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'It's Research Made Easier!' SMS & Chat Reference Perceptions

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Introduction

The convergence of college students' information needs, social characteristics, and technological skills have always defined academic library services. Academic libraries re-shape and expand library services in order to match college students with their preferred mode of communication at their point-of-need. This is especially evident in the current offerings of multiple mediums for research help and mobile-friendly web sites. As Rettig pointed out in 2003, college students' familiarity and confidence with information technology has created expectations of immediacy, interactivity, personalization, and mobility.

Chat reference and text messaging reference services present efficient, personalized methods for connecting with college students. Text messaging, also known as short-message-service (SMS), is described as "near-synchronous" because the sender and receiver have time to thoughtfully compose and edit a message before sending it (Guo and Turner, 2005). SMS reference is a personal medium because it is similar to spoken communication, and is efficient due to the fact that it can be employed anywhere cell phone service is available.

The current study reveals that the convenience made possible with mobile devices, combined with the need to multitask, have contributed to college students' desire for immediate research services. Portable devices and mobile technology help libraries provide point-of-need services due to the fact that people can do their research on the go with these technologies. Physical location is no longer a hindrance, and therefore individuals can work on many tasks at once while doing research, which in turn makes accessing information more convenient and immediate. Academic research is made easier for students when reference services are offered at the point-of-need, whether it is via the traditional reference desk, chat reference, or text messaging reference (SMS). The purpose of the current study is to discover what college students perceive to be the advantages and disadvantages of SMS reference, chat reference, and face-to-face reference services.

The type of reference service that today's college student prefers is based on many factors, some of which are social in nature. Social characteristics include educational background, family culture, societal influences, and more, but are best described in Beloit College's annual mindset list. The 2014 Mindset List describes the cultural events that shaped the individuals who began college during fall 2011, most of whom were born in 1992:

> *"Born when Ross Perot was warning about a giant sucking sound and Bill Clinton was apologizing for pain in his marriage, members of this fall's entering college class of 2014 have emerged as a post-email generation for whom the digital world is routine and technology is just too slow" (Beloit College, 2011).*

The 2014 Mindset List goes on to include the fact that this year's beginning college freshman will be "armed with iPhones and BlackBerries, on which making a phone call will be only one of many, many functions they will perform" (Beloit College, 2011). According to the Pew Internet & Life Project, 97% of American adults aged 18-24 exchange an average of 109.5 messages during a normal day (Smith, 2011, p. 2). Libraries that have implemented SMS reference are able to reach students on their mobile phones and other portable devices at the point-of-need, which will extend their relevancy to college students.

Albertsons Library at Boise State University (BSU) expanded their reference services by implementing SMS reference in July 2010, and prior to that, by implementing chat reference service in 2005. SMS and chat reference services are a direct result of librarians striving to provide user-oriented services to BSU's 19,993 students. BSU librarians currently use OCLC's QuestionPoint, a global chat reference service cooperative. During the 2009-2010 academic year, BSU librarians answered 946 chat reference questions, but a year later, during 2010-2011, the total

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number increased to 1,683. During the same year, librarians answered 563 SMS questions using SpringShare's LibAnswers software.

The need for SMS reference service was identified during a review of BSU ECAR (EDUCAUSE Center for Applied Research) survey data. ECAR conducts and shares research regarding the role of information technology in higher education across the United States. In 2009, 269 BSU students responded to the ECAR survey, and in 2010, 319 students responded. The authors studied the 2009 and 2010 data to discover the following trends.

- A predominant number of BSU students owned and used their own cell phone
- More students owned a cell phone than owned a laptop or personal computer
- 63.9% exchanged text messages for school, work, or recreation purposes
- 44.8% did not own a desktop computer
- 93.5% used their handheld mobile device to send or receive text messages
- More BSU students owned a cell phone than used popular social networking sites including Twitter and Facebook

BSU librarians decided to implement a reference service that would meet the needs of mobile users, regardless of whether they owned a cell phone or smartphone. After evaluating a number of different service provider options, the library chose to use the Springshare product LibAnswers to provide SMS service at BSU. Patrons ask a question with their cell phone by sending a text message to a specific number. Librarians log in to the LibAnswers interface on a computer, and the SMS message that the user sent appears in the queue of unanswered questions. The librarian sends a response as quickly as possible, sometimes with referring URLs or by spanning, sending multiple SMS messages to answer the question.

Use of the SMS reference service has grown since the library implemented it. Initial use was quite low, less than ten messages per month, but grew to a consistent stream of approximately 100 messages per month. SMS reference users ask a large variety of questions including known item requests, general reference questions, and even to report building matters. SMS usage increased after the librarians promoted the service through campus posters and in-house flyers. In addition, instruction librarians promoted the SMS service in their information literacy workshops.

The authors initiated the current research project in order to learn about patron perceptions of SMS reference, especially how they view this new service in relation to chat reference service and face-to-face reference service. The survey poses identical questions about three different reference services: SMS, chat, and face-to-face. For comparative purposes, the survey questions are almost identical to those used in one of the authors' previous research studies on chat reference (Ruppel and Fagan, 2002). Survey questions ask students for their thoughts in three main areas: quality of help received, advantages and disadvantages of each medium, and preferred resource formats. The entire survey instrument is in the Appendix. The survey questions serve to answer three main research questions:

- How do students view the quality of help they received through chat and SMS reference?
- What do students perceive the advantages and disadvantages of chat, SMS, and face-to-face reference to be?
- How does this data compare to the 2002 chat reference research study?

Literature Review

This literature review focuses on articles written about patron perceptions of SMS, chat, and face-to-face reference services. As the body of literature on patron perceptions of traditional desk reference is quite large, the authors selected only representative articles from the last three decades. Articles about chat reference service are plentiful, but the authors chose only those that include patron perceptions of the service. SMS is a rather new service, and therefore few articles that discuss patron perceptions have been published.

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The present study fills a gap in the literature by presenting college students' perceptions of three mediums used to provide reference services: SMS, chat, and face-to-face reference. By asking students to discuss the advantages and disadvantages of these three mediums, the authors are able to present unique perspectives of each medium. The study contributes to reference services research by bringing new technology (SMS) into consideration. It focuses on two technologies (chat and SMS) in relation to the established method of providing reference services in person. In addition, the way college students locate information changes along with technology, and the present study reveals these evolving research needs.

SMS Reference

There are several recent studies that analyze the use of SMS or text messaging for the purpose of reference service, although many highlight the individualized experiences of specific libraries and their communities. Very few studies have been conducted regarding patron satisfaction and patron perceptions of SMS reference**.** In part this is because SMS reference is one component of the social media package, and it is currently well established that there has not been much assessment of social media in general, "because social media networking sites are relatively new, formal assessment tools are only beginning to surface," (Reference Reborn, p. 200). Though it has not been thoroughly assessed, there are some studies that have made initial steps towards an analysis.

Guo and Turner studied college students' perceptions of messaging systems in 2005. They determined that while face-to-face was the most preferred communication medium, chat, and SMS communication would become more popular as students increase their usage and familiarity with them. As evidenced by the BSU ECAR survey results, the authors have found that SMS usage has increased since the time it was introduced in 2010..

In 2011, Luo reported that San Jose State University survey participants used SMS because they needed information immediately (55.6%), wanted to see how the service worked (38.9%), did not have Internet access (33.3%), and needed help from a librarian (16.7%). In addition, 88.9% of the participants said they would be willing to use the service again (Luo, 2011). Participants cited SMS features they appreciate (speed, convenience), but said it is a challenge to ask a more complex question via SMS. Luo states, "They also considered texting to be a more comfortable way to get help from a librarian," but does not indicate what participants mean by "comfort" (2011, p. 491).

Peace, Collard, and Whatley determined that when a student using the SMS reference service texted a response back containing some form of the words "thank you," that it was an indicator of satisfaction (2010). They found that the more transactions during an SMS reference encounter were exchanged, there was more likely to be a thank you responses. The authors stated, "When the total number of messages exchanged was four or more, a 'thank you' event was received 61% of the time. Response time for transactions where a 'thank you' was received, on average, was three times faster than the response time for those transactions in which no 'thank you' was received," (2011, p. 257) A year later, the same researchers determined that a patron does not need to have short conversations in order to be satisfied with SMS reference service. In 2010, Cole and Krkoska evaluated their transactions and determined that they have not seen a lot of back and forth in their transactions via SMS reference service. They believe their users expect a single response.

Using the "thank you" response to ascertain satisfaction with a service has been used in the past. In 2007, Mon and Janes evaluated e-mail reference exchanges to determine what the "thank you" feedback indicated about the reference transaction. They determined that more research is needed in order to fully establish the meaning of the "thank you" response for patron satisfaction. Mon and James stated that the "thank you" response was received so quickly that it may also indicate the users did not have a sufficient amount of time to fully evaluate their answers from the librarian to determine their satisfaction.

According to an article published in 2011 by Tomaszewski, SMS communication was the second most popular method of speaking with a liaison librarian, and second only to walking into the library for assistance. Though this study primarily focused on making appointments for research assistance, the librarian also conducted reference transactions using SMS. This study was conducted with science students at Georgia State University. Tomaszewski

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states that students preferred SMS reference because "the convenient and unobtrusive nature of SMS makes it all the more a popular choice with students who own a cell phone" (2011, p. 284). Tomaszewski concludes that SMS is the preferred method of communicating among science students.

Chat Reference

While chat has been used to provide online reference services since the late 1900s, studies that addressed patron perceptions of this medium were not published until 2002 (Ruppel and Fagan). Ruppel and Fagan found that students see the benefits of chat reference as being convenience, anonymity, speed, quality of help, and no waiting in line. Participants also pointed out the benefits of using in-person reference service: personalized, direct help and communication, speed, and high quality of help.

Horowitz, et al, studied both email and chat reference transcripts at Johns Hopkins University in 2005, and administered a survey to library users. Fifty-four percent of JHU patrons used chat reference because they did not want to come to the library; 53% preferred to multi-task while waiting for a response; 51% were in a rush and expected the service to be quick; 49% needed an immediate response; 14% wanted to try it because they were satisfied with other library services; 9% had previously used chat reference and wanted to try it again; and 3% liked the anonymity of chat (Horowitz, et al, 2005).

Pomerantz cites convenience as the most common reason users choose to use chat reference (2006). In this study, almost half (47%) perceive chat reference to be fast, efficient, easy to use, "always available, and accessible from any computer with Internet access, unrestricted by physical location; and users found it to be less trouble than other forms of reference service" (Pomerantz, 2006, p. 357).

In 2008, Granfield and Robertsons employed a survey and a focus group in order to compare virtual reference and reference desk users' preferences and behavior. One survey was distributed to reference desk users, and the other survey appeared in the form of an exit survey to virtual reference users. The authors concluded:

- The reference desk is the most preferred method of getting help in the library, despite some respondents admitting the reference desk intimidated them, and that it was sometimes frustrating to wait in line.
- Virtual reference fills a need for users who prefer to work off-campus, especially for graduate students. It is seen as a significant service for students, not just a supplement.
- Exposure to virtual reference "changes the perception of the landscape of reference services," which can motivate students to seek research help using new mediums.

OCLC's "Seeking Synchronicity: Revelations and Recommendations for Virtual Reference" report gathered data from focus group sessions, OCLC Question Point and 24/7 Reference Cooperative transcripts; and online surveys and interviews with librarians and chat users (Connaway and Radford, 2011). Their study revealed 70% of virtual reference users believe a good relationship can be developed with a librarian via face-to-face communication, while 30% believe they can develop the best relationship with a librarian via chat reference. Connaway and Radford identified several issues from their research:

- People do not know that chat reference services exist
- When people do use chat reference, they want it to be very convenient
- "Content (information) and relationships (interpersonal aspects) determine perceptions of satisfaction" (p. 69)
- Positive chat reference experiences depend on getting accurate answers, and getting them from a friendly librarian
- Negative chat reference experiences are caused by not receiving an answer or source.
- People choose face-to-face reference when given a choice, but chat reference was seen as the least intimidating and the most convenient when researching from home or office

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Traditional (Face-to-face) Reference

Every day reference librarians help people locate the information they need, provide directions, and trouble-shoot computer and printer problems. While librarians are able to help thousands of people with their information needs, they have always been concerned with the patrons who need help, but do not ask. Many studies have been undertaken to find out the reasons library users often do not seek help with locating information.
Swope and Katzer discovered the "non-question-asking" patron in 1972 when they interviewed Syracuse University students. Sixty-five percent of the students reported they would not ask a librarian for help because they felt the question was too simple for a librarian; did not want to bother the librarian; or because they were unsatisfied with past service. Similarly, at the University of Nebraska in 1977, 89% of the students surveyed said they would not ask for a librarian's help because they felt "foolish, embarrassed, shy, stupid, and a nuisance"; or because the librarian seemed busy or unwilling to help. These students reported they would prefer the librarian leave the desk and help one-on-one at their point-of-need (Hernon and Pastine, p. 134).

When Massey-Burzio studied how Johns Hopkins University library users prefer to do research in 1998, she discovered that students were often uncomfortable asking librarians questions because they felt they were bothering the librarian. In addition, students felt their question might be silly because the library seemed to be so uncomplicated. To complicate the matter further, Massey-Burzio reported that some students felt uncomfortable asking questions because academic libraries often promote a self-help message.

In a study conducted regarding barriers to using the library and reference services, Robinson and Reid (2007) found several reasons that students avoid using reference services. They include, primarily, lack of awareness of services, embarrassment or shyness, anxiety caused by mechanical barriers, and "affective barriers" (Robinson & Reid, 2007, n.p.). Furthermore, Robinson and Reid found that chat reference and other digital reference services offer a solution to the anxiety barrier.

Methodology

The results of this research study are derived from two sets of data.

1. Survey responses regarding perceptions of chat reference service (Fall 2010)
2. Survey responses regarding perceptions of SMS reference service (Spring 2011)

Both surveys were administered to students enrolled in University 106: Library Research, an elective one-credit BSU course. The authors used Qualtrics software to create the surveys, in order to take advantage of automated data compilation.

The survey questions are the same as those used by one author in a 2002 study, "Instant Messaging Reference: Users' Evaluation of Library Chat" (Ruppel and Fagan). By asking the same questions to a similar group of students (enrolled in a one-credit library research course), the authors will be able to discern possible patterns and differences between the 2002 and 2012 research studies. In both studies, the authors chose the one-credit library skills course to administer the local surveys because the students represent various majors, class standings, and experience with technology. By offering the surveys to students enrolled in the library skills course, the authors were able to define a sample of university students for the study.

Students were offered extra course credit for completing the local surveys, but were also offered an alternative method for gaining extra credit in the course. The availability of extra credit encouraged students to participate in the survey, but due to the alternate extra credit option, students were not forced to participate in human subjects testing in order to earn extra credit. Survey participation remained voluntary throughout the research project. The survey questions were the same for both surveys; only the reference medium changed.

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Students who chose to participate in the study were asked to use either the SMS reference service (Spring 2011) or the chat reference service (Fall 2010) and then answer the survey questions. The instructions encouraged the students to ask the online librarian a question related to an assignment they were completing for any course in which they were currently enrolled. The authors subsequently used Qualtrics to view the results.

Results

One hundred five individuals completed the chat and SMS reference service surveys. The chat reference survey had a 23% response rate (61 people out of 302), while the SMS reference survey returned a 20% response rate (44 out of 189). When the chat reference survey was administered during Fall 2010, 450 students were enrolled in U106. During Spring 2011, 235 students were enrolled. Females comprised 55% of this enrollment during Fall 2010 and 54% during Spring 2011 (males 45% and 46%, respectively). The majority of students enrolled in this class were freshman: 54% of the enrollees in Fall 2010 and 45% in Spring 2011. Sophomores were the second largest enrollment group, with 26% during Fall 2010 and 28% in Spring 2011. Juniors, seniors, and post-baccalaureate undergraduates were also enrolled in U106; 9% of the students enrolled during Fall 2010 were juniors, while in Spring 2011, 14% were juniors. Several seniors took U106 during Fall 2010 (10%) and Spring 2011 (11%).

Chat Reference Survey Results

The authors administered the chat reference survey during the Fall 2010 semester. Of the 61 students who participated, 22 (36%) had previously used chat reference. Almost all of the respondents (59) stated they would use the chat reference service again in the future (Figure 1).

When asked how much they liked using the chat reference service, 90% said they liked or loved it (Figure 2).

A few factors contributed to the participants' enjoyment of using chat reference service, including speed and quality of help. A majority of the respondents (92%) perceived the speed at which the question was answered as very quick, quick, or somewhat quick (Figure 3). Fifty-five respondents (94%) rated the quality of help they received from the chat reference librarian positively (Figure 4).

[insert figures 1-4]

The majority of students (51 respondents, 84%) indicated that when using the chat reference service, they want the librarian to tell them about both online and print format resources, while only ten students (16%) want to learn about online resources only (Table 1). The last three questions on the survey asked respondents to discuss the traditional library reference desk where patrons can ask librarians questions face-to-face. Forty-seven out of 61 people (77%) responded that they ask questions at the reference desk: three people ask questions "frequently," 11 ask "somewhat frequently," 18 ask "somewhat rarely," and 14 stated they "rarely" ask questions at the desk.

[insert Table 1]

Library users have cited various reasons for not asking questions at the traditional reference desk in previous research studies. In the present study, respondents were allowed to select more than one reason they do not ask questions at the reference desk, and to indicate whether this would also be a problem with chat reference service (Figure 5).

[insert figure 5]

Forty-two respondents (69%) said they do not ask questions at the traditional reference desk because they feel stupid for not already knowing the answer to the question; nine people think this would also be a problem with chat reference. Thirty-eight people (62%) perceive the person at the desk as too busy or unwilling to help; 10 respondents think this would also be a problem with chat reference.

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The third most common reason for not asking questions at the traditional reference desk was "I don't want to get up from my computer," which was selected by 34 respondents (56%). Thirteen respondents think this would also be a problem with chat reference. Another reason relates to convenience: "I do not want to bother going to the library building," selected by 31 respondents (51%). Twelve respondents said this would also be true when using chat reference. The least common reason respondents do not ask questions at the reference desk, "I don't think the person at the desk will know the answer," was selected by 23 respondents (38%), and 10 of these respondents think this would also be a problem with chat reference.

Twenty-four respondents said they will increase the number of questions they ask at the reference desk now that they have used chat reference service (Figure 6). Twelve people plan to decrease the number of questions they ask, while 24 individuals plan no change at all. Three of the four respondents who said they never ask questions at the reference desk will increase the number of questions they ask.

[insert figure 6]

Chat reference service users were excited about the convenience of using the service (Table 2). Over half of the respondents commented on how convenient it is, such as this respondent: "It was nice because even though I asked after hours I had an answer quicker than I could get to the library... it is research made easier." Chat reference was also perceived as advantageous because of its speed, mentioned in 20% of the comments, quality of help (13%), anonymity (6%), and ease of use (4%).

[insert Table 2]

While respondents cited several advantages to using the chat reference service, they also listed disadvantages, the most common being its impersonal nature (Table 2). Comments about the inherently impersonal nature of chat reference range from the difficulty of conveying emotions via chat, to the fact that you cannot hear the librarian speaking. Other disadvantages of chat reference are its indirect nature (cannot be led directly to physical materials in the library building) (14%), slowness (14%), poor quality of answers (8%), and limited hours (6%). A large number of comments (19%) indicated there are no disadvantages to using chat reference service.

SMS Reference Survey Results

The authors administered the SMS reference survey during the Spring 2011 semester. Of the 44 students who participated, eight (18%) had previously used SMS reference service. Almost all of the respondents stated they would use the SMS reference service again in the future (Figure 1). The first question on the survey asked participants how much they liked using the SMS reference service. Forty people (91%) reported in the affirmative, that they either "loved it" (25%), "liked it a lot" (30%), or "liked it" (36%) (Figure 2). In addition, 92% of the respondents reported that the staff responded "very quickly," "quickly," or "somewhat quickly" (Figure 3). Most respondents rated the quality of help received through SMS reference positively (Figure 4). Upon being asked which formats they prefer for the information the librarian provides, 73% of the respondents selected "print and online," while the remaining 27% preferred resources to be "online only" (Table 1).

Participants were asked how frequently they ask for help at traditional library reference desks Of the 36 respondents who reported they do ask questions at reference desks, one person said they ask questions "frequently," 11 said "somewhat frequently," 11 responded "somewhat rarely," and 13 said they "rarely" ask. Twenty-one respondents (48%) reported that they planned to increase the number of questions they ask at the reference desk now that they had used SMS reference, while 12 (27%) reported they would decrease, and 11 (25%) intended to make no change in the number of questions they ask (Figure 6).

Twenty-five students (57%) indicated they do not usually ask for help at traditional library reference desks because the "person at the desk does not look like they want to help or they look too busy" (Figure 5). Five of these 21 participants (24%) indicated this would also be an issue with SMS reference service. For these students, the inability to see the person who is helping them would not keep them from thinking he/she is too busy or not willing

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to help. An almost equal number of students (24) do not usually ask for help because they do not want to "bother going to the library building." Seven participants think this would also be a problem with SMS reference.

"I feel stupid for not knowing already" is another common reason many respondents (52%) do not ask questions at the traditional reference desk. Six students believe this would also be an issue with SMS reference. In this case, the ability to be anonymous via SMS reference would not make it easier for these students to ask questions.

An additional reason, chosen by half of the respondents, indicates the perceived convenience of SMS reference: "I don't want to get up from my computer." Four students think this would also be an issue with SMS reference. The least common reason students do not usually ask for help at traditional reference desks, indicated by ten participants, is that they "don't think the person at the desk will know the answer." Thirteen students say this would also be a problem with SMS reference.

At the end of the survey, participants shared free-text responses about the advantages and disadvantages of using SMS reference service (Table 3). Over half of the comments about advantages related to the convenience of using SMS, with most of the respondents stating that using a mobile device enabled them to ask a question from any physical location. Participants also commented widely on the speed of using SMS for reference service (20% of the comments), the ease of use (11%), the quality of the answers received (11%), and the anonymity of the service (6%).

[insert Table 3]

When asked about the disadvantages of using SMS reference service, the most popular answer was that the nature of the service is impersonal (31%). One participant noted, "... the person may not understand exactly what you are asking; it is much easier to explain yourself in person than through a text." Almost as many comments (25%) related to receiving poor quality of answers, while 21% cited the slowness of SMS service, 6% cited the need to be physically directed to materials in the library building, 2% cited technical difficulties, and 12% stated there were no disadvantages to using SMS reference service.

In-person Reference Service Advantages and Disadvantages

The local SMS and chat reference surveys collected 130 free-text comments about the advantages of traditional face-to-face reference desk service (Table 4). Many of the comments (36%) relate to the personalized service that traditional reference is able to offer, in contrast to SMS and chat reference services. Respondents value the direct nature of traditional reference service (33% of the comments), particularly the fact that the librarian can lead patrons directly to the physical resources they need in the library building. Seventeen percent of the comments relate to the high quality of answers received through traditional reference service. In addition, nine percent of the comments show appreciation of the speed of face to face reference service.

Disadvantages of traditional reference service include its perceived slowness (27% of comments), real or perceived busy librarians (21%), inconvenience (19%), lack of anonymity (17%), librarian's inability to help (5%), and poor quality of answers (3%). Three of the comments (5%) state there are no disadvantages to using face to face reference service. Comments about the slowness of face to face reference service speak to the fact that sometimes there is a line at the reference desk, or that the student is in too much of a hurry to stop at the library. When the staff member is "too busy," students sometimes feel they are bothering them. Students can be anonymous in online reference service, which is deemed important by participants who feel their question is silly or too simple.

<Insert Table 4>

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Discussion

The authors initiated this research project in order to answer three main research questions: 1) how do students view the quality of help they receive through chat and SMS reference? 2) what do students perceive the advantages and disadvantages of chat, SMS, and face-to-face reference to be? and 3) how does this data compare to a similar 2002 chat reference research study? Three themes emerged in response to the survey questions:

1. College students value high quality, quick, convenient, personalized reference assistance, regardless of the medium used.
2. Robust communication contributes to the perceived usefulness and relevance of library reference services.
3. Effective reference service provided at the point-of-need helps build positive student-librarian relationships.

Theme #1: College students value the availability of high-quality, quick, convenient, easy-to-use, personalized, reference assistance, regardless of the medium used.

The results of the current research study illustrate that college students value high quality reference assistance offered through various mediums. Whether it is SMS, chat, or face-to-face reference service, students in this study expressed appreciation for quick, easy, personalized help from librarians. As one participant stated regarding chat reference service: "It's research made easier!" The majority of the respondents stated they intend to use both chat and SMS reference again. These high return rates indicate that both chat and SMS reference services are valued by students and serve to answer their questions at their point-of-need. Survey participants' responses speak to the advantages of SMS and chat reference services:

> "Texting is such a huge part of life now, that [SMS reference] makes it extremely convenient to be able to text a question when you think of it and not have to make a separate trip to the library in order to receive help."
>
> "An answer no matter where you are or when... whether that be at the library computer or at home. I was in Kuwait when I asked a librarian on chat.""[SMS reference librarians] offer different topics in my research, not the obvious one I have thought of."
>
> "If you have more questions they can be answered right away [via SMS reference] instead of texting back and forth."

Students from both the current study and the 2002 study revealed that "convenience" is the primary advantage of using online reference services such as chat and SMS. The 2012 comments about convenience were unique in one aspect, however; students highly value the ability to multitask, to work on other tasks while chatting or texting with a librarian. The students represented in the 2002 survey data did not mention multitasking in their comments, and therefore this indicates a more recent trend. The ability to multitask takes on more importance every year, and has become more of a reality due to time-saving devices such as smartphones and cell phones. The increasing mobility of communication technology will make it even more convenient to multitask in the future. Survey participants' comments best illustrate this need:

> "You don't have to stop what you are doing to ask a question. You can just text and will get an answer while you continue to work."
>
> "You don't have to walk away from your computer [with SMS reference], plus if the librarian is busy she or he can respond when they have time. Which in turn means that you don't have to wait in line and can go on to the next part of your paper."
>
> "I also didn't have to get up from what I was doing and they could answer me right where I was [via chat reference]. It was as if they were my waitress, they kind of came to me for help in the fact that my question was answered right at my computer where I was working."

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Students who participated in this study expressed a genuine appreciation for the face-to-face, personalized, direct nature of traditional reference desk service. As one student said, "Sometimes it is easier for me to explain in person because I can blabber on and sooner or later the person will understand." Comments in the survey provide evidence that students sometimes view the quality of help received at the reference desk as better than that received via chat or SMS. At the same time, however, they are concerned that face-to-face reference service is slow because of the wait in line, and they often view it as inconvenient to come into the library building to get help.

In contrast to the appreciation of face-to-face reference help, some students expressed an affinity for the anonymity afforded through SMS and chat reference services. One participant addressed the anonymity inherent in online reference: "If you feel like your question is silly, it doesn't matter because the texting makes it confidential in a way." While students value face-to-face communication, they remain worried that their question will be deemed trivial or silly. Many college students feel they should already know the answers to research and library questions, and become embarrassed when their question is easily answered by trained librarians.

Anonymity is a valuable characteristic of SMS and chat reference service, and should always be an option in a library's suite of reference services. The need for anonymity was expressed in the 2002 study about chat reference, when 11 out of 60 (18%) respondents included it as an advantage to using chat reference. One student stated, "If a person feels dumb for asking, they aren't revealed." Nine percent of the 2012 responses about chat reference also referred to anonymity as an advantage, and 6% of the responses about SMS reference advantages related to anonymity. Another theme in the survey results indicated that BSU students prefer to connect with a BSU librarian through QuestionPoint's 24/7 chat reference service, even though this is not possible at all hours.

When asked to list the features they would add to the chat reference system in 2002, 31% of the respondents stated they would make it available 24/7, and 22% said they would make more staff available on chat. With QuestionPoint's 24/7 reference services consortium, libraries can offer chat service at all hours, and have several librarians available for chat, but this system was not available to the 2002 survey respondents. A forward-looking respondent stated in 2002: "Maybe (and I'm thinking big here), there could be a BIG system where librarians all over the country are on at all times (except maybe 3am) and they give basic assistance" (Ruppel and Fagan, 2002, p. 189).

On a related note, 10% of the 2002 responses about the disadvantages of using chat reference revealed concern for technical problems, but these concerns are not present in the 2012 study. Perhaps more people are using online reference mediums because fewer technical problems occur.

Theme #2: Robust communication contributes to the perceived usefulness and relevance of library reference services.

A majority of the survey participants spoke to the importance of effective, robust communication in all library reference services. While students highly value the ease and convenience of using SMS and chat reference services, they also view face-to-face reference service as crucial to their academic success, due to the facilitation of successful communication. Participants described successful communication as including interactivity, immediate feedback, body language, and important social cues. Survey comments about communication include favorable views of face-to-face reference services and concerns about the impersonal, indirect nature of answers received through SMS and chat reference. Participants seemed to grasp the inherent advantages and disadvantages in each medium used for library reference services:

> "It is easier for me to learn face to face."
>
> "[SMS reference service] lessens interaction with librarians."
>
> "Sometimes you think of other questions or it turns into a better conversation in person."

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> "Limited answers. The answers are short and to the point, no elaboration of suggestions [when using SMS reference]."
>
> "You can't get as much information [with SMS reference] which is always my problem with asking anything through technology."
>
> "The disadvantage is that the conversation could have some misunderstanding just because emotions and things aren't easily displayed in a chat."

College students' desire for effective communication in library services is not a new concept. In 2002 and in earlier studies, respondents used various phrases to state their preference for traditional reference services: "face-to-face," "one-on-one," and "person-to-person." A 2002 participant said, "you can explain your problem better face to face" (Ruppel and Fagan, p. 192). In addition, both the 2002 and 2012 studies reveal a need for assistance locating and using physical resources while using the library building. In 2002, a student wrote, "they can come help you hands on" (Ruppel and Fagan, p. 192). Similar statements from 2012 indicates that students still see a need for help within the library building:

> "I think the advantages of getting help from a librarian in person is if you needed assistance finding something. As I stated earlier, I get lost easy in a library."
>
> "see materials first hand."
>
> "Going to a library in person you can get help and see the actual books that may help you with your project."

Students' need for help within the library building is evidenced in a statistic from both the 2002 and 2012 studies. When asked which formats they prefer while using chat reference in 2002, only 8% of the students stated they wanted "online only" resources, while 92% said they wanted to learn about "print and online" resources (Ruppel and Fagan, p. 190). Ten years later, this preference ratio has slightly shifted, but students still want to find out about print resources: 73% of the SMS survey respondents prefer "print and online" (27% prefer online only) and 84% of the chat survey respondents prefer "print and online" (16% prefer online only).

Theme #3: Effective reference service provided at the point-of-need helps build positive student-librarian relationships.

Providing academic library reference services that college students deem relevant often depends on building positive student-library relationships. This endeavor includes reaching out to students and providing relevant services using the technology with which they are familiar. Information technology is increasingly mobile, quick, and convenient. Along with providing a needed service at the point-of-need and employing robust communication, libraries should continue to cultivate positive student-librarian relationships. Respondents in the current study expounded on the value of these relationships:

> "You are able to build a relationship with the person who is helping you."
>
> "[Face-to-face reference] gives the students that one on one basis needed to conduct a research project."
>
> "You can make [a] new friend, build a relationship."

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When it comes to comments about student-librarian relationships, the respondents have more to say about relations developed during face-to-face traditional reference, but they also say it is possible via online reference:

> "You can talk to a live person."

Connaway explained the value of forming student-librarian relationships in 2011:

> "Interpersonal communication is important for both user and librarian satisfaction and success in all reference delivery modes. The best time to create a lifelong [virtual reference] user is during the face-to-face interview. Library users have strong and, often, very positive relationships with their librarians" (p. 2).

In addition, library patrons will often use other library services once they have a positive experience with another service.

In the current study, 48% of the SMS reference survey respondents, and 40% of the chat reference survey respondents indicated they plan to increase the number of questions they ask at the traditional reference desk now that they used online reference services. In addition, 27% of the SMS survey respondents, and 20% of the chat survey respondents stated they plan to decrease the number of questions they ask. These results may indicate that some students had such a good experience with using chat and SMS reference that they plan to continue using it, while others plan to utilize an additional service (traditional reference) based on their positive experiences with online reference service. Robinson and Reid explained a similar pattern of online reference usage in 2007: "Students buoyed in confidence perhaps, by a successful online transaction, and with their knowledge of the enquiry service heightened by the promotion of the service online, might be more confident in seeking help face to face as online" (p. 420).

Conclusion

The results from this study indicate that SMS and chat are useful mediums for providing reference services, in addition to traditional desk reference service. Academic libraries can capitalize on these easy-to-use, convenient ways to offer point-of-need service to students. The convenience factor involved with SMS and chat reference services means a lot to harried college students, as does the personalized service and effective communication afforded through in-person reference service. Today's college students often seek help from a librarian via their cell phone or mobile device, which makes it possible to ask questions on the go while multitasking. In the ten years since one of the authors published the first patron survey results about chat reference, the need for both online and traditional forms of reference have remained essential to college students' academic success.

Academic success is one of the main goals for college students, and by offering both mobile and traditional library services, academic libraries can provide the flexibility students need to achieve their research goals. A participant explained the ultimate value of reference assistance: "Every time I ask for help I learn something new about research and the library. It enables me to better help myself and I feel more confident in my abilities to navigate my way through the library and finding the information that I need."

While traditional face-to-face reference service continues to be a very effective method for explaining the intricacies of research, SMS and chat services provide college students the opportunity to utilize reference services anywhere there is a mobile device and Internet service. While SMS reference is at an early diffusion stage, it will likely become more heavily used in the future, and most of this study's respondents said they would use chat and SMS reference again. To this end, more libraries will need to offer SMS reference service to their community.

Students value face-to-face reference services because both participants can see visual cues, and because it allows the student enough time to speak until they have made their question clear. Since one limitation of chat and SMS reference is that librarians cannot see these visual cues, video reference may be a way to improve virtual reference

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services. One survey respondent from 2012 indicated that video would improve the chat reference experience. In order for this to become a viable service, the technology needs to improve and become more widely available.

In the meantime, libraries that use SMS and chat reference should consider personalizing each service to the extent possible, but leave a way to keep it anonymous for those who prefer it that way. In this way, librarians can combine the personalization that accompanies face-to-face reference with the convenience and ease of getting help via chat and SMS reference. Based on these themes from the current research study, "reference service must remain user-centered; high-tech and high touch are equally important" (Rettig, 2003, p. 21). Some respondents indicated they would prefer to always chat with a BSU librarian via QuestionPoint's 24/7 chat service. While this is not possible, libraries must strive to use other strategies to overcome the perceived impersonal nature of virtual reference services.

Most importantly, using chat and SMS reference helps students avoid the disadvantages of using traditional reference service, such as physical and visual barriers, and the lack of anonymity. One of the authors reached a similar conclusion in 2002: "The IM [chat] reference desk removed the negative assumptions about reference desk staff that sometimes result from visual perceptions of business, unfriendliness, or disinterest. Seeing no one, patrons assume the IM reference staff person is friendly, knowledgeable, and not busy" (Ruppel and Fagan, p. 192). Implementing video chat reference service in the future has the potential to reinstate these negative assumptions.

Academic libraries that offer reference services via different mediums are positioned to meet college students at their point-of-need using their preferred communication method and can build connections in a variety of contexts. As Connaway stated in 2011, "In the end, your users aren't just looking for answers to specific questions – they are also seeking partners and guides in an information-seeking journey, a journey of a lifetime. [Virtual reference services] provide a unique and powerful way to leverage the positive feelings people have for libraries in an online space that is crowded with options" (2011, p. 7).

When librarians provide a good experience to students via one medium, students will likely use it again, and often use another medium for the same service. Technology will evolve. College students will change. Ultimately, however, college students will continue to value high quality, quick, convenient, personalized reference service, regardless of the medium used. Libraries will reshape their services to accommodate new technology and new research needs, and in the process will continue to offer effective reference service at the point-of-need and build positive student-librarian relationships. It's research made easier!

Implications for Further Research

The present study supports the view that college students can provide valuable insights into the use of reference services via multiple mediums. While this study is cross-sectional, a longitudinal study of student perceptions of online reference at later stages of familiarity with mobile technology will further librarians' knowledge of how students use various technologies. Future research in this area should include an evaluation of staff experiences with mobile reference service, an analysis of video reference service, and mobile reference best practices. There is a great need to develop mobile reference best practices guidelines that that will improve SMS/chat communications between librarians and patrons. To this end, college students will feel that mobile reference is more personal and relevant than they do today.

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