Abstract

After one year of providing virtual reference service through an instant messaging (IM) service, Binghamton University (BU) Libraries, under the purview of its Digital Reference Committee (DRC), undertook a study of collected session transcripts. The goals of this work were to determine who was using the IM service and why; if staffing for the service was adequate and met our in-person reference standards; and if improvements to the Libraries' existing reference services were needed.

The findings revealed that 31% of identifiable users were students and 5% of users were campus community members. The analyses also revealed that many used the service for complex questions and not just ready reference, policy, and directional questions as had been expected. The most common question types were website navigation help (29% of all sessions), research assistance (22%), and instructional questions (23%).

The American Library Association Reference & User Services Association (RUSA) *Guidelines for the behavioral performance of reference and information service providers* were used to measure quality of service. The findings reveled that approachability, showing interest, and listening were each demonstrated in over 80% of sessions, indicating these activities can be demonstrated effectively in a virtual environment. The study also found that questions were correctly answered 84% of the time.

The study provided valuable insight into how patrons approach and locate information on our website and demonstrated a need for additional training, improved site design and navigational aids, and future discussions of staffing alternatives for the IM service.

Introduction

Binghamton University, part of the State University of New York system, is a doctoral-degree granting research institution with an enrollment of over 14,300 students and 800 faculty. Binghamton University Libraries consist of four library locations. The Glenn G. Bartle Library serves the humanities, social sciences and fine arts. The Science Library serves the science and engineering and houses the University Map Collection. The University Downtown Center Library/Information Commons opened in fall 2007 and serves the College of Community and Public Affairs. The Library Annex, is a high-density facility housing over 350,000 volumes in all subject areas.

In 2005 the Libraries' Digital Reference Committee (DRC) was charged with initiating IM reference service at the Bartle Library and Science Library. Each library created and supported accounts on AOL, MSN and Yahoo! and monitored this service at the reference desk alongside in-person, email and telephone reference. A more detailed description of the DRC's experiences in implementing and maintaining the IM reference service through Trillian was documented in an earlier published article titled, *"Connecting to Students: Launching Instant Messaging Reference at Binghamton University*."[2]

A year after the service was launched the DRC began developing a method to analyze IM transcripts to accomplish the following objectives:

- Evaluate quality of service and recommend improvements

- Produce quantitative and demographic data describing usage trends

- Recommend changes for library services in reference, web design and collections based

on identified needs of virtual users.

Literature Review

A literature review was conducted to see how others had measured quality of service in virtual reference. The review found that most studies focused on the evaluation of transcripts from commercial chat vendors such as QuestionPoint and data analysis centered on collecting basic statistical data. Since this literature provided minimum guidance for a study on evaluating quantitative and qualitative data, the DRC developed a unique methodology for data collection. The analysis incorporated evaluative factors from the literature review as well as additional qualitative and quantitative measures not previously studied.

The reference desk, whether physical or virtual, is one of the most visible library services and the interaction with librarians as well as quality and delivery of information provided can significantly impact a patron's overall perception of the library. Librarians have employed a variety of research methods to evaluate reference services. Some examples of these methods include having library students pose as patrons or having researchers observe reference desk transactions. There is belief among some researchers that these techniques alter desk behaviors of both patron and librarian.[5] Less intrusive methods for evaluating reference services became possible through the availability of email and chat transcripts.

An early example of transcript analysis was conducted at Auburn University Libraries. Sears[11] manually saved transcripts from the Libraries' chat service *infoChat*, a text-based chat system provided by HumanClick (http://www.humanclick.com/) and then coded transcripts by day of the week, user affiliation and type of question. Results showed that 60.1% of questions were related to the Libraries' policies, procedures, resources, and/or services while only one research question was asked. This led Sears to question whether the chat medium was conducive

to research based questions.

At the Murdoch University in Perth and Macquarie University in Sydney, Lee[8] conducted an evaluation of the libraries' real time/real talk chat service called "*Online Librarian.*" Forty-seven chat transcripts and 47 email reference transcripts were examined for a number of quantitative and qualitative measures, including population characteristics, question type and the presence of disjointed communication in chat conversations. Lee reported that research and reference inquiries were more common in chat while administrative questions were found more frequently in email. Lee also reported reference interviews were more common in chat than in e-mail transactions.

Arnold and Kaske[1] from the University of Maryland College analyzed 351 chat transcripts to determine types of questions asked and by whom. The researchers also evaluated the correctness of the answers. Arnold and Kaske reported that the most common types of questions were policy and procedural (41.25 %) followed by "specific search" questions (19.66%). Students, at 41%, were the most frequent users of the service while "outsiders" (individuals not affiliated with the university) asked 25.1 % of questions. This lead the researchers to question whether the service should be limited to only University of Maryland customers. In this study, they reported that 91.72% of questions were answered correctly.

Ryan et. al[10] from the Louisiana State University Libraries reviewed 349 chat reference transcripts from *LiveAssistance*, the Libraries' chat service, to evaluate the service's strengths and weaknesses. The authors coded the transcripts in two different areas: the type of question and "customer service". Customer service related to the librarian's performance (e.g. provided a salutation), types of chat features employed (e.g. pushing pages) and resources used. Most questions were informational or known item questions (e.g. does the library own) and the authors

wondered whether patrons realized that the chat medium could be used for in-depth questions. The authors also found that librarians almost always greeted the patron but were less consistent in providing adequate closing language such as asking the user if there were any more questions. The authors also found that librarians provided compensation for visual cues, such as "please wait while I check the catalog," only 31% of the time.

Shachaf and Horowitz[12] used Reference & User Services Association (RUSA) behavioral guidelines and International Federation of Library Associations (IFLA) digital reference guidelines to evaluate effectiveness of email virtual reference. The researchers sent a total of 324 queries to fifty-four participating libraries. Overall the researchers found that few transcripts adhered completely to both sets of guidelines, with objective behavior (90.4%) and clarity of writing (90.4%) observed in a majority of transactions. Behaviors observed in less than 50% of the transactions included explaining the search strategy (IFLA and RUSA), rephrasing the question (RUSA) and asking what the user had already tried (RUSA). The researchers suggested that the lower frequencies of some behaviors could be a result of the type of questions encountered. The researchers also found no correlation between user satisfaction and adherence to either set of guidelines.

Desai and Graves[3] analyzed transcripts and conducted a survey to determine to what extent instruction was or could be offered and whether patrons wanted or expected instruction during an IM reference transaction. The results showed that librarians provided instruction in 83% of the cases when it was possible and 95% of the time when a patron specifically requested instruction. The analysis revealed that students indicated a willingness to learn, even when they had not specifically requested instruction.

Kipnis[7] from Thomas Jefferson University analyzed 102 IM transcripts to examine

question types and usage patterns. Kipnis also looked for instances of IM shorthand and evidence of greetings from the patrons and/or librarian. The most common type of question was "document delivery" and the use of IM shorthand by patrons was relatively rare. The researchers also noted that librarians introduced themselves 72% of the time.

The literature reviewed revealed that most transcript analysis studies have focused primarily on commercial chat reference services and are often limited to variables such as usage statistics (e.g. time of day question asked), user demographics and types of questions asked. This indicated there was an opportunity to conduct a more comprehensive study examining multiple variables in an IM environment.

Study

As noted in the literature review, most IM transcript analyses are limited to studying selected elements of the transaction. The Digital Reference Committee wanted to study as many quantitative and qualitative factors as possible since it would provide a unique opportunity to learn about usage patterns and the information needs of users. The factors that the DRC decided to study included:

a. *Demographics*

b. *Session length*

c. *Session by day and time*

d. *Types of reference questions*

e. *Resources used to answer question*

f. *RUSA guidelines for behavioral performance*

g. *Correctness and completeness of answer*

Methodology

After finalizing which factors to evaluate, a system was created for data input and analysis. The DRC chose Microsoft Access for the analyses because it could be used to create a data input form as well as generate queries for analysis. Seven reference department staff volunteered to assist with evaluating the transcripts. Each volunteer obtained Human Subjects Education Certification and the data analysis project received Human Subjects Research approval.

The Libraries downloaded 284 IM sessions that occurred between June 2005 - June 2006. For privacy reasons, identifiable information such as IM user name, personal names, instructor's name, or e-mail addresses were removed from the transcript prior to the analysis. The transcripts were printed and hand-numbered. A coding key (see Appendix) was then created to assist staff evaluating transcripts and also ensure consistency. Transcripts that contained reference behavior more complex than a catalog search for an item or a simple directional question were analyzed by two volunteers. The analysis data created by these double-coded transcripts was compared and incorporated into a single data record by the DRC.

Results

User Demographics

The Libraries' IM service is publicly available from the Libraries' *Ask a Librarian* (http://library.binghamton.edu/research/askalibrarian) webpage. User demographics were gathered from the transcripts through self-identification (e.g. user says, "I'm an undergraduate student"), librarian query (e.g. librarian asks, "are you a student here") or from clues provided in the transcript (e.g. user says, "I'm in Biology 101 and I need this book for a class"). Due to the challenges in identifying users the DRC labeled 64% of users as "unknown". Thirty one percent were identified as students, and 5% as campus community users (faculty or staff). Of the 31 %

student population, 11% were identified as undergraduates, 4% as graduate students, and 16% simply as "student." It would appear from this data that the IM service attracts more undergraduate students than graduate students, faculty or staff.

Traffic

IM usage patterns were calculated from session transcripts and were compared with Reference Desk activity and traffic when possible. Statistics showed the lightest IM service in early morning hours (8 am - noon), higher usage in the early afternoon (12 noon -3 pm), peak use during mid to late afternoon (3-6 pm) and lower usage beginning in the early evening hours (6-9 pm). Reference staff anticipated lower usage on Friday and Saturday from experience with walk in traffic. Table 1 shows IM transactions by day of the week. The weekend, Friday through Sunday, had less activity than weekdays. This data mirrors patterns observed at both Reference Desks. Weekday traffic is high, with a slowdown beginning on Friday, bottoming out on Saturday, and building again on Sundays as students prepare for the week ahead.

(Insert Table 1)

Use of IM Services

Reference question categories were based on those defined by Katz[6], with some minor modifications. Multiple categories could be assigned to a transcript to accommodate complex or multi-question sessions. An example of this might be a session where a patron asked if the Libraries owned a specific item (Research or Subject) and then asked where it was located (Directional). As shown in Figure 1, the most frequent type of questions encountered concerned Website Navigation (29%), followed by Instructional (23%) and Research or Subject (22%). Interestingly, each of these question types requires significant patron interaction, with multiple exchanges necessary to correctly communicate relevant information. Directional, policy and

bibliographic assistance questions were less common. This is contradictory to the nature of IM service, which would seem to be better suited for quick, factual questions and requests.

(Insert Figure 1)

The mean IM session length was 1 hour 9 minutes and the longest session was 4 hours. Longer sessions usually occurred when librarians offered assistance and patrons then searched on their own, checking back in with the librarian as needed. The mode session length was 2.52 minutes, indicating that IM transactions tended to be relatively brief. Initially there was concern that research and subject assistance questions would lead to lengthy, cumbersome sessions that were better answered through an in-person transaction. However, the session length data shows that while more research-oriented, instructional, and navigational questions were encountered than anticipated, most sessions were succinct.

Quality

For this factor the DRC modified Arnold and Kaske's[1] model in *"Evaluating the Quality of a Chat Service."* As shown in Figure 2, the DRC found that 84% of questions were answered correctly, similar to results obtained by Arnold and Kaske. Ten percent of these correctly answered questions were "correct but not complete," indicating that a correct answer was provided but other activities such as referral to a colleague or request for additional questions were not offered. Seven percent of the questions were answered incorrectly, indicating there is some need for additional reference staff training, particularly in the areas of online reference interview techniques and referrals.

(Insert Figure 2)

The DRC had hoped the transcripts would show if using non-MLS graduate students and staff to monitor IM s may impact the quality of service. Unfortunately 90% of sessions were

marked "unknown" for staff member demographic and any relationships between formal staff training and effectiveness in answering questions could not be measured. Coding volunteers assigned a demographic category for patrons when it was self-identified in an IM session. While a closer look at scheduling and transcript data would give more information on demographics, privacy and ethical considerations would preclude such efforts.

The number of unanswered IM sessions and time lapses during sessions can be indicators of service quality. When reference staff took longer than one minute to first respond to an IM, it was counted as a "time lapse." A time lapse could occur for multiple reasons. Due to the variety of in-person and online reference services available, both reference staff and patrons may have multiple conversations occurring when an IM session was initiated. It may also take a few moments for reference staff to notice an IM and respond to the patron. Fifty-seven sessions (20% of all IM sessions) had a time lapse, with the numbers varying slightly between Bartle Library (19%) and the Science Library (23%). Time lapses ranged from one minute to 144 minutes. A scatter plot diagram indicated the 144 minute delay was an anomaly. When this data point was removed, the mean time lapse was recalculated at 1.53 minutes with a maximum length of 74 minutes. Non-responses to IM sessions were measured, with Bartle Library having an 8% non-response rate and the Science Library had an 11.7% non-response rate.

The *RUSA Guidelines for Behavioral Performance,* as developed by the RUSA RSS Management of Reference Committee[9], served as standards for effective reference transactions in both the physical and remote world. For each guideline the DRC chose behaviors that could be discovered in transcripts. Identification, or lack of, was coded. As seen in Figure 3, at least one indicator of approachability, showing interest, and listening were observed in over 80% of sessions, indicating that these activities can be demonstrated in a virtual environment.

(Insert Figure 3)

Considering the results of all the data collected, IM has been a successful service. We were pleased with high percentage of correctly answered questions, considering the number of variables – the high level of walk-in desk traffic; the use of graduate students to monitor the service and the oft-quoted "55 percent" barometer of traditional reference service.[4] There are repeat users and activity is increasing since the service began in 2006. Comments from the transcripts indicate that patrons find the service useful and convenient. Challenges in the service that remain include dropped and inactive sessions, incorrectly answered questions, and lack of proper referrals to colleagues.

Lessons Learned

Discuss alternative methods for staffing IM services during peak hours.

IM traffic appears to mirror walk-in desk traffic, and the busiest times for both services are the same. To ensure neither service is compromised, scheduling staff to monitor IM in their offices may reduce the number of lapsed responses and missed IMs. Staff on reference duty could also monitor IM on a dedicated computer close to the reference desk, which would allow them to assist with desk activity and also devote more attention to IM services when the need arises.

Offer continuous training on IM reference.

Our goal is to help staff adapt and evolve traditional reference interview techniques to the virtual environment. Since a significant portion of questions received through IM were research/subject and instructional questions that required the information gleaned from the reference interview, this skill is essential to successful IM practice.

Use feedback from transcripts to improve the Libraries' website usability and design.

The most common patron questions concerned web navigation followed by instructional questions. Users frequently have difficulty locating the desired resource or link on the Libraries' website. After finding the needed source, they are unsure how to effectively search and locate relevant information. Web pages and navigational aids need to be designed with consideration for how patrons access information. Examples of this include ensuring multiple access points to research tools, using clear language free of jargon, testing web page usability with a diverse population of users, and placing instructional tools such as tutorials at point of need.

Continue to monitor the impact of IM on all reference services using online data collection tools.

The Libraries collected reference transaction data using DeskTracker^TM since July 2007. Date, time, resources used, service used (in-person, phone, e-mail, IM), and length of question can be collected and analyzed for all reference service points. The DRC anticipates information gathered with DeskTracker^TM will be invaluable in collecting IM usage data, identifying sources used to answer questions and indicating if reference staff frequently needs to refer questions to colleagues. The DRC also anticipates future transcript analyses will be much quicker to compile due to the extent of demographic and qualitative data collected. While this data is useful, it will not provide evidence of user behaviors or determine if questions were correctly and completely answered. Nevertheless, the DRC considers DeskTracker^TM data will provide sufficient information to make effective decisions concerning staffing and support of the Libraries' virtual reference services.

Continue to explore and expand virtual reference services.

Based on the popularity of the IM service, the DRC expanded the Libraries' virtual reference

services to include MeeboMe, a chat messaging widget, and a text-messaging reference service. As virtual reference technologies continue to evolve, the DRC will evaluate new tools and services that can be used to enhance reference services.

Conclusions

When the DRC undertook its transcript analysis project, it underestimated the length of time and commitment needed to successfully analyze and code IM transcripts. Challenges included the tedious and time-consuming work of downloading, printing, and identifying transcripts to double code as well as removing identifying information. Later decisions such as determining which factors to measure and coding them quickly proved to be a never-ending challenge showing there can never be too much communication or too many meetings. Creating a database to store the data proved less straightforward than imagined. Originally the project goal was to input and process all transcript data using Microsoft Access. After the data was collected we found we were unable to analyze the data in Access due to lack of expertise. The final data analyses were completed by importing and processing the data using Excel.

Given the volume of transcripts analyzed, the DRC needed reference staff volunteers to assist with the initial round of coding. Training volunteers to code and analyze transcripts took more time than we had anticipated. Analyzing qualitative data proved difficult due to its subjective nature, and particularly difficult for deciding on the correctness and completeness of answers using the behavioral guidelines. Librarians have differing standards of ideal service levels, leading to some disagreement on judging correctness and completeness of answers. . Van Duinkerken, Stephens and MacDonald[14], in a recent study, concluded much of the same when they suggested that librarians let the behaviors of the users determine when a reference interview is required, and focus training on the RUSA guidelines that are viable in a chat

environment, such as remaining cordial, and non-judgmental, and using referrals. Interestingly, Van Duinkerken et al's study mirrors an earlier observation by Bernie Sloan[13] who argued that many of the skills prized in a reference interview many seem contrived or artificial in a textual environment. Sloan speculated that complaints about a librarian's "attitude" in a VR environment are likely to "stem from the impersonal nature of the chat medium itself" and may well be "endemic to virtual librarianship."

Based on literature collected analyzing IM reference use in libraries, we expected that our service would be used frequently by patrons asking quick questions regarding library services and policies. Instead we discovered a wide variety of questions were asked, including many in-depth research questions. In addition, the absence of vendor chat features such as co-browsing or split screens did not impact providing effective instructional assistance using IM. These analyses indicate that virtual reference services within the Libraries are now a core reference service for many patrons, and may be the primary service a patron uses to contact the Reference desk. Library policies, reference staffing, and the purchasing of electronic reference materials and books need to reflect this change to meet the needs of all users.

Notes

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[4] Hernon, Peter and McClure, Charles R. "Unobtrusive Testing: The 55% Rule." *Library Journal* 111, no. 7 (1986): 37-41.

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  Librarianship* 7, no. 3 (2006): 1.

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  RUSA Behavioral Guideline and IFLA Digital Reference Guidelines." *Library and
  Information Science Researc*h 30, no. 2(2008): 122-137.

[13] Sloan, Bernie. Email to Library Reference Issues electronic mailing list (*Re: How to help
  frustrated searcher*s.) May 10, 2005.

[14] Van Duinkerken, Wyoma, Stephens, Jane and MacDonald, Karen I. "The Chat Reference
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  University Libraries." *New Library World* 110, nos. 3/4 (2009): 107-121.

Appendix

Transcript Coding Key

Day: Select from drop down box.

Date: The date should be entered in same format as it appears on transcript. E.g. 04_May_06 OR 20_Jan 2_05.

Session start and session end: Indicate in 24hour time.

Account: DEFAULT is BuMain. Change if BuSci

Repeat user: DEFAULT is No. A repeat user is someone who has used the service more than one occasion. Do not count users who reopen a session to ask additional or follow-up questions. The transcripts have been organized by user name so repeat users should be grouped together.

Delay in Response: Indicate NO if question was responded to in less than a minute. Indicate YES if it took a librarian over a minute to respond.

No response: DEFAULT is No. Check yes if there was a delay in the response.

Time lapse (minutes): Indicate the number of minutes it took for the librarian to respond OR if no response

No Response: Check if there was no response from a librarian OR if user failed to respond after asking a question.

User demographic: Enter as "unknown" UNLESS the user identifies themselves (e.g. "Hi I'm an undergraduate student") or when it is it evident from reading the transcript.

Staff demographic: Leave as "unknown" UNLESS the librarian identifies themselves (e.g. "I'm the nursing librarian") or when it is it evident from reading the transcript.

How many questions did the user ask?: Count only distinct reference questions. For example, "can you tell me how much photocopying is AND where do I find peer review article". Do not count related questions.

What was the reference question?: Quote or paraphrase the user's question(s) using the user's terminology. If possible, identify the topic. E,g, "looking for articles related to the portrayal of women in advertising"

How would you characterize the reference question? Select as many as apply:

- Bibliographic
  - Relates to catalogue look-ups OR any aspect of authorship or publication of a work. Use for citation verifications, names of authors, information about works, edition information, copyright information, etc.
- Computer/mechanical/technical help
  - E.g. problems connecting off campus, Getit@BU not working, database issues.
- Directional
  - E.g. where is the photocopier, where are the PS books located?
- Instructional
  - Use for questions where the user asked for assistance in using library resources (e.g. how do I search EconLit) or where the librarian provided instruction (regardless if the user asked for it or not).
- Library website navigation
  - Use for questions where the user wanted to know where something was located on the website (e.g. where are e-reserves?) or where the librarian explained how to find something on the website.
- Other
  - Use when the question does not fit into any other category.
- Out of scope
  - Use for questions that fall outside the reference service's purview and need to be referred to another service in library (e.g. Special Collections) or to an outside service (e.g. computing services).
- Policy, procedural or service
  - Use for questions about library services. E.g. circulation, laptop lending, reserves, interlibrary loans, annex, instruction, research assistance.
- Ready reference
  - Use for questions that are have uncomplicated, straightforward answer. Answers are usually found in standard reference sources such as almanacs. E.g. what is capital of Nova Scotia, what are the dates of National Cat Week?
- Research or subject request
  - Use for questions where user wanted article, book,or information on a topic

E.g. "where can I find information about poverty in South America?

What resources were used to answer the question:

- Books/printed material
  - the librarian indicated that they found the answer in a book or printed item (e.g. reference book)
- BU Only
  - a subscription database or resource was used to answer the question. E.g. Biosis,
- Internet sources
  - the library referred to a website to answer the question. Do NOT use for Binghamton University websites.
- Other

- o Use when the source does not fit into the other cacategories. Please reference the source in the box below.
- Library website
  - o a page from the library website OR if the library website was used as a gateway to a resource (e.g. a government website or another library website)

Please list sources used to answer the question: List any sources mentioned by name e.g. Lexis Nexis, APA Style Guide, Wikipedia

*Was user aware of the time needed for research:

- Leave as n/a UNLESS the user commented on the amount of time needed to complete research OR when it is it evident from reading the transcript.

*Did user have trouble settling on the topic:

- Leave as n/a UNLESS:
  - o user switched topics depending on available resources
  - o user had a topic that was too specific or generalized
  - o user could not define a topic

*Did user use a unreliable internet sources:

- Leave as n/a UNLESS user indicates that they have been using unreliable OR inappropriate resources OR when it is it evident from reading the transcript.

***Did user use an appropriate number of resources**:

- Leave as n/a UNLESS user indicates how many resources they need for an assignment OR when it is it evident from reading the transcript.

*Has user used effective search strategies:

- Leave as n/a UNLESS"
  - o user has incorrectly searched a resource (e.g. tried to use infoLINK to find an article)
  - o user has correctly searched a resource (e.g. used CINAHL to find a nursing article)
  - o user does not demonstrate effective search strategies in infoLINK or library databases
  - o user demonstrated effective search strategies in infoLINK or library databases

Question was…:

- Correct and complete
  - o Use for questions that were answered correctly and completely.

- Correct but not complete
  - Use for questions that were answered correctly BUT where a complete reference interview was not conducted OR where referral/follow-up should have been offered.
- Not correct but complete
  - Use for questions that were answered incorrectly OR where wrong information was provided BUT where a reference interview/followup was given as appropriate.
- Not correct and not complete
  - Use for questions that were answered incorrectly OR where wrong information was provided AND where a complete reference interview was not provided OR where a librarian ended the session prematurely OR where a referral or follow-up should have been offered.

Was the Librarian approachable?.

- Librarian acknowledges user through the use of a friendly greeting to initiate conversation
- Librarian communicates in a receptive, cordial, and encouraging manner
- Librarian uses a tone of voice and/or written language appropriate to the nature of the transaction.

Did the Librarian show interest?

- Librarian maintains or re-establishes "word contact" with the patron in text-based environments (e.g. "I see") by sending written or prepared prompts, etc., to convey interest in the patron's question.

Did the Librarian "listen" to the question?

- Librarian allows the patrons to state fully their information need in their own words before responding.
- Librarian identifies the goals or objectives of the user's research, when appropriate
- Librarian rephrases the question or request and asks for confirmation to ensure that it is understood.
- Librarian seeks to clarify confusing terminology and avoids excessive jargon.
- Librarian uses open-ended questioning techniques to encourage patrons to expand on the request or present additional information

Did the librarian find out what the patron had already tried?

- Librarian finds out what patrons have already tried, and encourages patrons to contribute ideas

**Did the librarian explain the search strategy?**

- Librarian constructs a competent and complete search strategy
- Librarian explains the search strategy and sequence to the user, as well as the sources to be used.
- Librarian attempts to conduct the search within the patrons' allotted time frame.
- Librarian explains how to use sources when appropriate.
- Librarian works with the patrons to narrow or broaden the topic when too little or too much information is identified.
- Librarian asks the patrons if additional information is needed after an initial result is found.
- Librarian recognizes when to refer patrons to a more appropriate guide, database, library, librarian, or other resource.
- Librarian 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

Flag transcript Use for transcripts that…

- have incomplete or incorrect answers
- exemplify outstanding reference service
- should be further reviewed by the DRC
- Note – please indicate in the comment section why you have flagged the transcript.

*Authors Note: The data gathered from these questions was not included in the final analysis,

since there was not enough data gathered to be useful.

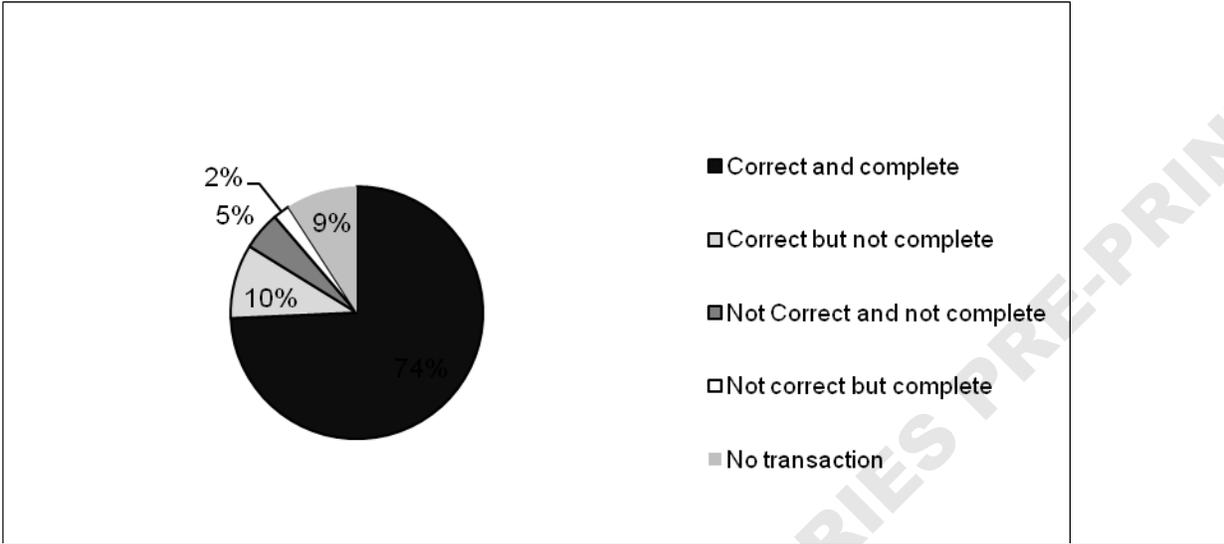*Figure 1: Frequency of questions by question category.*
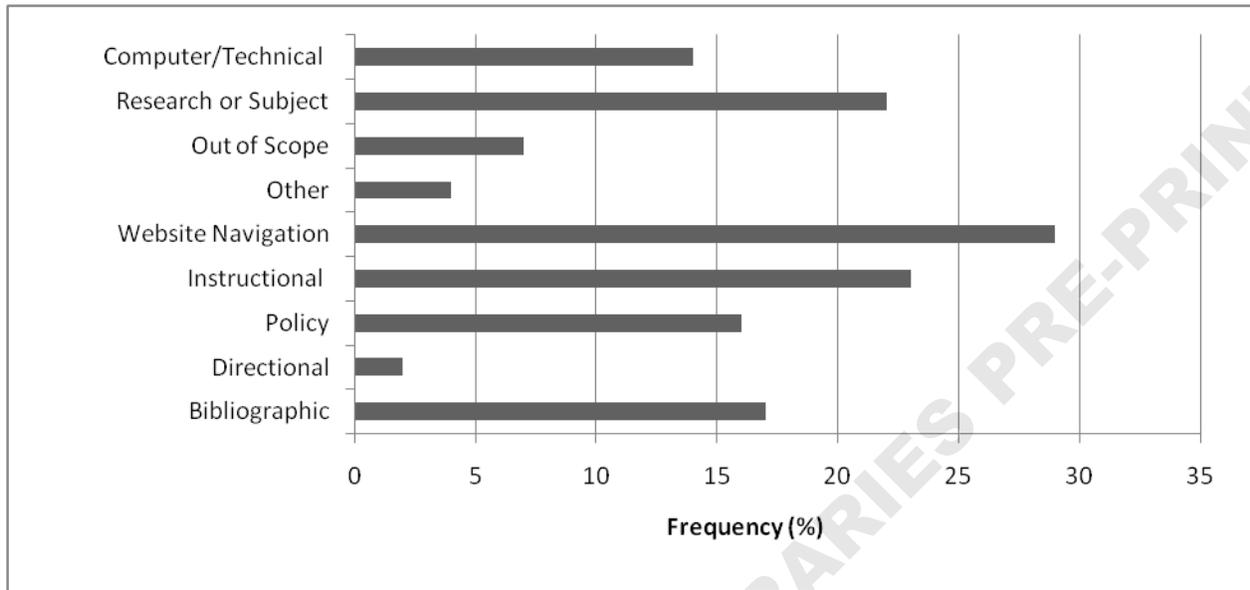
.   Table 1 - IM Transactions by Day of the Week

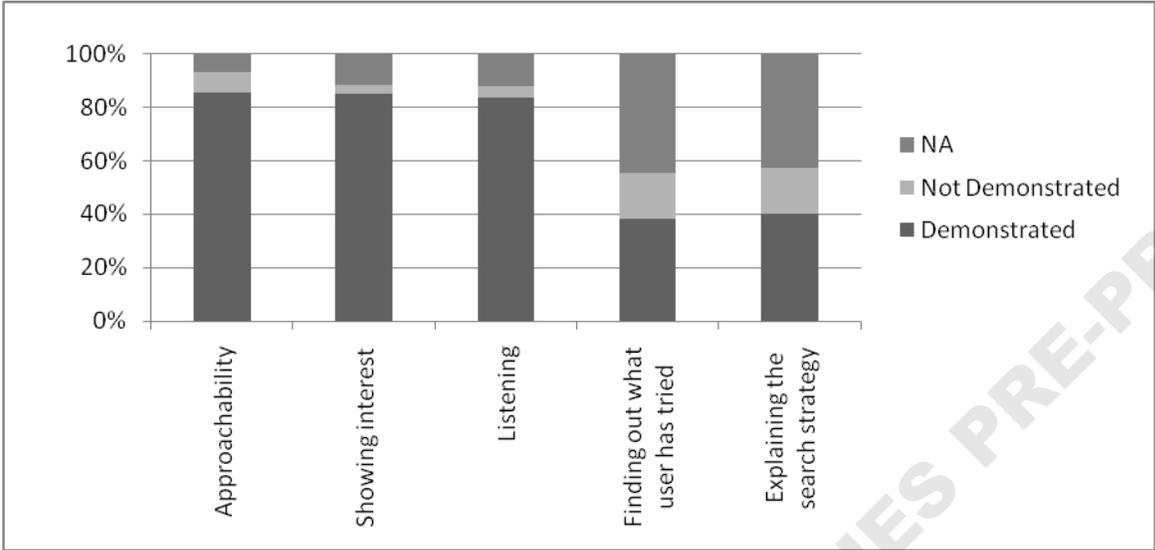| Day	Total	% of Total
Monday	51	18%
Tuesday	54	19%
Wednesday	45	16%
Thursday	49	17%
Friday	39	14%
Saturday	17	6%
Sunday	28	10%

Figure 2: Correctness and Completeness of Answers

Figure 3: Behaviors demonstrated and not demonstrated during IM sessions.