question already and made little apparent headway is not an excuse to forgo the reference interview entirely. This student may have had more information about their topic that could steer the transaction to a successful conclusion but instead the librarian chose to end the chat and leave it to the home librarian to contend with.

> *Librarian Gave Incomplete Answer: (from Qwidget Case 14, 2012)*
>> *Patron*: i need some advice on this world and i need to research cultural knowledge
>>
>> *Patron*: here are the four words

Patron: Voracious ,Amorphous,Formidable,Immense,Genesis

Librarian 1: Have you tried the dictionary?

Patron: here is my explaination it was first week of classs and our english pro gave us this assignment to read on the most agnoying assiemt n then it told us some steps find four word u dont understand look up the definition n then guess n give me some cultural knowlege of it bla bla bla so i need help on that part i did the rest n i need to do one part!

Librarian 1: Which english class is this eg. eng100, 200, etc?

Librarian 1: It looks like an essignment one might receive in an philosophy or class on religion.

Librarian 1: If you have any experience in either of these areas, you might want to apply these words to that.

Librarian 1: What I can suggest to you is to look these words up in the Oxford English Dictionary, the 27 volume set which gives

Librarian 1: the etymology of words.

Librarian 1: This is where I would begin. By doing this you might find the various

Librarian 1: ways in which the word was used since it was created.

Patron: this is english 49

Patron: thnks so much

Librarian 1: Would you like me to locate a library in the area that has this reference book?

Librarian 1: We do have it at xxx in the reference area, first floor.

Librarian 1: Please feel free to come in and use it here in the library.

Librarian 1: Good luck with your paper and thank you for using our service.

In this case Mesa College library also had both the Oxford English Dictionary and an etymological dictionary available but the librarian did not check the library catalog to find them.

Librarian Gave Incorrect Answer: (from Log-In Chat Case 56, 2011)

> *Patron*: Hello there! I am xxx with CSID xxx. I am trying to renew my books since they are due last week and because I was so busy with three tests. I really still need the books for my research paper due next week. Is it possible that someone can renew them again and delete the fine of due to late returning….
>
> *Librarian 1*: Here is the information Renewals Current books may be renewed once unless a hold is already been placed on the book. Renewals may be made in person, by telephone (619 388-2696), or online
>
> *Patron*: ok , cool. I'll make a call
>
> *Patron*: thank you for helping me
>
> *Librarian 1*: You should be able to renew online by going to My Library Account in the library catalog
> http://libcat.sdccd.edu.libraryaccess.sdmesa.edu/ipac20/ipac.jsp?profile=ms#focus

In this case the college library policy also clearly states that overdue books can not be renewed. Therefore the student now has a full expectation that they can renew overdue books due to the information given to them by the librarian.

Librarian Gave Just Enough Answer and No More: (from Log-In Chat Case 29, 2012)

> *Patron:* …I no there is a link on my schools website for where i can have a couple of link like proquest, or access worlds news. theses are links that will help me type in a topic and it will bring up articles and news papers ect. to help me do research for my english paper…
>
> *Librarian 1*: you're a student at San Diego Mesa College?
>
> *Librarian 1*: http://www.sdmesa.edu/library/database.cfm
>
> *Librarian 1*: this is the page with the databases
>
> *Librarian 1*: you need to login with your CSID number and last name
>
> *Librarian 1*: is that what you were looking for?
>
> *Patron*: yes thank you very much…

In this case the librarian could have assisted the patron in narrowing down which

databases would be best for the English paper topic they were researching but they neglected to

ask if there was anything else they could do to assist the student.

> *Librarian Gave Partially Incorrect Answer: (from Qwidget Case 28, 2011)*
> *Patron*: …Hi, could you please tell me if the Biology, Concepts and Connections, 6th edition by Campbell [QH308.2.B56448 2008] is available for checkout?...
>
> *Librarian 1*:
> http://libcat.sdccd.edu.libraryaccess.sdmesa.edu/ipac20/ipac.jsp?session=12E65H 288C845.10312&profile=ms&uri=link=3100006~!287119~!3100001~!3100002 &aspect=basic&menu=search&ri=1&source=~!horizon&term=Biology+%3A+co ncepts+%26+connections+%2F&index=PALLTI
>
> *Librarian 1*: Yes the book is checked in
>
> *Patron*: How long can I checkout this book for?
>
> *Librarian 1*: Let me check
>
> *Librarian 1:* Their website does not say but here is a phone number to call 619-388-2696…

In this case the librarian did not check the website fully. The check-out policies are

clearly stated.

> *Librarian Had No Chance to Answer Question*: (from Qwidget Case 3, 2011)
> 14:01:11 *Patron*: …I am looking for some self help books i suffer from chronic depression
>
> 14:01:33 *Librarian 1*: Please give me a few moments while I search.
>
> 14:02:17 Patron: Patron ended chat session.

The time stamp clearly notes that the patron disappeared from the chat before the

librarian had the opportunity to answer the query.

> *Librarian Had no Question to Answer: (from Qwidget Case 76, 2011)*
>
> *Patron*: Qwidget: hello
>
> *Patron*: is anybody there?

Librarian 1: Welcome to the 24/7 Reference Service! Please give me a moment to read your question...

Librarian 1: Hi. My name is xxx and I am a librarian from the University xxx.

Librarian 1: How may I help you?

Patron: oh nothing. i just wanted to see if somebody was there,

Patron: well HAPPY VALENTINES day xxx :)…

Librarian was Thorough in Their Answer: (from Log-In Chat Case 1, 2011)

Patron: …do i need my student id to check the items out, or just my CSID?

Librarian 1: They ask for your student ID card

Patron: if i havent gotten one yet will i be able to check it out?

Patron: if i have my state id?

Librarian 1: Are you a current student at San Diego Mesa College?

Patron: yes

Librarian 1: Your library says: Staff and currently enrolled students use their CSID Card. If a student does not have their ID they can check out books by producing a copy of their class registration and a photo ID.

This was a simple question and the librarian answered it thoroughly with all available information for the patron.

The reference interview. Ross, Nilsen and Radford, in their book *Conducting the Reference Interview* (2009), define the reference interview as "purposive conversation between librarians and users in which questions are asked to get a clearer and more complete picture of what users want to know and to link users to the system" (p. 4). Later they state:

While the reference interview is a crucial tool for these novice users, it enhances the likelihood of receiving a helpful answer for *all* users. In short, you should give every user the chance to elaborate on the query; if it turns out to have been unnecessary, then no

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harm is done. (p. 5)

Table 15 describes how a reference interview was coded when there was, or was not, a reference interview.

Table 15

Definitions of Reference Interview Transcript Classification

There Was a Reference Interview	The Librarian asked at least one probing question to the patron.
There Was Not a Reference Interview	The librarian answered the question they assumed was being asked with no additional inquiry.

Table 16

Log-in Chat Reference Interview Frequency (N=320)

There was	Log-in Chat Sessions (N=160)		Qwidget Sessions (N=160)		
	N	Percentage	N	Percentage	Difference
A Reference Interview	112	70%	107	67%	7% more in Log-in Chat
Not a Reference Interview	48	30%	53	33%	3% more in Qwidget

Table 16 displays that a reference interview was conducted 7% more in the log-in chat portal than in the Qwidget portal. Subsequently a reference interview was not conducted 3% more frequently in the Qwidget portal.

Examples of the reference interview classification are taken directly from the transcripts with no corrections for spelling, grammar or punctuation.

There was a reference interview (from Qwidget Case 61, 2011)

> *Patron*: im looking for a historical atlas from the time periods of the beginning of civilization until the year 1700

> *Librarian 1*: Wow! Let's see what what we can find. Have you looked in the catalog?

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Patron: do you know where I can find a good one online?

Patron: no I havent. I dont even know where to start looking

Librarian 1: Are you at the Library's homepage?

Patron: yes i am…

The librarian responds to the patron's query with "wow!" acknowledging that their question is unusual and then the librarian asks a question in order to understand where to begin assisting the student. Later the librarian clarifies in order to get the patron to begin at the most advantageous place on the website. This example shows how a simple reference interview at the beginning of a reference transaction can put the patron at ease, clarify where they are in the process and get them started in a non-threatening manner.

There was Not a Reference Interview (from Log-In Chat Case 55, 2012)

> *Patron*: im am trying to do a research paper for english 101 and we need to get five sources. i no there is web page that gives me a few databases to choose from such as access world new, but i am having trouble finding this website.
>
> *Librarian 1*: Hi, I'm xxx, a librarian at xxx in xxx. I'm helping your librarians by answering questions for them. I am reading your question right now and will be with you in a minute. Thank you!
>
> *Librarian 1*: Let me see what I can find for you.
>
> *Patron*: ok
>
> *Librarian 1*: This is your college's list of databases:
>
> *Librarian 1*: http://www.sdmesa.edu/library/database.cfm
>
> *Patron*: yes
>
> *Patron*: this is the page thank you
>
> *Librarian 1*: No problem. If you need more help, please let us know.
>
> *Librarian 1*: Have a good evening.

This librarian did not get any background information about the assignment to assist the student in finding the databases that would work best. Nor did the librarian find out if the patron had ever used a database in which case they may have needed assistance in finding the articles needed. The closing of the chat was also abrupt. Instead of asking if there was anything else that could be done right now the librarian let the student know that they could come back later if they had any questions.

Reference interview adding, changing or clarifying the question. Once it was determined whether there was a reference interview the researcher investigated one step further to find out if the reference interview *added, changed or clarified* the original question being asked by the patron. Table 17 defines the three reference interview classifications.

Table 17

Definitions of Follow-up Reference Interview Classification

Reference Interview Added a Question	During the reference interview process the patron added another question to their query.
Reference Interview Changed the Question	During the reference interview process the patron changed their original question usually due to narrowing of topic.
Reference Interview Clarified the Question	During the reference interview process the patron clarified the original question to be more specific.

Out of 320 total transactions only 153 (86 in Log-In Chat and 67 in Qwidget) were noted as having added, changed or clarified the question that was asked. Table 18 and Table 19 break down those chats into the three categories of added*, changed or clarified* the reference interview question.

Table 18

Log-in Chat Reference Interview Added, Changed, Clarified Question (N=86)

	N	Percentage
Reference Interview Added a Question	7	8%
Reference Interview Changed the Question	5	6%
Reference Interview Clarified the Question	74	86%

Table 19

Qwidget Reference Interview Added, Changed, Clarified Question (N=67)

	N	Percentage
Reference Interview Added a Question	5	7%
Reference Interview Changed the Question	1	1%
Reference Interview Clarified the Question	61	92%

Table 18 and 19 display that only 53% (*n* = 86) of total log-in chat sessions and 41% (*n* = 67) of total Qwidget questions are represented in these tables. There is a variety of reasons that a reference interview may not be asked and therefore not added, changed or clarified e.g. *directional* or *holdings* questions are often too straight forward to need a reference question. In both the log-in chat and Qwidget portals the reference interview tended to *clarify* the question with *changing* or *adding* a question happening less than 5% of the time.

Transcript excerpts of *added, changed* or *clarified* questions are provided with an explanation for the reason for coding that question in that manner. There were no changes made to spelling, grammar or punctuation.

Reference Interview Added a Question (Log-In Chat Case 31, 2012)

> *Patron*: Chat Transcript: I am looking to possibly check out a book from Mesa College Library. I am looking for a book written by Nigel Davies, titled The Ancient Kingdoms of Mexico. I am not able to find anything online for this

author/title. Please help

Librarian 1: Hello, I'm a reference librarian at xxx College. Your library and my library are part of an international cooperative that staffs this chat service. I'm looking at your question right now.

Librarian 1: OK, let me do a quick search for this book at your college library catalog. I will be right back!

Patron: Great thank you!

Librarian 1: It appears that only San Diego Miramar College has this title and not at Mesa.

Librarian 1: At SD Miramar, they have 2 copies. One copy is missing and the other is checked out.

Librarian 1: Would you like me to check to see if any other libraries in your area carry this title?

Patron: Oh yikes!

Patron: No wonder why I am unable to locate a copy.

Patron: Are you able to see if local libraries have the book available?

Patron: That would be very helpful….

In this transaction the patron began wanting to know if their college library had a particular book. The librarian used the reference interview process to guide the patron to a possible copy at a local public library.

Reference Interview Changed the Question (Chat Case 52, 2011)

Patron: Is the LA times a great source

Librarian 1: Hi, I'm xxx in xxx. I will be helping you tonight. I'm reading your question now.

Librarian 1: Can you tell me more about your research topic?

Patron: tomorrow's America: Are college Students prepare to be stewards of our democracy, and with our budget deficit I was thinking about using the article in the times about the governor.

Librarian 1: I see that you have an assignment to work on. Can you tell me what grade this is for?

Patron: Bachelor of Science in Organizational Leadership at APU (Research Project)

Librarian 1: L.A. Times will be a good source, but there are other databases that may be useful to your research.

Librarian 1: So, are you a current student at both the San Diego Mesa College and APU? I am asking because you will need to be a current student to access an institution's subscription databases.

Patron: yes I'm

Librarian 1: Would you like me to start with San Diego Mesa College resources?

Patron: yes

Librarian 1: Please have your ID# handy to log in.

Patron: ok

Librarian 1: http://www.sdmesa.edu/library/database.cfm?type=5

Librarian 1: On the right side of the web page, there is a list of databases that covers multiple subjects. Since you are interested in newspaper sources, I would suggest you start with Proquest Newspapers.

Librarian 1: You may wish to use keywords such as:

Librarian 1: california budget deficit

Patron: I did that and that how I came up with the first question

Librarian 1: Did you mean how college students can prepare to be stewards of our democracy with California budget deficit?

Librarian 1: Are you there still?

Patron: No I did not but I like your ideal better can I use it.

Librarian 1: Yes, please feel free to use it. Just in case, would you like to share what you have in mind originally? I am asking so that you have a second, fall back research topic.

Patron: Students, are they prepared to be stewards of our democracy in the 21th Century

Librarian 1: I see.

Librarian 1: This is a really general topic. How do you plan to approah this topic?

Patron: to sharpen the focus I may use a combination of both:

Patron: I was planning on going back in history to the 1960's and talking about the student movements and asking the question are todays' students ready to run the country tomorrow

Librarian 1: That's sounds like a good plan.

Librarian 1: So, you are writing a persuasive/argumentative essay.

Librarian 1: http://owl.english.purdue.edu/owl/resource/685/05/

Librarian 1: You may find this site useful in helping you organize your arguments/facts.

Librarian 1: Do you think you have enough information to continue with your research?

Patron: I was plannings on talking about the former president and his involument with Eron and who Eron robbed CALPERS making employee of the state, children who maybe could pay now parents can pay

Patron: can not pay for college

Patron: Thank for the advice

The patron began the chat simply asking if a source was worth using. The reference interview changed the conversation to the content of the paper being written and narrowing of the topic.

Reference Interview Clarified the Question (Qwidget Case 11, 2011)

Librarian 1: Hello, I am a reference librarian working in cooperation with your library. What is your question?

Patron: i am majoring in architecutr

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Patron: architecture

Patron: i need some good resourses to research

Patron: are u still there??

Librarian 1: Let's go to your library's webpage at http://www.sdmesa.edu/library/index.cfm

Librarian 1: If you want books, we can go to the library catalog, and if you would like articles, we can go to databases.

Patron: i prefer online sourses

Librarian 1: Ok, click on Article and Reference Databases. Then on the left-hand side, there is a link to all the databases that cover architecture. Click on that.

Patron: and then which website is for architecture??

Librarian 1: All the databases listed on the right-hand side could be used to find architecture articles, images, etc.

Librarian 1: What are you looking for specifically?

Patron: i'm looking about light in architecture

Librarian 1: EBSCOhost, ProQuest, or JSTOR would be good.

Patron: great, thank you

Librarian 1: Then for different search terms, try: architecture AND light

Patron: ok

Librarian 1: public buildings AND light (if you are thinking of public buildings, if not.... buildings AND light

Librarian 1: structures AND light

Librarian 1: Terms like that. Is that enough to get you started?

Patron: yes that's awsome

Librarian 1: Great. Thank you for using our 24/7 Ask Us Now service. Come back again if you need help, we're always available. Goodbye.

The librarian could have simply pointed the patron to the databases listed under "architecture" however the reference interview process brought the librarian to ask "What are you looking for specifically" which allowed the chat to become more specific to clarify the students needs.

Patron satisfaction and librarian query for satisfaction. When a reference transaction appears to be complete the librarian should check for satisfaction in order to assure that the patron feels comfortable enough to use the information on their own. Additionally the patron may or may not appear to be satisfied with the transaction even if they positively responded to a satisfaction question. The researcher used this study to discover if there was any difference in either the asking of a satisfaction question by the librarian or the appearance of satisfaction by the patron in either portal.

Librarian query for satisfaction. *Satisfaction questions* are also known as follow-up questions. They are designed to be two fold, both to "invite the user to ask for additional help" or "to discover if the need has been met" (Ross, Nilsen, & Radford, 2009, p. 120). Table 20 defines the three classifications used in this study to determine if a *satisfaction question* was asked.

Table 20

Patron Satisfaction Question Definitions

Librarian Could Not Ask a Satisfaction Question	This is when the patron does not allow the librarian to ask a satisfaction question usually because they leave the portal.
Librarian Did not Ask a Satisfaction Question	This is when the librarian has the opportunity to ask the satisfaction question but chooses to close the chat instead.
There Was a Question to Assure Satisfaction	This is when the librarian asks a satisfaction question such as "is there anything else I can help you with?"

Table 21

Patron Satisfaction Question Frequency (N=320)

	Log-in Chat Sessions (N= 160)		Qwidget Sessions (N=160)		
	N	Percentage	N	Percentage	Difference
Librarian Could Not Ask a Satisfaction Question	32	20%	46	29%	9% more in Qwidget
Librarian Did Not Ask Satisfaction Question	57	35%	30	19%	16% more in Chat
There Was A Question By the Librarian To Assure Satisfaction	75	45%	84	52%	7% more in Qwidget

The librarians could not ask a *satisfaction question* 9% more often in the Qwidget than in the log-in chat portal. However, the log-in chat librarians did not ask a *satisfaction question* 16% more often then in the Qwidget. A *question to assure satisfaction* was asked close to 50% of the time in both portals however the log-in chat portal asked the question 7% more often (Table 21).

The transcript examples provided have the time stamp for each question or response given in order to clarify the librarians' ability to ask a satisfaction question. The transcripts are in their original state with no corrections to spelling, grammar or punctuation.

Librarian Could not Ask Satisfaction Question (from Log-In Chat Case 50, 2012)

16:27:31 *Patron*: Chat Transcript: Unable to access Psyarticles database (under Psycology). Are we having problems with the system?

16:28:38 *Librarian 1*: Hi! I'm a librarian at a different college.

16:28:48 *Librarian 1*: Just a moment, please, while I check.

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16:28:51 *Patron*: Hi, I'm trying to access Psyarticles database, but system won

16:30:14 Patron: still there?

16:32:35 *Librarian 1*: The database itself seems to be working - I just accessed it.

16:32:42 *Librarian 1*: What message did you get?

16:33:28 *Patron*: "Authentication failed due to a system error. Please close the browser and try again. "

16:34:41 Patron: I close browser and try again, but I get the same message.

16:34:53 *Librarian 1*: I was having that problem myself earlier. I was able to get in by using a different browser. Can you try using a different one?

16:35:12 Patron: which one?

16:37:19 *Librarian 1*: If you were using Firefox, try Internet Explorer or Safari. If you were using Internet Explorer, you can download Firefox for free and try that.

16:38:08 *Librarian 1*: Does that make sense?

16:38:18 *Patron*: I used internet explorer. Can't download firefox because I am at the library.

16:39:52 *Patron*: That's ok, I will just send a message to my teacher. Thanks for your help, though. I appreciate it. tks. bye.

16:40:05 *Patron*: Patron ended chat session.

Note the time coding on the transcript at the end of the transaction. The librarian asks the patron "does that make sense?" at 16:38:08 the patron responds at 16:39:52 and ends the chat within ten seconds of that response. The librarian did not have time to ask the patron if they could provide anymore assistance.

Librarian Did not Ask Satisfaction Question (Qwidget Case 46, 2011)

16:54:02 *Patron*: im new. how do i check out books and what do i need to do ?

16:55:31 *Librarian 1*: This should help you.
http://www.sdmesa.edu/library/circulation.cfm

16:55:48 *Patron*: could i just come in and check out books today?

16:56:35 *Librarian 1*: So if you are a current student with a student ID, it looks like that's all you need. You would check the books out at the Circulation Desk.

16:57:29 *Patron*: were is that located? i do have a student id

16:57:48 *Librarian 1*: Are you in the Library?

16:58:41 *Librarian 1*: Check out services are located on the first floor of the library.

17:01:17 *Librarian 1*: I would think you would see the Circulation Desk but if not the Reference Desk is on this floor and you could ask them where it is.

17:03:36 *Librarian 1*: Librarian ended chat session.

The librarian gave their last statement at 17:01:17 at that point they could have assisted the student in finding the book they needed to check out however the librarian chose to hold on the line for over two minutes and then end the chat with no additional assistance.

There was a Question By Librarian to Assure Satisfaction (from Log-In Chat Case 15, 2012)

14:15:57 *Patron*: I'm looking for a workbook of Chinese 101. I wonder where it's at

14:17:17 *Librarian 1*: Hi!

14:17:29 *Librarian 1*: I'm a librarian at a different college. Let me check.

14:18:34 *Librarian 1*: The workbook is on Floor 1 at the checkout desk, but seems to be in use.

14:18:53 *Patron*: sure

14:19:21 *Patron*: thanks anyway

14:19:30 *Librarian 1*: There's a link to Course Reserves on the main library home page, http://www.sdmesa.edu/library/. You can search for textbooks there.

14:20:14 *Librarian 1*: Did you have any other questoins? You can ask at the desk when it will be back.

14:20:51 *Patron*: thanks so much. that should be all I want to ask today

14:21:04 *Librarian 1*: OK. Thanks for using chat reference!

14:21:08 *Librarian 1*: Librarian ended chat session.

The librarian asked the patron "Did you have any other questoins [*sic*]?" this gave the patron an opportunity to continue the transaction with the knowledge that the librarian was willing to continue. The patron responded with "thanks so much. That should be all I want to ask today" affirming that they understood the librarian and was ready to end the chat.

Patron satisfaction. The purpose of the reference transaction is to answer the patrons query fully, satisfying the patrons need for assistance. This study endeavored to discover if the patrons appeared to be more satisfied with their outcomes in one portal than in the other. Table 22 defines the four patron satisfaction indicators used in the study.

Table 22

Patron Resolution Satisfaction Indicator Definitions

Patron Disappeared Before Resolution	This is when the patron ends the chat before the librarian has the chance to ask a satisfaction question.
Patron Had No Satisfaction Indication	This is when the patron does not respond in a positive or negative manner to the satisfaction question.
Patron Seemed Dissatisfied with Resolution	This is when the patron does not appear satisfied with the resolution of the transaction.
Patron Seemed Satisfied with Resolution	This is when the patron appears to be satisfied with the resolution of the transaction.

Table 23

User Satisfaction Frequency

	N= 160	Log-in Chat	N= 160	Qwidget	Difference
Patron Disappeared Before Resolution	20	13%	42	26%	13% more in Qwidget
Patron Had No Satisfaction Indication	9	6%	9	5%	1% more in Chat
Patron Seemed Dissatisfied with Resolution	10	6%	4	2%	4% more in Chat
Patron Seemed Satisfied with Resolution	121	75%	105	67%	12% more in Chat

Table 23 displays that patrons disappeared from the transaction before the librarian had a chance to ask a satisfaction question 13% more in Qwidget than in log-in chat. However when a satisfaction question could be asked the patron either *had no satisfaction indication*, *was dissatisfied with the resolution* or *showed satisfaction with the resolution* more in log-in chat than in Qwidget. Most notably the patrons seemed satisfied 12% more in log-in chat than in the Qwidget portal.

Examples of the study transcripts that exemplify the classifications of patron satisfaction are provided. Time stamps have been included in order to clarify the coding e.g. *patron disappeared before resolution* is more clear when one can see the time difference between the librarians' query and the patrons' lack of response or the call disconnecting.

Patron Disappeared Before Resolution (Qwidget Case 20, 2012)

> 13:54:46 *Patron*: Hi! I'm researching the play "The Doll House". Do we have a copy of the script in the Mesa Library?

> 13:55:34 *Librarian 1*: Hello, I am a reference librarian working in cooperation with your library. I am reading your question now, one moment.

> 13:55:52 *Librarian 1*: I'll take a look, one moment...

13:56:39 *Patron*: thank you

13:57:19 *Librarian 1*: I only have "a doll house" by Ibsen,

13:59:24 *Patron*: yes that is the one

14:00:12 *Patron*: where can i find it/

14:00:17 *Patron*: ?*

14:00:41 Librarian 1: Yikes, it is at City college...

14:02:37 Librarian 1: You can go to City and check it out or go to Mesa and have the librarian at the reference desk order it for you to be sent to Mesa

14:05:09 Librarian 1: Are you still there?

14:06:35 Librarian 1: If you would like to get the book from City College Library the play is in a book that has a few plays in it. The title is "The Complete Major Prose Plays" by Ibsen, Henrik

14:07:46 *Librarian 1*: Since I haven't heard from you in a while, I'm going to end this session. Thank you for using the library's chat service. It has been a pleasure to help you. If you need more help, please don't hesitate to try us again.

14:07:49 *Librarian 1*: Librarian ended chat session.

In this transaction the patron was last heard from at the time code stamp 14:00:41. The librarian assumed that they were still there but simply not responding and answered the question fully. At the point when they may have asked if there was any additional assistance needed the patron had not been heard from for approximately seven minutes. The librarian then informed the patron that they were going to end the session. In this transaction the patron clearly disappeared before the librarian had time to be assured that they had fully assisted the patron or that they were satisfied with the outcome of the transaction that had transpired.

Patron Had No Satisfaction Indication (from Log-In Chat Case 16, 2012)

09:42:07 *Patron*: Chat Transcript: I have to do a paper in MLA ? is there a template? where do i start?

09:43:02 Librarian 1: Hello - my name is xxxl. I'm a reference librarian at xxx. Your library and my library are part of a nationwide cooperative that staffs this chat service. I'm looking at your question right now.

09:43:33 *Patron*: THANKS

09:44:53 *Librarian 1*: The Purdue OWL: MLA Formatting and Style Guide provides an excellent outline of citation format, as well as layout examples. Here's the URL: http://owl.english.purdue.edu/owl/resource/747/01/

09:46:34 *Librarian 1*: Also check this handy MLA citation guide from Southwestern College: http://www.swccd.edu/~library/Docs/MLAFormat2011.pdf

09:48:45 *Librarian 1*: Is there anything else I can help you with?

09:49:05 *Patron*: Patron is no longer connected.

 09:49:23 *Librarian 1*: Librarian ended chat session.

In this transcript the patron was present at 9:43:33 with the response of "THANKS". The librarian proceeded to answer the question for the next five minutes with no response from the patron however the system did not note that the patron was no longer connected until 9:49:05. By that time the librarian had asked if there was anything else they could assist with however since the patron was no longer connected there is no way to know if the patron was satisfied with the transaction.

Patron Seemed Dissatisfied with Resolution (from Log-In Chat Case 11, 2011)

17:00:54 *Patron*: Chat Transcript: how can I get my password for wireless connection while at Mesa College

17:01:18 *Librarian 1*: Hello, my name is xxx. One moment while I pull up your library site...

17:02:03 *Librarian 1*: Hello xxx, let me check your library's website to see if there is information for that...

17:02:51 *Patron*: I went there... it gives me an option to retrieve it but when I try it doesn't take me to the next window

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17:03:17 *Librarian 1*: Can you tell me which page you were looking at?

17:03:53 *Patron*: let me pull it up...

17:04:10 *Librarian 1*: Okay, I see a page about Mesa Wireless Netowrk Access... http://libcat.sdccd.edu/hipres/sdccd/wifi.html

17:04:15 *Librarian 1*: This one, right?

17:04:48 *Librarian 1*: I am having trouble with it directing to the next window, too... just a moment...

17:04:58 *Librarian 1*: Are you on campus?

17:05:07 *Patron*: well I went to LRC/Library then LRC WiFi

17:05:26 *Patron*: not yet1

17:05:52 *Patron*: I'll be on my way shortly but I thought I try to set it up before I get there

17:06:29 *Librarian 1*: The page I showed you earlier says "The Mesa College wireless password is available from campus computers only."

17:06:44 *Patron*: it tells me it has problems loading the page

17:06:45 *Librarian 1*: So I think it would be best to try again when you are on-campus.

7:07:31 *Patron*: understand that... but without internet I won't be able to access the page

17:08:03 *Librarian 1*: But you will be able to ask library staff once you get there. Check at the reference desk when you arrive and the librarian should be able to assist you.

17:08:45 Patron: nevermind... the library is at the other side of campus... from where I take classes

17:09:10 *Patron*: if it's the only way I don't think I'll be able to access it...

17:09:15 *Patron*: you thou

17:09:41 *Librarian 1*: My suggestion is to check once you get to the library

17:09:48 *Librarian 1*: Let me see if I can get you a phone

17:09:54 *Librarian 1*: number to contact

17:09:58 *Librarian 1*: just a moment...

17:10:23 *Patron*: like I said the library is to far from where I take classes... it's ok, I have a brochure

17:10:34 *Patron*: no worries, got to go to class

17:10:39 *Patron*: thanks

17:10:45 *Patron*: Patron ended chat session.

17:10:48 *Librarian 1*: Okay, I'm sorry I couldn't be of more help.

17:20:49 *Librarian 1*: Thank you for using our online reference chat service. Feel free to revisit us anytime you need assistance with your research. Bye for now.

Patron Seemed Satisfied With Resolution (from Qwidget Case 29, 2011)

16:46:51 *Patron*: Hello! I'm new to this school. My question is, would one use his/hers school ID to check out the book? or is there a separate "library card".

16:51:24 *Librarian 1*: I am with another library. But I can help you. Let me check the policy.

16:52:14 *Librarian 1*: Staff and currently enrolled students use their CSID Card. If a student does not have their ID they can check out books by producing a copy of their class registration and a photo ID.

16:53:04 *Librarian 1*: So you use your San Diego Mesa College ID card.

16:53:30 *Librarian 1*: Can I help you with anything else?

16:55:45 *Librarian 1*: Are you still there?

17:06:19 *Patron*: Sorry about that! Thank you so much for you in depth help!

17:06:45 *Patron*: I have another question: How do I put a hold on a textbook in course reserves and how long is the maximum check-out time for books in course reserves?

17:25:04 *Librarian 1*: Are you still there?

17:26:52 *Librarian 1*: It is a two-hour loan for most materials. I'm not sure if you can reserve a reserve book. Call the Reserve circulation desk at 619-388-2696. They can answer that question.

17:28:44 *Patron*: Ok thank you very much for your help =) I will call that number tomorrow!

17:28:59 *Patron*: Patron ended chat session.

Summary

This study examines two forms of online library reference software portals in an effort to understand if there is any inherent difference between the two making one more advantageous in the academic library setting than the other. Generally the log-in chat portal was found to have; more lengthy chats, more a reference interviews conducted, librarians were more "friendly" to the patrons and the patrons appeared to be more satisfied with their overall transaction. The questions asked in the log-in chat portal were more complicated and required more in depth answers than in the Qwidget portal as well. The portals were generally the same in the areas of: patron formality, completeness/accuracy of the librarians answer, and the reference interview adding, changing or clarifying the patrons' question. This chapter included the findings and Chapter 5 presents a discussion of implications conclusions and recommendations.

Chapter 5. Study Implications, Conclusions and Recommendations

Libraries around the world have had to drastically change the way they do business in the technological age. One important aspect of library services is the reference transaction. In these transactions library patrons query librarians regarding library services and research assistance. As librarians have changed the way they handle reference transactions by using new technologies they have had to adapt and make decisions regarding which software is worth continued use. These decisions are made for both fiscal responsibility and service improvements.

Online reference services have grown with the online communities that are now a part of our everyday culture. Two forms of online reference service portals have become the most widely used and they are; instant messaging (IM) and log-in chat. Librarians are faced with the decision of offering one, both or neither service at their institutions. The decision making process for choosing which service is most advantageous has been generally haphazard at best. There is research available regarding the services individually and librarians responses to the two services but there is very little in the available literature that speaks to which service might best serve a particular group of library patrons or which service the patrons respond best to other than in popularity. This study was created to fill that gap.

Conceptual Support

The Reference and User Services Association (RUSA) states that a reference transaction is an: "information consultations in which library staff recommend, interpret, evaluate, and/or use information resources to help others to meet particular information needs" (RUSA, 2008). As the internet has become a popular place for people to find the answers to their everyday questions the library reference desk has seen a decline in the face-to-face reference transactions (Broughton, 2001; Coffman, 1999; Coffman & McGlamery, 2000; Helfer, 2001; Lipow, 1999; Oder, 2001; Saunders, 2001; Tenopir & Ennis, 1998; Wilson, 2000). Although Head &

Eisenberg (2010) found that even in 2010 college students felt confident in their web searching skills they continued to have difficulty researching their assignments and narrowing their topics in a way that allowed them to feel confident in their outcomes. Web resource availability causing "*disintermediation*, where library users seek and retrieve information without the assistance of the librarian" was nothing new in the field of academic library research having been discussed as early as 2003 by Agee and Antrim (p.477). Part of the issue was knowing why the patrons were not utilizing the library resources. Lewis and DeGroote (2008) determined that students were more likely to use the online library resources if there were more access points on the library and institution web pages. Once the student found the online library resources it was important that they felt welcome and that assistance was available to them if needed. In an effort to help librarians with their online reference transactions RUSA updated their widely accepted *Guidelines for Behavioral Performance of Reference and Information Service Providers* in 2004 to include online reference services (2004b) as a guide to improve and maintain successful interactions.

As online use became more ubiquitous in peoples daily lives librarians needed to figure out what online reference services would best serve the needs and preferences of their patrons. Instant Messaging (IM) was an ever growing area of online communication that was worth considering. *The Pew Internet and American Life Project* determined in 2004 that Millennials (people between the ages of 18-27) were using IM 46% more frequently than email for their online communication needs. By 2011 "95% of 18-29 year olds use the text messaging feature on their phones, and these users send or receive an average of 87.7 text messaged on a normal day" (Smith, p. 3). Some libraries had already started studying the use of IM for reference transactions as early as 2000 (Fagan & Calloway 2001; Foley 2002; Ruppel & Fagan 2002).

Therefore it may not be surprising that studies reported that the libraries that incorporated IM in their library reference offerings found their statistics for use went up (Bedwell, Rodrigues, Duggan, & Orlov, 2008; Breitbach, Mallard, & Sage, 2008; Doan & Ferry, 2007; Foley, 2002; Stahr, 2010).

One hurdle the online reference librarian needed to tackle was to appear *approachable* or *friendly*. In the RUSA *Guidelines for Behavioral Performance of Reference and Information Service Providers* it was explained that:

> the behaviors exhibited by the staff member should serve to welcome the patrons and to place them at ease. The librarian's role in the communications process is to make the patrons feel comfortable in a situation that may be perceived as intimidating, risky, confusing, and overwhelming. (RUSA, 1996, section 1.0)

Whereas one might consider the anonymity of the online reference transaction a hindrance Desai's research discovered that it was actually an advantage in the IM transaction as long as the patron was made to feel at ease by the librarian due to their availability and approachability (2003).

IM was not the only form of online reference that was being tested in the late 20th and early 21st century. Log-in chat reference was also being used as a means to communicate with patrons. In this form of online reference the patron needed to fill out an *intake* form with all of their basic information including their question; which was then forwarded to the librarian allowing them to know what the question was before choosing to answer it. Additionally in the log-in chat service the patron had the ability to get a transcript of the transaction emailed to them upon completion, which was not available in the IM platform.

Although the bulk of online reference research was conducted on either IM or log-in chat software separately (Blank, 2002; Francouer, 2001; Radford, Connoway et al., 2011; Ward, 2004). Some articles did emerge that looked at both mediums. These studies found that the IM platform was more popular than log-in chat (Bedwell et al., 2008; Doan & Ferry, 2007; Houghton & Schmidt, 2005). However those studies were based solely on the popularity of the service. None looked at factors such as: the type of transactions that were being answered, the accuracy of the transactions, the friendliness of the librarian or the satisfaction level of the patron. A study by Breitbach et al. (2008) resulted in their academic institution choosing an IM client over log-in chat however they had the added result of looking at time spent in each service and discovered that the IM transactions were significantly shorter unfortunately they had not investigated the potential reasons or effects of this outcome. One additional study was found (Cole, 2010) using the same online reference tools being used in this study: Qwidget (IM) and log-in Chat from OCLC Question Point. Cole found that the IM transactions were shorter however the researcher was able to add that those questions did tend to be less in depth. Unfortunately that study took place during a short two and a half week period beginning with the first day they added the Qwidget to a prominent place on their website so it was still a novel concept to their student body. It also took place at the very end of the semester, potentially changing the nature of the questions being asked by the patrons (Cole, 2010).

For this study great care was taken to look at all aspects of the reference transaction in order to determine which form of online reference service, if any, was best serving the patron. RUSA's (2013) guidelines were used to create many of the research questions in this study as they have been proven to help create the welcoming environment that often fosters a successful reference transaction. Primarily they state that a librarian should follow certain interpersonal

communication skills such as: Approachability, Interest, Listening/Inquiry, Searching and

Follow-Up (2013) in order to have a more satisfied patron and successful transaction. It has also

been found in previous research studies that a librarian: probing for the actual information

needed, showing interest and being attentive, making the patron feel comfortable and asking

follow-up questions to verify that the patron found what they were requesting had a significant

impact on the accuracy of a face- to-face transaction (Gers & Seward, 1985; Crews, 1988).

Methods

The research design used in this study was exploratory. Transcripts of reference

transactions from community college students in two different web portals were examined. The

study focused on finding possible relationships among factors as they influenced and interacted

with each other. Additionally, this study was retrospective as the data involved electronic library

reference transcripts from 2011 and 2012.

The target population for this study consisted of transcripts of online chats between

reference librarians working within the OCLC Question Point service system and the patrons

who utilized this service through the San Diego Mesa College web portal. There were 1,994

transcripts available for use in the analysis for this study. From that pool 320 transcripts were

chosen which were comprised of 160 transcripts from each calendar year 80 from each of those

were from log-in chat and 80 were from the Qwidget portal.

Research Questions

The central research question underlying this research was:

- Is there an inherent difference between IM and log-in chat reference transactions?

The specific sub-questions were:

1. What are the time parameters involved when using a particular service?

2. What is the level of formality of library patrons using each service?

3. Are there more heavily used "type of calls" in one service than in another?

4. What is the quality/depth of the questions being asked by patrons in each service?

5. Is there a different level of completeness/accuracy in the response of the librarian in either service?

6. Does the librarian respond differently (friendliness) to the patron depending on which service they are using?

7. Does the librarian give a reference interview more in one service than another? And if so, does it change, add or clarify the question more in one service than another?

8. Does the librarian check with the patron for satisfaction in their query resolution more in one service than another?

9. Does the patron appear to have a higher level of satisfaction with the resolution of a query in one service than another?

The qualitative data from a total of 320 transcripts was analyzed using software called HyperResearch™ (2012). This tool allowed the researcher to code and conduct analysis of data in a systematic and organized format. Using this software the researcher was able to create a "code book" that allowed for grouping of the classifications in each research question (see Figure 5). Each transcript was then individually read and coded for classifications from each research

question which could later be organized and analyzed for frequency and themes. The characteristics for analysis were reviewed by two college librarians with experience as reference librarians and with qualitative analysis procedures.

All research was conducted in compliance with federal and state guidelines for the protection of the welfare and dignity of human subjects (Department of Health and Human Services: National Institutes of Health: Office for Protection from Research Risks, 2005). All personal identifying information was redacted and removed from every transcript before any review or coding of content. Each transcript was assigned a new transaction number so that the order could be maintained within the transcripts but not traced back to their origin within the database they came from. The study met the exempt criteria for research due to the fact that there was no risk to individual students.

Key Findings & Study Conclusions

Many findings in this study hinged on the fact that log-in chat transactions were significantly longer on average than Qwidget transactions. The length of the transactions allowed certain other key qualities to become more evident in the log-in chat portal. These include:

- Questions were 12% more complicated

- The librarians responses were 5% more complete/accurate

- Librarians were 18% more friendly

- Patrons showed overall satisfaction 12% more than in Qwidget

- Ability to conduct a reference interview 7% more often

The two portals were very similar in three aspects:

- Patron Formality

- Completeness/Accuracy of the librarians answer

- The reference interview adding, changing or clarifying the patrons question

Conclusions of the study are grouped based on the length of transaction, formality of chat, similarities of the portals and similarities between online and face-to-face transactions

Conclusion 1: Longer online reference transactions have better overall outcomes. It has been stated that Chat transactions were an average of 5 minutes and 24 seconds longer than Qwidget transactions in this study. This additional length affected five categories positively in the log-in chat portal (see Key Findings above). Each of the five categories are representative of the implied fact that a longer chat creates additional rapport and allows the librarian and patron the luxury of slowing down and being thorough with both the content provided during the transaction and the way the two interact with each other on a more personal level.

There has been only one other study that looks at both IM and log-in chat regarding the length of transaction. It focused mainly on the area of *subject content* or type *of question* in each portal. The major difference with their study and this one is that it used both undergraduate and graduate students at a four year university whereas this study used transcripts from a community college. Additionally their IM and log-in services came from two different vendors and therefore were not a complete apples to apples statistical comparison. Although Ward & Kern (2006) did find that their log-in chat transactions were an average of 55% longer than their IM chats they also found that the IM portal was used 90.5% by the undergraduates (as opposed to graduate students and staff/faculty). This may account for the fact that their IM transactions were more in depth than their log-in chat portal questions as "undergraduates tend to ask more subject-based questions, whereas graduate students (who typically have a more sophisticated starting point for research and also research techniques such as searching bibliographies, which provide them with citations in hand) have more known-item searches " (2006, p.424). Their log-in chat portal was

used almost equally by the graduates and undergraduates (39% undergraduate to 37% graduate) and there was no breakdown of question classification by graduate and undergraduate level. In order to compare Ward & Kern's study more completely with this one the researcher would need to see a breakdown of the undergraduate IM and log-in chats separated from the graduate students. That information was unavailable.

Using this study and what can be taken from Ward & Kern it is recommended that both IM and Chat portals be made accessible to community college students as they appear to use both portals for different purposes. This study showed that community college students use the IM portal for less complicated and quick questions. Whereas Ward & Kern show that undergraduates prefer the IM portal in general for most of their transactions, many of which were more complicated than those generally asked by the community college students in this study. Log-in chat transactions in this study were generally longer and were overall more successful. By choosing one portal over another an academic institution would potentially cut off part of a population they are trying to serve. It would only be advisable to choose a single platform if one had patrons that had only one type of need (i.e. holdings/do you own questions = IM, research questions = log-in chat)

There are few studies that have been done using both IM and log-in chat portals and only one other dealing with length of transactions. Clearly more research needs to be done in this area for both community colleges and four year institutions. The studies would imply that there are some differences between the way community college students use the two portals and the way four year university undergraduates use the portals. In order to have a more reliable pool of results additional studies must be undertaken.

Conclusion 2: Instant messaging portal queries are less formal than log-in chat queries. Qwidget transactions were found to be shorter and therefore less detailed. Additionally the Qwidget patrons disappeared from the transaction more often before a resolution could be made regarding the question. This would imply that the Qwidget patron did not feel they needed a formal ending to the chat before they discontinued it. The log-in chat patrons were found to be more *comfortable and polite* in their sessions which may have to do with the fact that they tended to have longer transactions which therefore gave both parties the time to create a rapport. Although the Qwidget and log-in chats were technically equal regarding the coding of *informality* when the researcher combined that information with the fact that Qwidget patrons regularly did not finish their transactions it was concluded that IM patrons were less formal overall than the log-in chat patrons.

Rourke & Lupien's 2010 study of both IM and log-in (Virtual Reference, VR) chat reference found that "VR questions tend to be more research intensive and formal, while IM questions are less focused on academic research and informal." This is similar to the research that found that instant messaging in general is treated as an informal means of communication (Rosen, Chang, Erwin, Carrier, & Cheever, 2010; Tagliamonte & Denis, 2008; Ward & Kern, 2006). In this study it appears that patrons were not actually using a great deal of informal language it is more accurate to state that they were using informal behavior. Further implying that if the students are not treating this particular medium in a linguistically informal manner, they also do not want unsolicited informal treatment by the librarians. It is common practice to train online reference librarians to use informal language with patrons such as acronyms (e.g. brb for be right back) or emoticons (e.g. ☺ for a positive signal). This training is based on the fact that online texting is found to be informal in other settings however there has been no previous

study that looks at online reference text by patrons. The results of this study warrant a recommendation that future training of online librarians encourages a comfortable formality and only mimic informal language when prompted by the patron.

Conclusion 3: Librarians give reference interviews and complete/accurate answers equally in both platforms. There were some categories in this study that returned a result of similarity between both portals. Meaning the patron treated each portal in a similar matter. *Informality* has already been discussed. Additionally the areas of *completeness/accuracy* and the *reference interview* being giving were found to have similar results in both portals.

Historically these are two categories that have never been studied in the areas of IM *and* log-in chat reference so there is little to compare them too. Radford & Connoway (2007) conducted a study using only log-in chat transcripts and found that when a librarian chose to give a reference interview with a millennial patron it boosted the accuracy of the librarians answer by 75%. This study did not replicate that finding as there were no comparisons between the accuracy of an answer when a reference interview was or was not asked however reference interviews were asked in both portals approximately 70% of the time and librarians were thorough in their answers an average of 67% of the time in both portals so this study did represent a relatively high number of accurate answers as well as a high number of reference interviews given by librarians.

It is recommended that more studies look directly at online transactions that have reference interviews and if those particular transactions have more accurate answers. The implications from this study is that the librarians treat both portals equally in the areas of the reference interview and completeness/accuracy of librarians' answer which is what is to be expected as that is a major part of librarian training for manning the face-to-face reference desk.

Conclusion 4: Online and face-to-face reference transactions have a similar success rate. The *reference interview* remains the most important part of the reference transaction whether it be online or face-to-face. In this study online reference interviews were given 68.5% of the time. Face-to-face reference interviews are, on average, given 75% of the time (Ross, Nilsen, & Radford, 2009). It is well documented that the addition of a reference interview in a reference transaction creates a more successful and accurate outcome for the patron (Gatten & Radcliff, 2001; Saxton, 2000; Schaachaf & Horowitz, 2008a). Therefore these percentages of reference interviews in the online arena again disprove Hernon & McClures (1986) landmark claims that librarians are only accurate 55% of the time. Additionally, In this study over 85% of the time in both Chat and Qwidget when a reference interview was asked it clarified the patrons' original question. This is what the reference interview is designed to do and is what happens in the face-to-face environment (Ross, Nilsen, & Radford, 2009).

This implies that librarians are treating the online reference environment the same as they treat the face-to-face environment in terms of conducting the reference interview process. Furthermore this would imply that the success rate of the online reference transaction should be similar to the success rate of the face-to-face transaction. As there are no studies that look at the IM and log-in chat reference environments and the use of the reference interview it is recommended that this study's findings attempt to be replicated for validity.

Limitations of the Study

There are three limiting limitations that need to be considered. First, the transcripts came from only one college. There are two colleges in the San Diego Community College District that use both the Qwidget and the log-in chat portal. The second college has a slightly different demographic and their patron queries might be different from those studied. The second

limitation is that there were only two calendar years of transcripts used and additional years may

have reflected different patron experiences. Finally, due to the interpretive nature of qualitative

analysis, findings and conclusions are based on this researchers interpretation.

Internal validity. A number of mechanisms were put into place in order to ensure the

internal validity of this study. In order to remove potential bias the personal information on all

transcripts was redacted to ensure anonymity of all persons involved with a transaction. The

transcripts were also taken from two consecutive school years in the same term so that any

anomaly that may have arisen from a single school year would be washed out by the second.

Reliability of the coding process was ensured by using classifications that were both proven

reliable in previous studies or created by the researcher from professional experience.

Analysis characteristics were reviewed by two librarians who had experience as reference

librarians and with qualitative analysis procedure. Additionally, the HyperResearch™ software

was used to analyze the data in a systematic and organized fashion. The design used in this study

was exploratory as there were few studies that had direct comparative qualities. The main focus

was to gain insight for recommendations and further research.

Closing comments. Students need to be able to accomplish critical

thinking tasks in order to become successful academic researchers and life-long

learners. Librarians can play a vital role in this process. The key for student use of

the library is to have research assistance readily available and easy to use. The

key for the librarians is proper training in the areas of handling the reference

transaction.

The means by which patrons will communicate with librarians will remain in a state of flux as long as new communicative technologies are being created. It is important for librarians to stay on top of these changes in order to remain a viable option for patrons. For the academic library student success is a main goal and therefore understanding the needs and communication styles of those patrons is of the utmost importance. In doing so staffing and costs will always play a part in the decision making process. Going forward studies should be undertaken on an ongoing basis in order to understand not just which forms of online reference communication are most popular but which are most effective.

As academic institutions look over their current options for online reference tools the question becomes which to choose and why? The results of this study warrant a recommendation of having both the IM widget and the log-in chat portal available at academic institutions, particularly at community colleges. Each portal represents a different need from the patron base. It has been proven in past research that shorter, less complex questions are more popularly asked in the IM portal whereas the more complex or research based questions are being asked in the log-in portal. Furthermore, there is research proving that the IM platform is more popular with the younger, lower level, students and therefore they are more likely to use it when given the option to choose. However, they do not make-up the entire student population and therefore both platforms should currently be made available to fit the needs and inclinations of every student.

REFERENCES

Abels, E. (1996). The e-mail reference interview. *RQ*, *35*(3), 345-359. Retrieved from
        http://www.rusq.org/
About Meebo. (2011). Retrieved from http://www.meebo.com/about/.

Agee, J., & Antrim, P. (2003). Stone buildings, cyberspace, and the library user. *New Library World*, *104*(11/12), 474-480. doi:10.1108/03074800310508759

Arnold, J., & Kaske, N. (2005). Evaluating the quality of a chat service. *Portal: Libraries and the Academy*, *5*(2), 177-193. doi: 10.1353/pla.2005.0017

Association of College and Research Libraries (ACRL). (2012). *Introduction to Information Literacy*. Retrieved from http://www.ala.org/acrl/issues/infolit/overview/intro

Association of College and Research Libraries (ACRL). (2000). *Information Literacy Competency Standards for Higher Education.* Retrieved from http://www.ala.org/ala/mgrps/divs/acrl/standards/informationliteracycompetency.cfm

Bailey, B. (1987). The "55 percent rule" revisited. *The Journal of Academic Librarianship*, *14*(5), 280-282. Retrieved from http://www.elsevier.com/wps/find/journaldescription.cws_home/620207/description

Bedwell, L., Rodrigues, D., Duggan, L., & Orlov, S. (2008). IM a librarian: Extending virtual reference services through instant messaging and chat widgets. *Partnership: The Canadian Journal of Library and Information Practice and Research*, *3*(2) 112-125. Retrieved from http://journal.lib.uoguelph.ca

Bicknell, T. (1994). Focusing on quality reference service. *The Journal of Academic Librarianship*, *20*(2), 77-81. doi: 10.1016/0099-1333(94)90042-6

Blank, P. (2002). Virtual reference at Duke: An informal history. *The Reference Librarian*, *79/80*, 215-224. Retrieved from http://www.tandf.co.uk/journals/WREF

Bobrowsky, T., Beck, L., & Grant, M. (2005, January). The chat reference interview: Practicalities and advice. *Reference Librarian*, *43*(89/90), 179-191.

doi: 10.1300/J120v43n8912

Bolander, R.C., Connoway, L.S., & Radford, M.L. (2006). Seeking synchronicity:

OCLC, Rutgers researchers explore virtual reference services by analyzing chat

transcripts. *NextSpace*, *2*, 18-19. Retrieved from

http://www.oclc.org/nextspace/default.htm

Borgman, C. (1997). From acting locally to thinking globally: A brief history of library

automation. *The Library Quarterly*, *67*(3), 215-249. doi:10.1086/629950

Breeding, M. (2003). Instant Messaging it's not just for kids anymore.

Computers in Libraries, *23*(10), 38-40. Retrieved from

http://www.infotoday.com/cilmag/

Breitbach, W., Mallard, M., & Sage, R. (2008). Using Meebo's embedded IM for

academic reference services. *Reference Services Review*, *37*(1), 83-98.

doi:10.1108/00907320910935011

Bristow, A. (1992). Academic reference service over electronic mail. *College &

Research Libraries News*, *2*(10), 631-632. Retrieved from http://crln.acrl.org/

Broughton, K. (2001). Our experiment in online, real-time reference. *Computers in

Libraries*, *21*(4), 26-33. Retrieved from http://www.infotoday.com/cilmag/

Brudenall, J. (1976, November). Client assessment of reference services. *Australian Library

Journal, 25*, 367-369. Retrieved from http://www.alia.org.au/publishing/alj/

Bunge, C. (1985). Factors related to reference question answering success:

The development of a data-gathering form. *RQ*, *24*(4), 482-486. Retrieved from

http://www.rusq.org/

Bushallow-Wilbur, L., DeVinney, G., & Whitcomb, F. (1996). Electronic mail reference

service: a study. *RQ*, *35*(3), 359-372. Retrieved from http://www.rusq.org/

Canfora, L. (1989). *The vanished library*. Berkeley: University of California Press.

Coffman, S. (1999). Reference as others do it. *American Libraries*, *30*(5), 54-57.

Retrieved from http://americanlibrariesmagazine.org/

Coffman, S., & McGlamery, S. (2000). The librarian and Mr. Jeeves. *American*

Libraries, *31*(5), 66-69. Retrieved from http://americanlibrariesmagazine.org/

Cole, V. (2010). Giving users options for chat reference: Effects of QuestionPoint's

instant messaging widget on chat traffic. In M. Radford & R.D. Lankes (Eds.) *Reference*

Renaissance: Current and Future Trends, pp.71-79. New York: Neal-Schuman.

Coyle, K. (2007). Managing technology: Data raw and uncooked. *The Journal of*

Academic Librarianship, *33*(5), 602-603. doi:10.1016/j.acalib.2007.07.001

Crews, K. (1988). The accuracy of reference service: Variables for research and

implementation. *Library and Information Science Research, 10*(3), 331-355. Retrieved

from http://elsevier.com

Crowley, T., & Childers, T. (1971) *Information service in public libraries: two studies*.

Metuchen, N.J.: Scarecrow Press.

Davis, K. (2007). AskNow instant messaging: Innovation in virtual reference.

The Australian Library Journal, *56*(2), 152-174. Retrieved from

http://alia.org.au/publishing/alj/

Dee, C., & Allen, M. (2006) A survey of the usability of digital reference services on

academic health science library web sites. *The Journal of Academic*

Librarianship, 32(1), 69-78. doi:10.1016/j.acalib.2005.11.001

Department of Health and Human Services: National Institutes of Health: Office for Protection

    from Research Risks. (2005). Title 45 Code of Federal Regulations: Part 46: Protection of

    human subjects. Retrieved from http://ohsr.od.nih.gov/guidelines/45cfr46.html

Desai, C. (2003). Instant messaging reference: how does it compare. *The Electronic*

    Library, *21*(1), 21-30. doi: 10.1108/02640470310462380

Doan, T., & Ferry, K., (2007). Instant messaging (IM). *Journal of Business & Finance*

    Librarianship, *12*(2), 17-22. doi:10.1300/J109v12n02_03

Douglas, I. (1988). Reducing failures in reference service. *RQ*, *28*(1), 94-101. Retrieved

    from http://www.rusq.org/

Duinkerken, W. V., Stephens, J., & MacDonald, K. I. (2009). The chat reference

    interview: Seeking evidence based on RUSA's guidelines. *New Library World*,

    110(3/4). Retrieved from http://www.emeraldinsight.com

Durrance, J. C. (1989, April 15). Reference success: Does the 55 percent rule tell the

    whole story? *Library Journal, 114*, 31-36. Retrieved from

    http://www.libraryjournal.com/

Durrance, J. C. (1995). Factors that influence reference success: What makes

    questioners willing to return? *The Reference Librarian*, 23(49/50), 243-65.

    doi:10.1300/J120v23n49_18

Dyson, L. S. (1992). Improving reference services: A Maryland training program brings

    positive results. *Public Libraries*, *31*(5). 284-289. Retrieved from

    http://www.ala.org/pla/publications/publiclibraries

Fagan, J., & Calloway, M. (2001). Creating an instant messaging reference system.

    Information, Technology and Libraries, *20*(4), 202-213. Retrieved from

http://www.ala.org/ala/mgrps/divs/lita/publications/ital/italinformation.cfm

Fagan. J., & Desai, C. (2002, January). Communication strategies for instant messaging

and chat reference services. *Reference Librarian*, *38*(79/80), 121-155.

doi:10.1300/J120v38n79_09

Fagan.J., & Foley, M. (2002). Instant messaging reference: Users evaluation of library

chat. *Reference Services Review*, *30*(3), 183-197. doi:10.1108/00907320210435464

Flagg, G. (2001). Libraries launch 24/7 e-reference service. *American Libraries*,

7(32), 16-17. Retrieved from http://americanlibrariesmagazine.org/

Foley, M. (2002). Instant messaging reference in an academic library: A case study.

College & Research Libraries, *63*(1), 36-45. Retrieved from http://crl.acrl.org.

Fourie, I. (1999). Should we take disintermediation seriously. *The Electronic Library*,

17(1), 9-16. doi:10.1108/02640479910329400

Fox, S., & Madden, M. (2006). Generation online: Pew Internet and American Life

Project. Retrieved from http://www.pewinternet.org/Reports/2006/Generations-

Online.aspx.

Francoeur, S. (2001). An analytical survey of chat reference services. *Reference Services*

Review, *29*(3), 189-203. doi:10.1108/00907320110399547

Gardner, S., & Eng, S. (2005). What students want: Generation Y and the changing

function of the academic library. *Portal: Libraries and the Academy*, *5*(3),

405-420. doi: 10.1353/pla.2005.0034.

Gatten, J., & Radcliff, C. (2001). Assessing reference behaviors with unobtrusive

testing. In D.Wallace, & C. Van Fleet (Eds.), *Library evaluation: A case book and can-do*

guide (pp.105-115). Englewood, CO: Libraries Unlimited.

George, C. (2008). *User-Centred library websites: Usability evaluation methods*.

Chandos: Oxford.

Gers, R., & Seward, L. (1985). Improving reference performance: Results of a statewide

    survey. *Library Journal*, *110*(18), 32-35. Retrieved from http://www.libraryjournal.com

Goodfellow, M., & Wade, B. (2007). The digital divide and first-year students. *Journal of*

    College Student Retention, *8*(4), 425-438. doi:10.2190/0655-01Q3-2113-22JQ

Hansel, P. (1990, Fall). Quality is not necessarily quality: A challenge to librarians to develop

    meaningful standards of performance for library reference services.

    North Carolina Libraries, 48, 184. Retrieved from http://www.ncl.edu/index.php/NCL

Harmeyer, D. (2007). *Online virtual chat library reference service: A quantitative and*

    qualitative analysis (Doctoral Dissertation). Retrieved from ProQuest Dissertation and

    Theses Full Text. (304708446)

Haywood-Farmer, J., Alleyne, A., Duffus, B., & Downing, M. (1985/1986). Controlling

    service quality. *Business Quarterly, 50*(4), 62-67. Retrieved from

    http://www.bq-magazine.co.uk

Head, A., & Eisenberg, M. (2010). Truth be told: How college students

    evaluate and use information in the digital age *Project Information Literacy Progress*

    Report, *1*. Abstract retrieved from

    http://projectinfolit.org/pdfs/PIL_Fall2010_Survey_FullReport1.pdf

Helfer, D.S. (2001). Virtual reference in libraries: Remote patrons heading your way?

    Searcher, *9*(2), 67-70. Retrieved from http://www.infotoday.com/searcher/default.asp

Hernon, P., & McClure, C. (1986). Unobtrusive reference testing: The 55 percent rule.

    Library Journal, *111*(7), 37-40. Retrieved from http://www.libraryjournal.com/

Howe, N., & Strauss, W. (2000). *Millenials rising: The next generation*.

New York:Vintage Books.

Howell, B.J., Reeves, E. & Van Willigen, J. (1976). Fleeeting encounters-a role analysis

of reference librarian-patron interaction. *RQ, 16*(2),124-129. Retrieved from

http://www.rusq.org

Houghton, S., & Schmidt, A. (2005). Web-Based Chat VS. Instant Messaging. *Online*,

29(4), 26-30. Retrieved from http://www.onlineinc.com/ONLINE/

Houlson, V., McCready, K., & Pfahl, C.S. (2006). A window into our patron's needs:

Analyzing data from chat transcripts. *Internet Reference Services Quarterly*,

11(4), 19-39. doi: 10.1300/J136v11n04_02.

Hubbertz, A. (2007). The fallacy in the 55 percent rule. *Dttp: Documents to the People*,

35(3), 15-17. Retrieved from http://wikis.ala.org/godort/index.php/DttP

Hughes, A. (2010). Adherence to RUSA's Guidelines for virtual reference services is

below expected in academic libraries. *Evidence Based Library and Information*

Practice, *5*(4). Retrieved from http://ejournals.library.ualberta.ca/index.php/EBLIP

Hyper Research 3.5.2. (2012). Quality Analysis Tool [Computer Software].

Randolph, MA: Researchware, Inc.

Janes, J., Carter, D., & Memmott, P. (1999). Digital reference services in academic

libraries. *Reference & User Services Quarterly*, *39*(2),145–149. Retrieved from

http://www.rusq.org/

Jeanney, J. (2007). *Google: And the myth of universal knowledge*. Chicago: University of

Chicago Press.

Jensen, B. (2004). The case for non-intrusive research: a virtual reference

librarians's perspective. *Reference Librarian*, *41*(85), 139-149.

doi:10.1300/J120v41n85_11

Johnson, C.M. (2004). Online chat reference: Survey results from affiliates of two

universities. *Reference and User Services Quarterly*, *43*(3), 237-247. Retrieved from

http://rusq.org.

Johnson, K., & Magusin, E. (2005). *Exploring the digital library: A guide for online

teaching and learning*. San Francisco, CA: Jossey-Bass.

Katz, W. A. (1997). *Introduction to Reference Work, Vol. II, 7th ed.* New York, NY:

McGraw Hill.

Katz, W. A. (2002). *Introduction to Reference Wor*k, (8th ed., Vol. 1).

Boston, MA: McGraw-Hill.

Kazlauskas, E. (1976). An exploratory study: A kinesic analysis of academic library

public service points. *Journal of Academic Librarianship, 2*(3), 130-134. Retrieved from

http://www.elsevier.com

Kelley, K., & Orr, J. (2003). Trends in distant student use of electronic resources: A

survey. *College and Research Libraries*, *64*(3), 176-191. Retrieved from

http://crl.acrl.org/

Kennedy, S. (2011). Farewell to the reference librarian. *Journal of Library

Administration*, *51*(4), 219-325. doi: 1080/01930826.2011.556954.

King, D. L. (2009). What Is a Digital Branch, Anyway? *Library Technology Reports*,

45(6), 5-9. Retrieved from http://www.alatechsource.org/ltr/index.

King, G. B., & Berry, R. (1973). Evaluation of the University of Minnesota libraries

reference department telephone information service. Pilot study. *ERIC Report*

(Report ID. ED077517). Retrieved from http://eric.ed.gov.

Kresh, D. (2003). Virtually Yours. *The Reference Librarian*, *38*(79), 19-34.
doi:10.1300/J120v38n79_02.

Kwon, N. (2007). Public library patrons' use of collaborative chat reference service: The
effectiveness of question answering by question type. *Library & Information
Science Research, 29*(1), 70-91. doi:10.1016/j.lisr.2006.08.012.

Kwon, N., & Gregory, V. (2007, Winter). The effects of Librarians' behavioral
performance on user satisfaction in chat reference services. *Reference & User
Services Quarterly*, *47*(2), 137-148. Retrieved from http://www.rusq.org/

Kyrillidou, M. (2000). Research Library Trends: ARL Statistics. *The Journal of
Academic Librarianship*, *26*(6), 427-436. doi:10.1016/S0099-1333(00)00177-4.

Lankes, D., Gross, M., & McClure, C. (2003). Cost, statistics, measures and standards
for digital reference services. *Library Trends*, *51*(3), 401-413. Retrieved from
http://www.press.jhu.edu/journals/library_trends/.

Lebo, H. (2003, February). *The UCLA internet report: Surveying the digital future
year three*. Retrieved from http://www.ccp.ucla.edu

Lee, I. J. (2004). Do virtual reference librarians dream of digital reference questions?: A
qualitative and quantitative analysis of email and chat reference. *Australian
Academic and Research Libraries*, *35*(2), 95-110. Retrieved from
http://www.alia.org.au/publishing/aarl/

Lewis, K., & DeGroote, S. (2008). Digital reference access points: An analysis of usage.

    Reference Service Review, *36*(2), 194-204. doi:10.1108/00907320810873057

Lipow, A.G. (1999). *Serving the remote user: Reference service in the digital*

    environment. Proceedings from the Ninth Australasian Information Online & On

    Disc Conference and Exhibition. Australia. Retrieved from

    http://citeseerx.ist.psu/showciting?cid=571256

Logan, F., & Lewis, K. (2011). Quality control: A necessary good for improving

    service. *The Reference Librarian*, *52*(3), 218-230. doi:10.1080/02763877.2011.557314

Lukasiewicz, A. (2007). Exploring the role of digital academic libraries: Changing

    student needs demand innovative service approach. *Library Review*,

    56(9), 821-827. doi: 10.1108/00242530710831275

Manuel, K. (2002). Teaching information literacy to generation Y. *Journal of Library*

    Administration, *36*(1/2), 195-217. Retrieved from http://www.tandf.co.uk/journals/WJLA

Marsteller, M., & 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. Retrieved from http://www.rusq.org/

Maximiek, S., Rushton, E., & Brown, E. (2010). Coding into the great unknown:

    Analyzing instant messaging session transcripts to identify user behaviors

    and measure quality of service. *College & Research Libraries*, *71*(4), 361-373. Retrieved

    from http://crl.acrl.org

Maxwell, N. (2002). Online reference technologies and products. *Library Technology*

    Reports, *38*(4), 49-65. Retrieved from http://www.alatechsource.org/ltr/index

McDonald, D.S. (2004). Computer literacy skills for computer information systems

    majors: A case study. *Journal of Information Systems Education*, *15*(1), 19-33. Retrieved

from http://www.jise.org/

McMullen, S. (2001). Usability testing in a library web site redesign project. *Reference Services Review*, *29*(1), 7-22. doi:10.1108/00907320110366732

Messineo, M., & DeOllos, I.Y. (2005). Are we assuming too much? Exploring student's perceptions of their computer competence. *College Teaching*, *53*(2), 50-55. doi:10.3200/CTCH.53.2.50-56

Myers, M., & Jirjees, J. (1983). *The accuracy of telephone reference/information services in academic libraries: Two studies*. Metuchen, NJ: Scarecrow Press.

Mucci, J. (1976). Videotape self-evaluation in public libraries: Experiments in evaluating public service. *RQ, 16*(1), 33-37. Retrieved from http://www.rusq.org

Negroponte, N.P. (1995). *Being Digital*. New York, NY: Knopf.

New Strategist Editors. (2006). *Millenials: Americans born 1977-1994* (3rd ed.). Ithaca, N.Y.: New Strategist Publications, Inc.

Nielsen. (2009). *How Teens Use Media: a Nielsen Report on Myths and Realities*. Retrieved from http://blog.nielsen.com/nielsenwire/reports/nielsen_howteensusemedia_june09.pdf

Nilsen, K. (2006). Comparing users' perspectives of in-person and virtual reference. *New Library World*, *107*(1222/1223), 91-104. Retrieved from http://www.emeraldinsight.com/products/journals/journals.htm?id=nlw

Oakleaf, M., & VanScoy, A., (2010). Instructional strategies for digital reference.

Reference & User Services Quarterly, *49*(4), 380-390. Retrieved from

    http://www.rusq.org/

Oblinger, D. (2003). Boomers, Gen-Xers & Millenials: understanding the new

    students. *EDUCAUSE Review*, *38*(4), 37-47. Retrieved from

    http://www.educause.edu/er.

Oder, N. (2001). The shape of e-reference. *Library Journal*, *126*(2), 46-50. Retrieved

    from http://www.libraryjournal.com/

Online Computer Library Center (OCLC). (2011). *Perceptions of Libraries, 2010:*

    Context and Community. Retrieved from

    http://www.oclc.org/reports/2010perceptions.htm

Penka, J. (2003). The technology challenges of digital reference. *D-Lib Magazine*,

    9(2), doi:10.1045/february2003-penka

Platt, J., & Benson, P. (2010). Improvising the virtual reference experience: How closely

    do academic libraries adhere to RUSA guidelines? *Journal of Library & Information*

    Services in Distance Learning, 4, 30-42. doi: 10.1080/15332901003765811

Pomerantz, J., & Luo, L.L. (2006). Motivations and uses: Evaluating virtual reference

    service from the users' perspective. *Library and Information Science Research*,

    28(1), 24-48. doi:10.1016/j.lisr.2005.11.004

QuestionPoint: 24/7 Reference Services Blog. (2008, January 08). Introducing Qwidget, the

    QuestionPoint widget [Web log post]. Retrieved from

    http://questionpoint.blogs.com/questionpoint_247_referen/2008/01/introducing-qwi.html

Question Point, 24/7 Reference Services. (2013). *Best practices for 24/7 reference*

cooperative sessions. Retrieved from

http://wiki.questionpoint.org/w/page/13839421/247-Best-Practices

Question Point. (2013, February 11). Best Practices For 24/7 Reference Cooperative

Sessions. Retrieved from wiki.questionpoint.org

Radford, M. L., & Connoway, L. (2007). 'Screenagers' and live chat reference: Living

up to the promise. *Scan, 26*(1), 31-39. Retrieved from http://scan.nsw.edu.au/

Radford, M. L., Connaway, L., Confer, P. A., Sabolcsi-Boros, S., & Kwon, H. (2011).

Are We Getting Warmer? Query Clarification in Live Chat Virtual Reference.

Reference & User Services Quarterly, *50*(3), 259-279. Retrieved from

http://www.rusq.org/

Radford, M. L., Radford, G., Connoway, L., & DeAngelis. (2011). On virtual face-work: An

ethnography of communication approach to a live chat reference

interaction. *Library Quarterly*, *81*(4), 41-453. Retrieved from

http://www.jstor.org/action/showPublication?journalCode=libraryq

Ramsden, M. (1978). *Performance measurement of some Melbourne public libraries: A

report to the library council of Victoria*. Melbourne, Australia: Library Council

of Victoria.

Reference and User Services Association (RUSA) Website. (1996). *Guidelines for behavioral

performance of reference and information service providers*. *RQ*, *36*(2), 200-204.

Retrieved from http://www.rusq.org/

Reference and User Services Association (RUSA) Website. (2004a). *Guidelines for*

implementing and maintaining virtual reference services. Retrieved from

http://www.ala.org/rusa/resources/guidelines/virtrefguidelines

Reference and User Services Association (RUSA) Website. (2004b). *Guidelines for behavioral*

performance of reference and information service providers. Retrieved from

http://www.ala.org/Template.cfm?Section=Home&template=/ContentManagement/Conten

tDisplay.cfm&ContentID=26937

Reference and User Services Association (RUSA) Website, (2013). *Guidelines for behavioral*

performance of reference and information service providers. Retrieved from

http://www.ala.org/rusa/resources/guidelines/guidelinesbehavioral

Reference and User Services Association (RUSA) Website. (2008)*. Definitions of Reference*.

Retrieved from http://www.ala.org/rusa/resources/guidelines/definitionsreference

Robbins-Carter, J., & Zweizig, D. (1985). Are we there yet? Evaluating library

collections, reference services, programs and personnel. Lesson 3, reference

service evaluation. *American Libraries, 17*(2), 780-784. Retrieved from

http://www.americanlibrariesmagazine.org

Ronan, J., Reakes, P., & Ochoa, M. (2006). Application of reference guidelines in chat

reference interactions: A study of online reference skills. *College and*

Undergraduate Libraries, *13*(4), 3-30. doi: 10.1300/J106v13n04_02

Rosen, L. D., Chang, J., Erwin, L., Carrier, L. M., & Cheever, N. A. (2010). The

relationship between "textism" and formal and informal writing among young adults.

Communication Research, *7*(3), 420-440. doi: 10.1177/0093650210362465

Ross, C. (2003). The reference interview: Why it needs to be used in every (well,

almost every) reference transaction. *Reference & User Services Quarterly*,
43(1), 37-43. Retrieved from http://www.rusq.org/

Ross, C.S., Nilsen, K., & Radford, M. (2009). *Conducting the Reference Interview: A how
to do it manual for librarians* (2nd ed.). New York, NY: Neal-Schuman

Rourke, L., & Lupien, P. (2010). Learning from chatting: How our virtual reference
questions are giving us answers. *Evidence Based Library and Information Practice*, *5*(2),
63-74. Retrieved from http://ejournals.library.ualberta.ca/index.php/EBLIP/index

Rowlands, I., Nicholas, D., & Huntington, P. (2007). Information behaviour of the
researcher of the Future: A ciber briefing paper. *University College London: Centre
for Information Behaviour and the Evaluation of Research (CIBER).* Retrieved from
http://www.ucl.ac.uk/slais/research/ciber/downloads/ggexecutive.pdf

Rubin, R. (2000). *Foundations of Library and Information Science*. New York, NY:
Neal- Schuman.

Ruppel, M., & Fagan, J.C. (2002). Instant messaging reference: Users' evaluation of
library chat. *Reference Services Review*, *30*(3), 183- 197. doi:10.1108/00907320210435464

Ryan, J., Daugherty, A.L., Mauldin, E.C. (2006). Exploring the LSU libraries' virtual
reference transcripts: An analysis. *Electronic Journal of Academic and Special
Librarianship*, *7*(3). Retrieved from http://southernlibrarianship.icaap.org/

San Diego Community College District Institutional Research and Planning. (2012). *Fact
Book: Mesa College*. Retrieved from
http://research.sdccd.edu/index.cfm?action=rsrchreps&gnav=5&lm=2

San Diego Community College District Institutional Research and Planning. (2013). *Fact

Book: Mesa College. Retrieved from

http://research.sdccd.edu/index.cfm?action=rsrchreps&gnav=5&lm=2

Saunders, L. (2001). Building the virtual reference desk. *Information Today*, *18*(3),

25-27. Retrieved from http://www.infotoday.com/it/

Saxton, M. (2000). *Evaluation of reference service in public libraries using a*

hierarchical linear model: applying multiple regression analysis to a multi-level

research (Doctoral Dissertation). Retrieved from ProQuest Dissertations & Theses

Database. (AAT 9979037)

Schachaf, P., & Horowitz, S. (2008a). Virtual reference service evaluation: Behavioral

guidelines and IFLA digital reference guidelines. *Library & Information Science*

Research, *30*(2), 122-137. doi: 10.1016/j.lisr.2007.12.2002

Shachaf, P., & Horowitz, S. (2008b). Virtual reference service evaluation: Adherence to RUSA

behavioral guidelines and IFLA digital reference guidelines. *Library & Information*

Science Research, *30*, 122-137. doi:10.1016/j.lisr.2007.12.002

Schilling-Eccles, K., & Harzbecher, J. J. (1998). The use of electronic mail at the

reference desk: Impact of a computer-mediated communication technology on librarian-

client interactions. *Medical Reference Services Quarterly*, *17*(4), 17-27.

doi:10.1300/J115v17n04_02

Sears, J. (2001, Fall). Chat reference service: An analysis of one semesters' data. *Issues in*

Science and Technology Librarianship, *32*. Retrieved from

http://www.library.ucsb.edu/istl/. doi:10.5062/F4CZ2545

Shaw, K., & Spink, A. (2009). University library virtual reference services: Best

practices and continuous improvement. *Australian Academic & Research Libraries*, *40*(3), 192-205. Retrieved from http://www.alia.org.au/publishing/aarl/.

Shiu, E., & Lenhart, A. (2004). *How Americans use instant messaging*. Retrieved from http://www.pewinternet.org/Reports/2004/How-Americans-Use-Instant-Messaging.aspx .

Schmidt, J. (1980). Reference performance in college libraries. *Australian Academic and Research Libraries*, *11*(2), 87. Retrieved from http://www.alia.org.au/publishing/aarl/

Simon, M., Graziano, M., & Lenhart, A. (2001). *The Internet in Education: Findings of the Pew Internet and American Life Project*. Web document: Pew Internet and American Life Study. Retrieved from http://www.pewinternet.org/Reports/2001/The-Internet-and-Education/Main-Report.aspx.

Sloan, B. (2006). Twenty years of virtual reference. *Internet Reference Services Quarterly*, *11*(2), 91-95. doi:10.1300/J136v11n02_06

Smith, A. (2011). *American and text messaging*. Web document: Pew Internet and American Life Project. Retrieved from http://www.pewinternet.org/Reports/2011/Cell-Phone-Texting-2011.aspx.

Stahr, B. (2010). Text messaging reference service: Five years later. *The Reference Librarian*, *52*(1-2), 9-19. doi: 10.1080/02763877.2011.524502

Stanley, T. (2010). *Leading edge technologies in a community college library setting: Identifying disconnects of academic libraries and their users* (Doctoral Dissertation). Retrieved from ProQuest Dissertation & Theses Full Text. (759825796)

Still, J. M., & Campbell, F. M. (1993). Librarian in a box: The use of electronic mail for

reference. *Reference Services Review*, *21*(1), 15-18. doi:10.1108/eb049171

Straw, J. (2000). A virtual understanding: The reference interview and question

negotiation in the digital age. *Reference & User Services Quarterly*, *39*(4),

376-379. Retrieved from http://www.rusq.org/

Strong, G. (1980). Evaluating the reference product. *RQ, 19*(4), 367-372. Retrieved from

http://www.rusq.org

Sweeney, R. (2005). Reinventing library buildings and services for the millennial

generation. *Library Administration & Management*, *19*(4), 165-75. Retrieved from

http://www.alatechsource.org/ltr/index.

Sykes, J. (2007). Improving the student experience: how can the library help? *New*

Review of Information Networking, *13*(1), 23-30. Retrieved from

doi:10.1080/13614570701571468

Tagliamonte, S., & Denis, D. (2008). Linguistic ruin? LOL! Instant messaging and teen

language. *American Speech*, *83*(1), 3-34. doi: 10.1215/00031283-2008-001

Tapscott, D. (1997). *Growing up digital: The rise of the net generation*. New York, NY:

McGraw-Hill.

Tenopir, C. (2001). Virtual reference services in a real world. *Library*

Journal, *126*(12), 38-40. Retrieved from http://www.libraryjournal.com/.

Tenopir, C., & Ennis, L. (1998). The impact of digital reference on libraries and library

users. *Online*, *22*(6), 84-88. Retrieved from http://www.infotoday.com/online/

Tenopir, C., & Ennis, L. (2002). A decade of digital reference. *Reference & User*

Services Quarterly, *41*(3), 264-273. Retrieved from http://www.rusq.org/

Toy, B. (1978). The Role of the Academic Librarian: A Symposium. *The Journal of Academic Librarianship*, *4*(3), 128-130. Retrieved from http://www.elsevier.com/wps/find/journaldescription.cws_home/620207/description

U.S. Department of Education. (2001). *Institutions offering distance education courses. Distance Education at Degree-Granting Postsecondary Institutions: 2000-2001,* (No. 2003017). Web document: National Center for Education Statistics Publication. Retrieved from http://nces.ed.gov

U.S. Department of Education. (2003). *Distance Education at Degree-granting Postsecondary Institutions,* (No. 2003017). Web document: National Center for Education Statistics Publication. Retrieved from http://nces.ed.gov/pubs2003/2003017.pdf.

U.S. Department of Education. (2009). *Distance Education at Degree-granting Postsecondary Institutions,* (No. 2009044). Web document: National Center for Education Statistics Publication. Retrieved from http://nces.ed.gov/pubs2009/2009044.pdf

Walter, V.A., & Mediavilla, C. (2005). Teens are from Neptune, librarians are from Pluto: An anlysis of online reference transactions. *Library Trends*, *54*(2), 209-227. doi:10.1353/lib.2006.0021

Ward, D. (2004). Measuring the completeness of reference transactions in online chats. *Reference & User Services Quarterly*, *44*(1), 46-58. Retrieved from http://www.rusq.org/

Ward, D., & Kern, K. (2006). Combining IM and vendor-based chat: A report from the frontlines of an integrated service. *Portal: Libraries & The Academy*, *6*(4),

417-429. Retrieved from

http://www.press.jhu.edu/journals/portal_libraries_and_the_academy/

Ware, S. A., Howe, P. S., & Scalese, R. G. (2000). Interactive reference at a distance: A

corporate model for Academic Libraries. *The Reference Librarian*, *69/70*, 171-179.

doi:10.1300/J120v33n69_17

Warner, D. (2001). A new classification for reference statistics, *Reference and User*

Services Quarterly, *41*(1), 51-55. Retrieved from http://rusq.org/.

Weech, T., (1984). Who's giving all those wrong answers? Direct service and reference

personnel evaluation. *The Reference Librarian*, *4*(11), 109-122.

doi:10.1300/j120v04n11_09

Weech, T & Goldhor, H. (1984). Reference clientele and the reference transaction in five

Illinois public libraries. *Library and Information Science Research, 6*(1), 21-42.

Retrieved from http://www.elsevier.com

Westbrook, L. (2007). Chat reference communication patterns and implications:

Applying politeness theory. *Journal of Documentation*, *63*(5), 638-658.

doi:10.1108/00220410710827736

White House, The. (2009). Presidential proclamation national information literacy

awareness month. Retrieved from

http://www.whitehouse.gov/the_press_office/presidential-proclamation-national-

information-literacy-awareness-month/

Wilson, M.C. (2000). Evolution or entropy? Changing reference/user culture and the

    future of reference librarians. *Reference and User Services Quarterly*, *39*(4),

    387-390. Retrieved from http://www.rusq.org

Zho, F., Love, M., Norwood, S., & Massia, K. (2006). Applying RUSA guidelines in the

    analysis of chat reference transcripts. *College & Undergraduate Libraries*, *13*(1),

    75-88. doi: 10.1300/J106v13n01_09

Zickuhr, K. (2011). *Generations and their gadgets*. (Web Report). Web document:

    Pew Internet and American Life Project. Retrieved from

    http://www.pewinternet.org/Reports/2011/Generations-and-gadgets.aspx

Appendix A

RUSA Guidelines for Behavioral performance of Reference and Information Service Providers

ALA American Library Association

Guidelines for Behavioral Performance of Reference and Information Service Providers

Revised by MOUSS Management of Reference Committee and approved by the RUSA Board of Directors, June 2004. (Listing of members and authors.)

Introduction

The face of Reference Services has changed significantly since the original RUSA Guidelines for Behavioral Performance were first published in 1996[1]. Intended to be used in the training, development, and/or evaluation of library professionals and staff, the Guidelines have subsequently been favorably evaluated by the profession, and currently enjoy widespread acceptance as standards for the measurement of effective reference transactions.[2]

The original Guidelines dealt primarily with face-to-face interactions between Reference staff and library users. Even at the time, however, the world of Reference was moving beyond the traditional Reference Desk. Email and online chat services have since become popular with both patrons and library staff, and are expanding in all types of libraries, from public to academic to school libraries and beyond. Although some of the statements in the original Guidelines can be applied to remote forms of reference, the lack of traditional visual and non-verbal cues produces a different type of library-patron interaction.

One constant that the shift away from in-person encounters has not lessened is the need for good communication skills. The Virtual Reference Desk recognized this and incorporated an "Interactive" component into their "Facets of Quality for Digital Reference Services," stating that "[d]igital reference services should provide opportunities for an effective reference interview, so that users can communicate necessary information to experts and to clarify vague user questions."[3]

In all forms of reference services, the success of the transaction is measured not only by the information conveyed, but also by the positive or negative impact of the patron/staff interaction. The positive or negative behavior of the reference staff member (as observed by the patron) becomes a significant factor in perceived success or failure. This connection has been born out in the work of researchers like Gers and Seward (1985), who found that "behaviors have a strong influence on performance"[4], and Whitlatch (1990), who stated "Librarian courtesy, interest, and helpfulness are crucial in providing successful reference service. Libraries must select and retain staff who have these service orientations toward users."[5] Matthew Saxton (2002) put the Guidelines to a statistical test, and found that they did indeed correlate highly to a successful reference transaction.[6]

The original RUSA Ad Hoc Committee that designed the Guidelines recognized the need for future adaptation to deal with issues related to remote users, and in late 2001 the RUSA Standards and Guidelines Committee requested that the RSS Management of Reference Committee undertake this revision. The revised Guidelines reflect the understanding that while in-person and remote reference interviews share some points in common, each also has its own peculiar characteristics that need to be addressed separately in the formation of standard guidelines.

With this in mind, the original format has been rearranged to reflect the changes in our profession. The five main areas (Approachability, Interest, Listening/Inquiring, Searching, and Follow Up) remain the same, but three distinct categories have been added (where appropriate) under each. They are:

General--Guidelines that can be applied in any type of reference interaction, including both in person and remote transactions.

In Person--Additional guidelines that are specific to face-to-face encounters, and make the most sense in this context.

Remote--Additional guidelines that are specific to reference encounters by telephone, email, chat, etc., where traditional visual and non-verbal cues do not exist.

Some of the original Guidelines have also been rewritten to make the service ideal they convey apply more generally. The goal of this document's revision has been to create a conceptual framework and service ethic with which reference professionals can consider all patron reference interactions, and help establish a service standard for their institution.

Note: The term *librarian* in this document applies to all who provide reference and informational services directly to library users.

1.0   Approachability

In order to have a successful reference transaction, patrons must be able to identify that a reference librarian is available to provide assistance and also must feel comfortable in going to that person for help. In remote environments, this also means placing contact information for chat, email, telephone, and other services in prominent locations, to make them obvious and welcoming to patrons. Approachability behaviors, such as the initial verbal and non-verbal responses of the librarian, will set the tone for the entire communication process, and will influence the depth and level of interaction between the staff and the patrons. At this stage in the process, the behaviors exhibited by the staff member should serve to welcome the patrons and to place them at ease. The librarian's role in the communications process is to make the patrons feel comfortable in a situation that may be perceived as intimidating, risky, confusing, and overwhelming.

To be approachable, the librarian:

General

1.1   Establishes a "reference presence" wherever patrons look for it. This includes having Reference Services in a highly visible location and using proper signage (both in the library and on the library's Web site) to indicate the location, hours, and availability of in-person and remote help or assistance.

1.2   Is poised and ready to engage approaching patrons. The librarian is aware of the need to stop all other activities when patrons approach and focus attention on the patrons' needs.

1.3   Acknowledges others waiting for service.

1.3.1   Employs a system of question triage to identify what types of questions the patrons have when more than two patrons are waiting. Frequently asked questions, brief informational questions, directional questions, and referrals can be answered quickly, allowing more time to devote to in-depth reference questions.

In Person

1.4   Establishes initial eye contact with patrons, and acknowledges the presence of patrons through smiling and attentive and welcoming body language.

1.5   Acknowledges patrons through the use of a friendly greeting to initiate conversation, and by standing up, moving forward, or moving closer to them.

1.6   Remains visible to patrons as much as possible.

1.7   Roves through the reference area offering assistance whenever possible. Librarians should make themselves available to patrons by offering assistance at their point-of-need rather than waiting for patrons to come to the reference desk. To rove successfully, the librarian should:

1.7.1   Be mobile. Get the patrons started on the initial steps of their search, then move on to other patrons.

1.7.2   Address the patrons before addressing their computer screen. Patrons are more likely to confide in librarians and discuss their needs if they do not perceive the librarians as "policing" the area.

1.7.3   Approach patrons and offer assistance with lines such as, "Are you finding what you need?" "Can I help you with anything?" or "How is your search going?"

1.7.4   Check back on the patron's progress after helping them start a search.

1.7.5   If the reference desk has been left unattended, check back periodically to see if there are patrons waiting for assistance there.

Remote

1.8   Should provide prominent, jargon-free links to all forms of reference services from the *home page* of the library's Web site, and throughout the site wherever research assistance may be sought out. The Web should be used to make reference services easy to find and convenient.

2.0   Interest

A successful librarian must demonstrate a high degree of interest in the reference transaction. While not every query will contain stimulating intellectual challenges, the librarian should be interested in each patron's informational need and should be committed to providing the most effective assistance. Librarians who demonstrate a high level of

interest in the inquiries of their patrons will generate a higher level of satisfaction among users. To demonstrate interest, the librarian:

General

2.1   Faces the patron when speaking and listening.

2.2   2.2 Focuses attention on the patrons.

In Person

2.3   Faces patrons when speaking and listening.

2.4   Maintains or re-establishes eye contact with patrons throughout the transaction.

2.5   Signals an understanding of patrons' needs through verbal or non-verbal confirmation, such as nodding of the head or brief comments or questions.

Remote

2.6   Maintains or re-establishes "word contact" with the patron in text-based environments by sending written or prepared prompts, etc., to convey interest in the patron's question.

2.7   Acknowledges user email questions in a timely manner.

2.8   States question-answering procedures and policies clearly in an accessible place on the Web. This should indicate question scope, types of answers provided, and expected turnaround time.

3.0   Listening/Inquiring.

The reference interview is the heart of the reference transaction and is crucial to the success of the process. The librarian must be effective in identifying the patron's information needs and must do so in a manner that keeps patrons at ease. Strong listening and questioning skills are necessary for a positive interaction. As a good communicator, the librarian:

General

3.1   Communicates in a receptive, cordial, and encouraging manner.

3.2   Uses a tone of voice and/or written language appropriate to the nature of the transaction.

3.3   Allows the patrons to state fully their information need in their own words before responding.

3.4 Identifies the goals or objectives of the user's research, when appropriate.

3.5 Rephrases the question or request and asks for confirmation to ensure that it is understood.

3.6 Seeks to clarify confusing terminology and avoids excessive jargon.

3.7 Uses open-ended questioning techniques to encourage patrons to expand on the request or present additional information. Some examples of such questions include:

- Please tell me more about your topic.
- What additional information can you give me?
- How much information do you need?

3.8 Uses closed and/or clarifying questions to refine the search query. Some examples of clarifying questions are:

- What have you already found?
- What type of information do you need (books, articles, etc.)?
- Do you need current or historical information?

3.9 Maintains objectivity and does not interject value judgments about subject matter or the nature of the question into the transaction.

Remote

3.10 Uses reference interviews or Web forms to gather as much information as possible without compromising user privacy.

4.0   Searching

The search process is the portion of the transaction in which behavior and accuracy intersect. Without an effective search, not only is the desired information unlikely to be found, but patrons may become discouraged as well. Yet many of the aspects of searching that lead to accurate results are still dependent on the behavior of the librarian. As an effective searcher, the librarian:

General

4.1 Finds out what patrons have already tried, and encourages patrons to contribute ideas.

4.2 Constructs a competent and complete search strategy. This involves:

- Selecting search terms that are most related to the information desired.
- Verifying spelling and other possible factual errors in the original query.

- Identifying sources appropriate to the patron's need that have the highest probability of containing information relevant to the patron's query.

4.3   Explains the search strategy and sequence to the patrons, as well as the sources to be used.

4.4   Attempts to conduct the search within the patrons' allotted time frame.

4.5   Explains how to use sources when appropriate.

4.6   Works with the patrons to narrow or broaden the topic when too little or too much information is identified.

4.7   Asks the patrons if additional information is needed after an initial result is found.

4.8   Recognizes when to refer patrons to a more appropriate guide, database, library, librarian, or other resource.

4.9   Offers pointers, detailed search paths (including complete URLs), and names of resources used to find the answer, so that patrons can learn to answer similar questions on their own.

In Person

4.10   Accompanies the patrons in the search (at least in the initial stages of the search process).

Remote

4.11   Uses appropriate technology (such as co-browsing, scanning, faxing, etc.) to help guide patrons through library resources, when possible.

5.0 Follow-up

The reference transaction does not end when the librarian leaves the patrons. The librarian is responsible for determining if the patrons are satisfied with the results of the search, and is also responsible for referring the patrons to other sources, even when those sources are not available in the local library. For successful follow-up, the librarian:

General

5.1   Asks patrons if their questions have been completely answered.

5.2   Encourages the patrons to return if they have further questions by making a statement such as "If you don't find what you are looking for, please come back and we'll try something else."

5.3   Roving (see 1.7) is an excellent technique for follow-up.

5.4   Consults other librarians or experts in the field when additional subject expertise is needed.

5.5   Makes patrons aware of other appropriate reference services (email, etc.).

5.6   Makes arrangements, when appropriate, with the patrons to research a question even after the reference transaction has been completed.

5.7   Refers the patrons to other sources or institutions when the query cannot be answered to the satisfaction of the patron.

5.8   Facilitates the process of referring patrons to another library or information agency through activities such as calling ahead, providing direction and instructions, and providing the library and the patrons with as much information as possible about the amount of information required, and sources already consulted.

5.9   Takes care not to end the reference interview prematurely.[7]

Remote

5.9   Suggests that the patrons visit or call the library when appropriate.

Endnotes

1.   RUSA. "Guidelines for Behavioral Performance of Reference and Information Services Professionals." *RQ,* 36 (Winter 1996) 200-3. [Return to text]

2.   For example, see: Gatten, Jeffrey N., and Carolyn J. Radcliff. "Assessing Reference Behaviors with Unobtrusive Testing." In *Library Evaluation: A Casebook and Can-Do Guide,* ed. Wallace, Danny P. and Connie Van Fleet. (Englewood, Colorado: Libraries Unlimited, Inc., 2001), 105-115. [Return to text]

3.   Virtual Reference Desk. "Facets of Quality for Digital Reference Services, Version 5." June 2003. Available: http://www.vrd.org/facets-06-03.shtml [Return to text]

4.   Gers, Ralph and Lillie J. Seward. "Improving Reference Performance: Results of a Statewide Study." *Library Journal,* November 1, 1985. 32-35. [Return to text]

5.   Whitlatch, Jo Bell. "Reference Service Effectiveness." *RQ,* Winter 1990. 205-220. [Return to text]

6.   Saxton, Matthew L. Evaluation of Reference Service in Public Libraries Using a Hierarchical Linear Model: Applying Multiple Regression Analysis to a Multi-Level Research. Ph.D. Dissertation, UCLA, 2000. [Return to text]

7. Ross, Catherine Sheldrick and Patricia Dewdney. "Negative Closure: Strategies and Counter-Strategies in the Reference Transaction." *Reference & User Services Quarterly,* 38(2) 1998. 151-63. [Return to text]

RUSA RSS Management of Reference Committee Members and Document Authors

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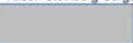Head, Research Services
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APPENDIX B

Internal Review Board Exempt Notification

PEPPERDINE UNIVERSITY

Graduate & Professional Schools Institutional Review Board

May 31, 2013

Alison Steinberg Gurganus

Protocol #: E0513D06
Project Title: Virtual Reference in a Community College Library: Patron Use of Instant Messaging and Log-In Chat Services

Dear Ms. Gurganus,

Thank you for submitting your application, Virtual Reference in a Community College Library: Patron Use of Instant Messaging and Log-In Chat Services, for exempt review to Pepperdine University's Graduate and Professional Schools Institutional Review Board (GPS IRB). The IRB appreciates the work you and your faculty advisor, Kay Davis, have done on the proposal. The IRB has reviewed your submitted IRB application and all ancillary materials. Upon review, the IRB has determined that the above entitled project meets the requirements for exemption under the federal regulations (45 CFR 46 - http://www.nihtraining.com/ohsrsite/guidelines/45cfr46.html) that govern the protections of human subjects. Specifically, section 45 CFR 46.101(b)(4) states:

> (b) Unless otherwise required by Department or Agency heads, research activities in which the only involvement of human subjects will be in one or more of the following categories are exempt from this policy:

> **Category (4) of 45 CFR 46.101:** Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

Your research must be conducted according to the proposal that was submitted to the IRB. If changes to the approved protocol occur, a revised protocol must be reviewed and approved by the IRB before implementation. For any proposed changes in your research protocol, please submit a **Request for Modification Form** to the GPS IRB. Because your study falls under exemption, there is no requirement for continuing IRB review of your project. Please be aware that changes to your protocol may prevent the research from qualifying for exemption from 45 CFR 46.101 and require submission of a new IRB application or other materials to the GPS IRB.

A goal of the IRB is to prevent negative occurrences during any research study. However, despite our best intent, unforeseen circumstances or events may arise during the research. If an unexpected situation or adverse event happens during your investigation, please notify the GPS IRB as soon as possible. We will ask for a complete explanation of the event and your response. Other actions also may be required depending on the nature of the event. Details regarding the timeframe in which adverse events must be reported to the GPS IRB and the appropriate form to be used to report this information can be found in the *Pepperdine University Protection of Human Participants in Research: Policies and Procedures Manual* (see link to "policy material" at http://www.pepperdine.edu/irb/graduate/).

Please refer to the protocol number denoted above in all further communication or correspondence related

6100 Center Drive, Los Angeles, California 90045 ▪ 310-568-5600

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to this approval. Should you have additional questions, please contact me. On behalf of the GPS IRB, I wish you success in this scholarly pursuit.

Sincerely,

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        Ms. Alexandra Roosa, Director Research and Sponsored Programs
        Dr. Kay Davis, Graduate School of Education and Psychology

APPENDIX C

Hyper Research Transcript Example

Source: 2011 Qwidget case 10.docx

Default Font | A A | ▶ Related Media

Patron:

15:33:28 2011/01/25 (GMT -0800) Qwidget: what is the process for checking out a book?

Directional/General
Query was simple/no need for probing

Note 1:

15:33:29 2011/01/25 (GMT -0800) Patron's screen name: xxx

Librarian 1:

15:33:41 2011/01/25 (GMT -0800) Librarian xxx has joined the session.

Librarian 1:

Librarian is all business/no personality
There was not a reference interview

15:33:48 2011/01/25 (GMT -0800) Hello, I am a reference librarian working in cooperation with your library. I am reading your question now, one moment.

Librarian 1:

Librarian was thorough in their answer

15:35:11 2011/01/25 (GMT -0800) If you are a current student, the ID card is the library card.

Librarian 1:

15:35:36 2011/01/25 (GMT -0800) To find a book, you'd look in the library catalog, and then you'd get the book and take the book to Circulation/Check out.

Patron:

Patron seemed satisfied with resolution
Patron typed too little to know formality

15:35:55 2011/01/25 (GMT -0800) okay, thank you

Librarian 1:

There was a question by librarian to assure satisfaction

15:36:04 2011/01/25 (GMT -0800) Is there anything else I can help you with?

Patron:

15:36:34 2011/01/25 (GMT -0800) No thanks. That is all

Librarian 1:

15:37:02 2011/01/25 (GMT -0800) Ok. Thank you for using our 24/7 Ask Us Now service. Come back again if you need help, we're always available. Goodbye.

Librarian 1:

15:37:05 2011/01/25 (GMT -0800) Librarian ended chat session.

Note 1:

15:37:06 2011/01/25 (GMT -0800) Set Resolution: Answered