

Question type analysis in chat reference services

Bonnie Knight
San Jose State University
School of Library and Information Science

Abstract

My intent in this paper was to arrive at some form of question typology consolidation. To do this, I planned to find at least ten separate chat reference services reporting on some period of data collection with the focus on the analysis of the questions received. I then planned to correlate and consolidate the data in hopes of gaining perspective on the information needs of the chat reference patrons. From this information I hope to gain some perspective on the future of these services.

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Introduction

The rapid growth of digital libraries would seem to necessitate an equally rapid growth in digital reference services. However, the efforts to digitize reference services have lagged behind the efforts to digitize library resources. Bao (2003) found in his national survey of academic libraries that “web-based interactive reference services are still in the early stages of growth and development. They are not as prevalent as people may think...since less than one-half of all surveyed institutions (67 of 143 or 46.9%) provided Web-based interactive reference services” (p. 6 of 9)

Digital reference services comprise a variety of technologies, including email and live interactive online applications known popularly as “chat reference services”. Various terms such as chat reference, online reference, real-time reference, real-time, online reference, live reference, live online reference and simply, digital reference (which also encompasses email reference formats), all these services have several components in common. At a minimum, there is functionality that permits the “instant” exchange of messages between the librarian and a patron who is remotely located from the physical reference desk. With another feature, the software may provide “web page push” capability, which enables the librarian to send relevant web pages to the patron’s computer. Another popular feature is tracking capability which enables the patron to follow the steps taken by a librarian in a search for information, thereby providing visual instruction in search methodology. Newer technology, known as voice over Internet protocol (VoIP), will enable voice conversations, using just the available computer software and hardware.

The lack of consensus surrounding the naming of this service is indicative of the lack of consensus concerning its value. A heated debate rages concerning the current feasibility of and the future of chat reference, with some calling it “an expensive way to answer a reference question,” (Coffin & Arret, 2004b, p.1 of 8), “overrated, inflated and not even real” (McKinzie, 2002, Title) and predicting that “the adoption of digital reference is not likely to be cost effective nor its utility an improvement on structures already in place and functioning well.” (Lauer & McKinzie, 2002/2003, p.45).

Others argue that there is a real need for reference assistance to patrons struggling with the information avalanche of the Internet, and the indiscriminate results of queries submitted through the monolithic search engines. As Boyer (2001, p.122) observed, “If we push patrons onto the Web, it only makes sense for reference librarians to follow them there.” Francoeur (2001, p.196) concurred, saying “Although it is laudable that librarians built these digital libraries for their users, libraries now need to be thinking about staffing them with actual human beings and providing live, interactive services for their users.”

In order to understand what our users need, we must listen to the questions they are asking, as their questions are the clearest possible statement of their information needs. In reviewing the literature, I discovered that there is very little consensus in categorizing reference questions which makes global comparisons difficult if not impossible. Of the ten case studies I analyzed, each author employed a different typology in categorizing their patron’s questions. My intent in this paper was to arrive at some form of question typology consolidation. To do this, I planned to find at least ten separate chat reference services reporting on some period of data collection with a focus on the analysis of the questions received. I then planned to correlate and consolidate the

data in hopes of gaining perspective on the information needs of the chat reference patrons.

In a survey of chat reference services conducted in April 2001, Francoeur noted that “despite the large number of public libraries served by chat reference consortia, the majority of the libraries served by chat reference services (54%) were academic libraries.” (Francoeur, 2001, p.191).

In my research on this topic I found that academic libraries, while they may or may not still constitute the majority of libraries providing chat reference services, certainly constituted the majority of those libraries creating studies on the services offered. I managed to find nine such studies, and one study that analyzed email questions. As it is generally accepted that email and chat reference services receive very similar reference questions, I decided to include this study in my research.

The libraries I have used in this paper cover a substantial geographic area: in the United States, ranging from California to Pennsylvania, with representation from the Midwest and the South, and internationally by one study from Australia. The studies originated from the following institutions: Penn State (Pennsylvania), Auburn Universities (Alabama), California State University, Chico, California Polytechnic University at Pomona, Bowling Green State University (Ohio), Illinois State University, Murdoch and Macquarie Universities (Australia), University of Illinois at Urbana-Champaign, Carnegie Mellon University (Pennsylvania) and East Tennessee State University.

In each case I have provided some background information on the institution’s implementation of the service, the question analysis and in some cases, the authors’

conclusions and/or observations on chat reference in general. Appendix 1 contains the question data from each of the studies.

Case Analyses: What are they asking?

Ware, Fennewald, Moyo, Probst (2002/2003): Penn State

In the fall of 2002, Penn State began offering real-time reference services in a university-wide system known as The Penn State Virtual Reference Service (VRS) that included chat, co-browsing and authenticated access to available databases. The system supports a wide user community at 21 campuses across the state as well as the university's distance learners. The VRS is accessible from the top two levels of the library's web site and on all pages of the library catalog through a button labeled "ASK!". The questions submitted to VRS during the fall 2002 semester were classified by the authors into five categories: instructional, research or subject request, ready reference, technical and out of scope. (Ware, et al. 2002) Of the 418 questions submitted, the majority (39%) were instructional, followed by research (32.5%), ready reference (22%) and technical (24%). Only two questions were deemed to be out of scope and both concerned specific information on class assignments that only the teacher could answer. Presumably, since these percentages total more than 100%, some questions were classified in more than one category. Interestingly, the authors utilized a "standard" typology to create these categories, referring to the "field-tested Lankes/McClure Reference Question Typology" (Ware, et al. 2002/03) but they are the only case study to have employed this standard in my investigation.

The instructional questions largely were related to location of known items, such as a specific database (ProQuest, Lexis Nexis, ERIC) or a known item in the collection such as a dissertation, yearbook, book or journal. The research questions concerned requests for “good” sources, frequently on a specified topic although some patrons requested help getting started on a research project. The ready reference category included a large percentage (75%) of localized questions about the University or the library such as class schedules, library policies, hours, how to handle citations or locating resources within the library (such as printers). Most of these questions were answered directly or by pushing a web page to the patron. The technical questions for the most part concerned connectivity issues and were described as “fairly sophisticated”, probably meaning that the answers (or solutions) were not simple.

The authors note that the questions were “similar to those typically asked of librarians at the reference desk, by phone or by email” (p.288) with the majority being related to specific assignments. A substantial number of questions indicate that the library serves an auxiliary function as “campus information center”, with queries on campus events, class schedules and other non-library topics, which apparently came as a surprise to the reference staff. There may be a discrepancy in what the patrons perceive as information and what the library perceives as its information province.

The most popular features of the service are co-browse and chat. The authors note, “Using chat and co-browse, VRS librarians are able to guide students directly to databases and demonstrate or coach them through searches.”(Ware, et al.,2002/2003, p.286)

Survey data from fall 2002 indicated that 81% of the students did their research between the hours of 5 p.m. and midnight. The majority of questions were submitted by undergraduates (82%), 51% of whom were located at University Park campus which is a 24-hour laptop library for undergraduates. No peak times were noted except that the first four weeks of the semester were considerably lighter than the last 13 weeks, with 80% of the questions arriving in weeks five – seventeen. 93% of survey respondents felt that VRS met their needs and 98% found the service easy to use.

Sears (2001): Auburn University Libraries

In a study conducted by JoAnn Sears at Auburn University, one semester's data collected from the University's chat reference service, Info Chat, during the 2001 spring semester was analyzed. Sears grouped the 153 questions received during this four-month period into three broad categories: reference questions, policy and procedural questions and directional questions. Each category was further divided into more specific categories. Reference questions were divided into three additional categories: ready reference (accounting for 34 out of 153 total questions); specific search (50/153) and research (1/153). Policy and procedural questions were subdivided into two additional categories: database instructions (passwords, etc) (11/153) and library policy clarification (38/153). Directional questions consisted of three additional categories: location within the physical library (14/153), location on library website (3/153) and location of places within the city or state (2/153).

Overall, reference questions accounted for the majority of the chat inquiries (55.6% of the total) with policy and procedural questions accounting for 32% of the total and directional questions comprising the remaining 12.4%. Although Sears has a specific

category called “ready reference” under the reference question heading, she apparently also considers some of the other questions, although grouped under policy and procedure or directional, to be ready reference as well:

Approximately one-half of the questions in this study were of the ready reference type; about one-third was policy/procedural questions. Only one research level question was asked during this study; it’s possible that patrons do not ask research questions in this type of medium, suspecting somehow that chat technologies represent quick question/answer communications. (Sears, 2001, p 8 of 11)

A range of reference questions was received (85 tabulated) from how to properly format a citation to finding information or sources on known topics. The policy and procedural questions concerned questions on renewing library materials, obtaining passwords and library policy clarification. The directional questions included questions on website navigation, location of materials within the library as well as within the larger area of the city or state.

In summarizing the findings of this study the author expresses surprise that only one “research-level” question was received. The need for localized resources was noted, particularly in regards to institutions exploring collaborative digital reference arrangements. Sears (2001, p.8 of 11) observes, “Of the 153 chat questions, there were 92 (60.1%) in which the responder needed to know something unique about the local library’s policies, procedures, resources and/or services.”

Diamond & Pease (2001): California State University, Chico

Diamond and Pease (2001) examined 450 email reference transactions that occurred between August 1997 and May 1999 at California State University, Chico. Although these questions were submitted through the email digital reference service

rather than chat, I have included this question analysis in my paper since it is generally agreed that questions received through email are similar in nature to those received through chat reference.

The authors found that the questions were familiar reference desk reference types, ranging from catalog look-up and use to library policies and scope of collections. Additionally, they received connectivity questions and questions concerning database mechanics, as well as more in depth research questions, such as those related to starting points for term papers and assignments. In all, the authors classified the 450 questions into ten categories:

1. Questions answered using standard reference resources (97 questions of 450 total)
2. Catalog look-up and use (49/450)
3. Starting points for term papers and assignments (76/450)
4. Specific factual but not ready reference (54/450)
5. Information literacy (26/450)
6. Navigating the ReSEARCH station (35/450)
7. Database mechanics (11/450)
8. Connectivity questions (21/450)
9. Library policies and scope of collections (43/450)
10. Non-library questions and referral to other departments (27/450)
11. Non-questions (complaints, suggestions, thanks) (11/450)

The authors further characterized the question set in terms of complexity and determined the following breakdown: 35% non-complex, 22% standard reference, 35% broad or complex and 8% referrals or non-questions. The higher than expected number of complex queries was noted:

While the question types themselves did not surprise us because of the similarity to the questions asked at the library's physical reference desk, the number of multi-faceted or complex questions did pose a surprise. Eileen Abels (1996, p.355) in her important study of the email reference interview predicted that "complex reference requests will become more commonplace as the electronic information services are expanded." Our results show this to be true. (Diamond & Pease, 2001, p.5 of 12).

In analyzing the transactions, the authors concluded that there were distinct areas for improvement. Specific transactions involving multi-part or complex questions were analyzed and found to be insufficient in terms of the depth of the reference interview that was conducted. Rather than a more traditional format of beginning the transaction with a detailed reference interview, the initial response by the librarian was usually to provide some information based on the librarian's assumption of the patron's information need, and to solicit feedback if the patron required additional or different information. This technique has the advantage of providing the patron with immediate results rather than simply launching the lengthy back and forth exchange of a traditional reference interview, particularly tedious in the asynchronous, time-delayed medium of email. However, the technique also has the potential disadvantage of the possible misinterpretation of the patron's question. The authors suggest the use of both a detailed Web form for the patron to use in asking the initial question and the use of an "answer checklist" (p. 216) by the librarian to ensure that all parts of a multi-faceted question have been adequately answered. The option of refusing to address more complex questions in the email format was dismissed as contrary to the purpose of reference service in general. They concluded that "...users ask similar questions whether in person or via an email reference service...Limiting digital reference service to "ready reference" questions alone does not adequately meet users' needs and may not even be understood by them." (p.217)

***Dunn & Morgan (2002/2003): California State Polytechnic University
Pomona***

Dunn and Morgan conducted an analysis of the "live/web" reference services offered at California State Polytechnic University, Pomona using data collected during

2002. They selected the term live/web to “indicate the real-time interactive nature of this service” (Dunn & Morgan, 2002, p.202). The service was named “askNOW” and was started during the winter quarter of 2002 with limited hours of availability. The following quarter the service became available on a 24/7 basis through the means of an outsource arrangement with a consortium known as 24/7 Reference, a collaboration between public, academic and special libraries. Librarians at Cal Poly Pomona staffed the service only for eight hours a week.

Transcripts were analyzed and questions were classified into the following categories with the percentage of the total questions indicated: reference questions (50% of total), questions about library policies or technical problems (29%) and known item or quick lookup questions (16%). Reference questions, which comprised the majority of the questions received, included such requests as a request for critical essays on *The Great Gatsby*, to the number of times the Taft-Hartley Act was invoked. Policy questions included problems accessing electronic resources, connectivity issues as well as the usual library information such as hours, renewals, fines, etc. The known item or quick lookup category could also be considered “ready reference” and concerned such matters as finding a particular article in a particular journal, or the availability of a particular resource within the library or on the library’s website.

As a policy, the service excluded in-depth research questions, advising those patrons that a visit to the library was necessary to adequately address these questions.

The authors conclude that the future is uncertain and will depend on the availability of outside resources such as 24/7 to provide the hours of coverage necessary to make the service successful. Further, they observe:

It may be a while before we know if a service like askNow will really catch on with university students or if they will continue to take the “do it yourself” approach that the Internet enables so well. One thing is essential, however. Librarians must continue to experiment with ways of providing quality reference assistance in the Internet environment. (Dunn, Morgan, 2002, p.212)

Broughton (2002/2003): Bowling Green State University Libraries

In this study, Broughton presents the results of a use analysis and survey on the university libraries’ real time digital reference service known as “Chat with a librarian” for the academic year 2001-2002. She analyzed 642 sessions and classified the questions into eight categories, with 22% of the total questions received consisting of requests for articles on a specific topic, and the other categories being: the location of known items (12%), queries on patron records (6%), information on the university (4%), questions from other librarians (3%), off campus access issues (2%) and referrals (2%). Unfortunately for my summarization purposes, fully 49% of the questions received were classified as “other” with no further information provided beyond the author’s observation that “...we get very, very few ready reference questions, although in retrospect, perhaps a category to prove this point would have been worthwhile!”

(Broughton (2002/2003, p.191) The author observes:

While a subject breakdown of question types might be useful for luring subject specialists into participation, hopefully further investigation and discussion on this issue could determine more meaningful categories of reference questions that will assist generalists in training and preparation for staffing their digital reference services...Are there recurring questions that may be answered with a better web design?” (p.199)

From these results, it would appear that the majority of the chat reference questions are requests for articles on specified topics. The author notes that this category also accounts for the most frequently asked questions at the actual reference desk.

An interesting feature of this study concerns the patrons' perception of their chat session as a learning experience. As part of the survey, users were presented with a drop-down menu of choices for describing what they had learned as a result of their session. The choices included: evaluate and revise search strategy, keyword versus subject word search, constructing search strategy, research databases versus free web, helpful online/print resources, circulation record management and other. The leading category was "other" with 47% of the respondents selecting this option. Next was "helpful online print resources (selected by 29%) followed by "constructing search strategy (22%). This may offer some insight into what additional help could be provided proactively to patrons in order to increase their independent use of the library resources.

The results of the user satisfaction portion of the survey indicated overwhelmingly that the majority of the patrons (92%) were satisfied with the service and 91% saying that they would use the service again.

Stoffel & Tucker (2003): Illinois State University

This study reports the results of a survey of virtual reference patrons of the Illinois State University Library. This survey was conducted during a four month period from September 2002 to January 2003 and covered both email and chat reference transactions. Chat reference responses were analyzed separately from email responses. About 400 patrons were surveyed with a response rate of 17%.

The University's chat reference service was launched in 2000, first as a consortium effort between Milner Library (Illinois State University at Normal, Ill.) and seven other academic libraries from Central Illinois, along with the Alliance Library System. In the fall of 2002, they partnered with the public libraries of the North Suburban

Library System to pilot a new program, called “MyWebLibrarian” to serve both academic and public library patrons.

During the survey period, 221 chat sessions were logged; of this number, only 135 patrons were emailed a survey since the remaining patrons had not left sufficient contact information. Of the surveys distributed, only 14 completed surveys were returned, for a low response rate of 10.4%.

The chat reference questions were categorized into six types: ready reference (accounting for 21.4% of the survey respondents), topic search (28.6 %), known item search (35.7%), citation verification (0%), technical assistance (0%) and library policy (14.3%). The question types were not all represented in the survey responses. The authors observe that the low response rate makes it difficult to draw conclusions from the data collected. However, the categories and frequencies reported in this study do seem to reflect the results that other researchers have obtained, namely that the most frequent questions concerned known item searches followed by topic searches and ready reference.

“Of the respondents, 85.7% used the service to ask a reference question, while 14.3 % sought help with a library policy issue.” A further note is that “none of the respondents used the service to seek technical assistance.” (Stoffel, Tucker, 2003, p.7 of 21) The survey revealed that patrons were satisfied with the services.

Lee (2003): Murdoch University and Macquarie University

In this study conducted at Murdoch University in Australia, the library’s virtual reference service, known as Online Librarian, was examined by analyzing transactions of email and chat services, covering the period from March 3 to August 18, 2003. The

virtual reference service was a consortia arrangement between Murdoch University in Perth and Macquarie University in Sydney. The two universities shared hours of coverage. The library chose Microsoft NetMeeting as its chat software program, primarily for its Voice over Internet Protocol (VoIP) capabilities, which were not analyzed as part of this study. The service was targeted to postgraduate and off campus students. Preliminary investigations noted an apparently higher usage of email, but when the statistics were corrected to account for hours of operation, the usage for chat and email showed similar results, leading the author to conclude that “real time reference is no more or less popular than email reference”. (Lee, 2004, p.103). He does note a slight difference in the types of questions submitted to the two different services. More administrative questions, as well as questions concerning citation, were directed to the email service, while more connectivity and database access questions were directed toward the chat reference service. Lee speculates that immediacy may determine the students’ selection of reference medium, with the perception being that chat affords a more immediate response than email. Thus, connectivity to a database is a problem in need of immediate solution as opposed to a reference or research question which can be answered in a less time critical manner.

Of the 47 chat calls that were available for analysis, the questions were categorized as follows: administrative (19%); accessing databases and electronic resources (43%); finding known item (19%), research and reference (19%) and finally citation of references (0%).

In addition to analyzing the question type, the author also examines the “librarian question type” in an effort to determine how much of the transaction concerned actual

reference related communication versus administrative communication. The reference questions were those relating to the patron's information need, while the administrative questions dealt with technical issues or user status. The author notes that the librarian asks 6.4 questions per session on average, with almost half being of an administrative nature. The average length of a chat session was 22 minutes, with the librarian taking 19 turns and the patron 21 turns during the session. Lee observes, "Both librarian and student words are approximately double in chat compared to email" (p.107) but notes that some of the chat words are reassurances to the caller that the librarian is doing something (albeit invisibly) at the other end and that the connection has not been lost. Also, more communication of a reference interview nature was noted in the chat transcripts than in the email sessions, possibly due to the more conducive, synchronous nature of the chat medium.

However, Lee observes that "synchronous chat is not quite synchronous" owing to the "stepwise" manner of typed question/response. He notes that valuable visual and audio cues are absent in the chat medium and speculates that chat may not be an appropriate medium in which to conduct a reference interview. Moreover, he questions the necessity of reference interviews in general: "The reference interview is both crucial and unnecessary. Not at the same time, but with different students who have different need and different questions." (Lee, 2004, p.105) He also notes that this same dilemma occurs at the real reference desk as much as at the virtual reference desk- it just takes longer in cyberspace. Is it worth the effort? The answer may depend on who you ask: "Are questions attempting to clarify the question, information? To the student, possibly not, but to the librarian definitely." (Lee, 2004, p. 107)

In discussing the future of virtual reference, the author notes that it “does appear to have a bright future...Real time chat-based services may not be the ideal way to provide reference services that focus upon instruction, due to the complexities of this realm of communication. Voice, however, accompanied by screen sharing, would seem to offer great promise in an educational setting, especially for remote users unable to interact with the library’s reference and information literacy services in person.” (p. 109)

Kibbee, Ward, Ma (2001): University of Illinois at Urbana-Champaign

In this case study the authors examine the results of a 12-week pilot project for the real-time reference services of the reference and undergraduate libraries at University of Illinois at Urbana-Champaign in Spring 2001. The implementation team chose the software HumanClick for its basic features such as canned responses, page-pushing, transcripts and history. The service was targeted to current students, faculty and staff of the University, and adopted an unusually strict and explicit policy as to what constituted the appropriate use of the service.

This service is intended to address short answer inquiries such as brief factual and ready reference questions (addresses, phone numbers, etc.), general questions about the library, questions about the online catalog and database searching, and provide help in locating information found on databases and Websites. Detailed database searching, compiling bibliographies, document delivery, patron account problems, etc. are outside the scope of the service. The service cannot address extensive research or instructional needs and these users should be asked to come in. A 15 minute time limit is suggested. (Kibbee, Ward, Ma; 2002, p.3 of 13)

From an analysis of a large sample of logged chat transcripts, the authors classified the questions received into six main categories: finding library holdings (which accounted for 33.2% of the total questions), library policies and services (30.5%), getting started on subject based research (20.2%), ready reference (9.1%), technical problems

(5.3%), chat service questions (1.7%). From these results, the authors observe, “These data led us to conclude that users primarily take advantage of this service to get assistance in finding and using UIUC Library resources-whether in print or online. Thus the questions are not unlike those we get in person.” (Kibbee et al., p. 6 of 13) Further, the authors note that the two most problematic question types were those requiring instruction on the use of library databases or processes and those “open-ended term paper type questions” (p. 7 of 13). The reasons for the difficulties stem in one case from limitations in the software selected- the HumanClick application did not have co-browsing or web-page pushing capabilities. In the case of the open-ended research questions, as has been noted elsewhere, the limitation lies more with the medium itself. Such questions require a reference interview and the limitations of the chat environment makes conducting a reference interview unnecessarily tedious for both participants, as has been noted elsewhere (Lee, 2004). They conclude that the service is best suited for questions on finding known items or factual requests for information on library services. This result is in line with their initial expectations of the scope of the service as outlined in their usage policy.

The authors conclude, “Though our results are preliminary, the high proportion of questions related to UIUC library resources and services calls into question the feasibility of inter-institutional collaboration. A service that generates a high proportion of local questions argues against this model. Circumstances such as a shared online catalog and consortially purchased databases, or a high percentage of fact-based questions, however, might favor collaboration.” (P.7 of 13) This sentiment was shared by the experience of the collaborative effort between Wesleyan University, Connecticut College and Smith

College, which joined forces in 2001-2002 to provide digital reference services to its patrons. Their finding was “Most online reference assistance involves local issues. This very crucial point has confirmed our conclusion that implementation of a locally operated service, such as ours, is far preferable to outsourcing to a digital reference company whose information specialists have no knowledge of local library users, collections or policies.” (Cheng, 2002, p.175)

Marsteller & Neuhaus (2000): Carnegie Mellon University

Carnegie Mellon University implemented a live reference system on October 1, 2000, having selected an off-the-shelf software package called LivePerson, chosen for its low price, its availability as an application service provider (“ASP”) package (which would eliminate much of the system administration effort and expense), and its web page pushing capabilities.

Analysis of the question logs for the first seven months of the program revealed that subject-based research questions accounted for 49% of the chat sessions, with a further breakdown by subject type: 19% were classified as “general”, with the remaining sessions being science and engineering (11%), social sciences (7%), humanities (6%), and business (6%).

Fifty-one percent of the total number of chat sessions were classified as “other” which was broken down into the following categories: technical problems (64% of the 51% classified as other, 32.6% of the total number of sessions), OPAC (17%/8.7%), circulation (9%/4.6%), chat about chat (7%/3.6%) and ILL (3%/1.5%).

The authors expressed surprise that less than half the questions concerned identifiable subjects (presumably meaning academic subjects) but then noted, “Chat

appears to be more appropriate for answering simpler types of questions than for providing in-depth research assistance. Librarians may be willing to spend the time needed for such research but many patrons are not.”

The large number of questions classified as technical problems was attributed to problems in the system software, which were addressed in a later release of the software, leading to a decrease in the incidence of this type of question. (Marsteller, Neuhaus, 2001, p.5 of 10).

An interesting portion of this study analyzed the responses of the reference librarians and classified them into four categories with the following percentages of the total: source suggestions (36%), ready reference (25%), referrals (20%) and librarian does search (19%). Although the largest category was “source suggestion” in which the librarian would direct the patron to particular resources (such as the catalog, an Internet site, a database or a print reference), this may be misleading in considering the type of response the librarians made. Two other categories, “ready reference” and “librarian does search”, involve the librarian providing the answer directly to the patron in response to the question, rather than providing a source where the information can be found. Together, these two categories account for 44% of the librarians’ responses. Therefore, in 36% of the sessions a librarian did not provide an answer directly while in 44% of the sessions, the librarian did provide the answer directly. The remaining 20% of the questions were responded to with referrals to either other libraries, other departments (such as circulation) or to subject specialist librarians.

Campbell, Jones, Shuttle (2002/2003): East Tennessee State University

East Tennessee State University (ETSU) launched its chat reference service inspired largely by the addition of an online degree program necessitating some form of distance access to on-campus resources. The library chose Live Assistance as its software although the program did not have co-browse capabilities. They named the service “Ask a Librarian”. The service was run from the reference desk using reference staff during reference desk hours, basically from 8 a.m. to 10 p.m., with most chat requests being logged between noon and 6 p.m. which corresponds to traffic patterns at the physical reference desk.

The service went live in spring 2002 with the first question coming from an elementary school student in West Orange New Jersey asking “What kind of noise did the hadrosaurus make?” (Campbell et al., p.300).

Chat request data for February through December 2002 was examined. Of a total of 656 attempts to access the service, only 300 were successfully received and answered. These 300 requests were analyzed and categorized by type of question.

Questions were classified into six categories: specific topic or item request (51.7% of total questions received), general library information (15%), access questions (10.7%), help navigating website (10%), connection lost (3.7%), renew materials request (3.3%), geology (2.3%) and “other” (3.3%). The majority of the questions received were requests for help locating information on a particular topic or for a specific item. The library staff concluded that “the service is being used for the purposes we hoped”. (p.306) In spite of that rather odd initial query from West Orange, the librarians’ fear that patrons other than university students and staff would use the system turned out to be unfounded

as only 26 of the 300 chat requests came from non-university patrons. The authors note the difficulties in understanding the exact nature of a particular query, and mention that “impatience on the part of both the student and librarian can also lead to misunderstandings” (Campbell et al., p. 302) Perhaps unsurprisingly, given the several expressions of frustration throughout this study, (the participating librarians in particular expressed dissatisfaction with the software, the process and the impossibility of conducting effective reference interviews), the authors conclude, “The general opinion seemed to be that chat reference was disliked, but that it must be offered because ‘everyone else is doing it’.”(Campbell et al., p.308)

Question Analysis

In an effort to gain a broader perspective on the types of questions that are being directed to chat reference services, I examined the question categories used in these ten case studies. I began by simply listing the categories the authors selected to categorize their questions (see Appendix 1 for a complete list, including sample questions when available), and assigned the reported percentages of the total questions received to the various categories. Next I consolidated this data into a single spreadsheet and sorted the data by category. I then created seven categories that I thought encompassed all the question types. The categories I created are: remote access, finding things in the library, finding known items, library services and policies, technical (including how to use the technology), ready reference and research. After sorting the 66 categories from the original papers into these seven categories, I averaged the reported results to determine the average percent of questions received within these categories. My results were as follows (in order of greatest to least): locating known items (26.12%), research and

reference (22.97%), technical (13.95%), library services and policies (13.75%), remote access (13.04%), ready reference (12.8%) and finding things in the library (11.4%).

Below I have shown how I consolidated the categories from the original data.

Figure 1: Original categories consolidated

Locating known items:

Finding known item
 Finding specific library materials
 Known item
 Known item or quick look-ups
 Known item search
 Specific search
 Specific topic or item request

Average 26.12%

Research and reference:

Genealogy
 Reference
 Research
 Research & reference
 Research or Subject Request
 Research: subject based
 Specific factual, not ready reference
 Standard reference resources used
 Starting points for term papers
 Subject-based research
 Topic search

Average 22.97%

Technical and using the technology:

Chat about Chat

Database

instruction/passwords

Database mechanics

Help navigating website

Ill

Instructional

Navigating ReSearch station

Technical

Technical assistance

Technical problem

Technical problems

Average 13.95%**Library services, policies & procedures:**

Administrative

Circulation

General library information

Information about library & services

Library policies

Library policies or technical problems

Library policy

Library policy

Patron record

Questions about chat service

Renew materials request

Average 13.75%**Remote Access Questions:**

Access questions

Accessing databases & electronic resources

Connection lost

Connectivity

Off-campus access

Average 13.04 %

Ready Reference

BGSU info
Citation of references
Citation verification
Location of places in city or state
Ready Reference
Ready reference
Ready reference
Ready Reference

Average 12.8 %**Finding things in the library:**

Articles on...
Catalog look-up and use
Information literacy
Location on library website
Location within library
OPAC

Average 11.4 %

Upon further analysis, I determined that these seven categories could be further abstracted into four higher level categories to give a broader indication of service requests by utility to the patron. Thus finding things in the library and locating known items can be combined into a single category with the rationale that this category covers the situations in which the patron knows what he wants and merely needs help finding it. The resultant category, called "Finding things" would then account for 37.51% of the questions received, on average. Along the same lines, reference questions could be composed of both ready reference and the more in-depth reference questions and would then account for 35.77% of the questions received. Technical questions and problems could logically include remote access questions and would then account for 26.99% of

the questions received. Finally, questions concerning library services, policies and procedures account for another 13.75% of the questions received.

Figure 2: Final consolidation

Finding things in the library:	11.4
Locating known items:	26.11
Finding things: Average %	37.51
Ready Reference	12.8
Research and reference:	22.97
Reference: Average %	35.77
Technical and using the technology:	13.95
Remote Access Questions:	13.04
Technical issues: Average %	26.99
Library services, policies & procedures:	13.75

From these results, it would appear that reference, as it is typically defined forms a minority share of the total demands on the chat reference services that have reported these results. In reviewing the list above, one is struck by the fact that three of the four categories (finding things, technical issues and library services, etc.) could be reduced or eliminated altogether by providing better information to the patron so that the patron can answer his own questions. For example, it should be an easy matter to lead a patron to the physical location of an object within the building, provided that the location is known and recorded and accurate and that the signage is adequate. “Librarians need to fight against technical solutions that are too complicated for most patrons to understand. When your number one reference question is about your proxy server, get a better proxy server.” (Boyer, 2001, p.127)

Conclusions:

From this analysis we can conclude several things. One, technical problems account for a large percentage of questions addressed through chat reference. Two, patrons need directional assistance. Three, reference questions are getting more complex and will require more effort on the part of reference librarians to deliver satisfactory responses.

As was shown at Carnegie Mellon, the high percentage of questions categorized as technical problems was a direct result of problems with the system itself (Marsteller, Neuhaus, 2001). Therefore, the high incidence of this and related categories (technical problems, connectivity, database access) may be less of an indicator of patrons' continuing information needs and more of a comment on the current state of the technology. As such we should begin to see a decline in the numbers reported for this category as the technology continues to improve and becomes more user-friendly and robust.

A significant number of questions are concerned with locating particular information. A high percentage (over 37%) of the questions concerned finding things when either the location was known (within the library) or the item being sought was known to the person asking the question. The ancillary category of library services, policies and procedures also fits into this category when consideration is given to how best to address the need.

Boyer (2002) proposes a solution, citing the commercial online genius of Amazon as an example of how to lead patrons through the technology invisibly. "What if instead of creating separate documents to explain our services, the services explained

themselves?...Amazon.com staffers don't sit around creating tutorials on how to find books in their catalog; their catalog explains itself...and you don't need to learn any jargon or go through a minute of training." He notes that although "library tutorials can be useful, especially if they explain complex processes or concepts...too often they just make up for the fact that libraries and vendors design tools that can be used only by those who already know how to use them" (p. 127)

According to Francoeur (2001, p. 196), "...users have an increased sense that they should be able to find things for themselves now that they have computers to assist them."

There is wide agreement that the questions directed to the digital reference services are growing in complexity. We can conclude that our patrons do indeed have research needs that may not be currently addressed either by online commercial enterprises such as Google Answers or by digital reference services provided by libraries that in many cases refuse to take on that responsibility. Francoeur (2001, p. 196) states, "The literature suggests that users have real needs that cannot be adequately met through unassisted, end-user searching of online resources (both free and licensed) or from our commercial competitors on the Web. As the information landscape changes, so do the needs of our users." LaGuardia (2003) in a paper addressing the future of reference notes, "It is true: we do not get some of the quick, look-up type questions because users just check it out on Google...But the questions coming to us now tend to be more complex, more time-consuming, and larger in scope." (p. 3 of 4)

In spite of this demonstrated need, two of the libraries in these ten case studies specifically and explicitly have policies excluding complex questions from their chat

reference services. Kibbee (2001, p.3 of 13) at the University of Illinois, Urbana-Champaign notes, “The service cannot address extensive research or instructional needs and these users should be asked to come in. A 15 minute time limit is suggested.” Dunn and Morgan (2001, p.211) at Cal Poly Pomona wrote, “As a policy, the service excluded in-depth research questions, advising those patrons that a visit to the library was necessary to adequately address these questions.”

On the other hand, at least two of the studies emphasized the growing need for reference support of increasingly complex reference questions. Diamond and Pease (2001, p.8 of 12) at Cal State, Chico noted that “limiting digital reference service to “ready reference” questions alone does not adequately meet users’ needs and may not even be understood by them.” Rather than prohibiting complex questions, they suggest that the reference librarians must find a way to address the complexity, perhaps through the increased use of web forms and answer checklists. Broughton (2002/2003) noted that the chat reference service at Bowling Green State University received “very, very few ready reference questions” indicating that patrons are obtaining the answers to that type of question elsewhere. Sloane (2001) cautions that “handling only questions of a ‘ready reference’ nature might be a disservice to a sizeable portion of the potential population of digital reference users.” In an oft-quoted passage, Lipow (1999) says, “If an increasing percentage of our clientele is comprised of remote users, then we must become more convenient to our remote clientele. In fact, rather than thinking of our users as remote, we should instead recognize that we are remote from our users. We need to change how we do business to link us back together- this time on their turf.” (p. 4 of 6)

The academic libraries reviewed for this article all served remote patrons, including distance learners, students located at remote campuses and patrons with disabilities. They all cited the difficulty of conducting effective reference interviews as a major hindrance in providing more complex research and instructional services to these remote patrons. The medium itself, although it is billed as “synchronous” is, in fact, somewhat disjointed, necessitating as it does a pause on one side while the other side is composing its next message. Lee (2004) notes the apparently grueling effort of question negotiation in chat reference:

An analysis of one transcript of 22 turns showed the librarian asking seven questions: five reference and two administrative. The student apparently hung up without receiving any substantive help. A crucial factor may have been the time taken to do this. The 163-word conversation took 7:21 minutes. If the conversation were spoken it would have taken approximately 70 seconds. This is approximately 600% longer. Presumably, VoIP would remove this barrier. (Lee, p.105)

In spite of the difficulties, many believe that it is imperative for reference librarians to persist in their efforts to provide relevant services to their patrons. As Francoeur (2001) noted:

Part of the rapid growth of online reference services can be attributed to a growing sense among librarians that they need to reach out to their users and bring them back to the library, even if it is digital. Many librarians have noticed these trends that are pulling our users away from us and have explored ways to offer new services (if only as a way to defend the role of the library in society)... One of the main selling points of chat reference is that it allows librarians to help "right when the researcher needs the information" (McGlamery and Coffman, 2000, p. 380). Lipow (1999a) suggests that what libraries should be offering is an "in your face" online reference service, one that users will not be able to overlook. Think of it as the online equivalent of roving reference. (p. 196)

Many of the variables that will shape the future of online reference services are beyond the control of a single profession. Technology continues to evolve with high speed access to the Internet becoming increasingly available. Online interactive software continues to evolve, with VoIP becoming more widely accepted. Digital resources continue to be added to the online repositories of information. What will be the role of the reference librarian in this new world?

One way to do this is to take a fresh look at existing beliefs and practices. According to Kresh (2002/2003), some important work involves rethinking how things work:

Rethink reference-which means a number of things, not the least of which is how reference can be supported by other jobs in the library. Know your users and re-examine your workflow (Penka 2003). Build-in more feedback mechanisms, how will we know patrons are served if we do not ask them...Increasingly we see new models of librarianship emerging in which the skills and expertise of reference librarians, catalogers, and programmers combine to create new services and products to enhance public service. (p.29)

Janes (2002) has some of the best advice for the future, urging libraries to embrace the technologies that best serve their patrons and to continue in what has always been the mission of librarianship:

Although it gives me no pleasure to say it, I think we may be the last generation of reference librarians who could concentrate on ready reference as a major component of their work lives...It would make more sense to play to our strengths: concerns about evaluation and quality of information sources, sophisticated tool and techniques for searching, understanding the nature of users, their communities, their need and situations, compiling and organizing and packaging information resources for their use, helping them to understand how to help themselves and how to use and evaluate information. These, the goals and motivations for reference librarians for over a century, would lead us to a school of reference librarianship less focused on the answers to specific questions and more on providing assistance and support to people with more detailed, more

demanding, more comprehensive information needs of all kinds, from the personal to the professional, from the mundane to the cosmic. (p. 4 of 5)

Appendix 1: Questions as categorized by original studies

Penn State VRS: Fall 2002 (17 weeks)	418	Total # sessions
Susan Ware, et al.		
Question Type	% of total	Example Questions
Instructional	39	Location of item or database
Research or Subject Request	32.5	Locate reliable resources on specified subject; help "getting started"
Ready Reference	22	Schedules, library hours, equipment, how-to citations, web-site evaluations
Technical	24	Connectivity, database connection, passwords, error messages
Out of Scope	1	clarification on class assignments (refer to teacher)
Auburn Universities: Spring 2001 (112 days)	153	Total # sessions
JoAnn Sears		
Question Type	% of total	Example Questions
Ready reference	22.2%	Names of journals, form of citation, academic programs
Specific search	32.7%	articles about specific topics
Research	0.7%	"I need to find info on...I am a therapist about to testify
Database instruction/passwords	7.2%	Book renewals, database access
Library policy	24.8%	questions on services, loans, etc
Location within library	9.2%	location of equipment in library, location of materials
Location on library website	2.0%	tutorials
Location of places in city or state	1.3%	location of library buildings in town or state

**California State University Chico:2
years 1997-1999
Wendy Diamond, Barbara Pease
Email reference**

Question Type	% of total	Example Questions
450 Total # sessions		
Standard reference resources used	21.6%	Not all ready reference: books with pictures of people in 1923
Catalog look-up and use	16.9%	Does the library have? How do I find?
Starting points for term papers	12.0%	Presentation on Mexico-where to start?
Specific factual, not ready reference	10.9%	current cost of living and tax rates for New Zealand
Information literacy	9.6%	why can't I see full-text (from user in a citation database)
Navigating ReSearch station	7.8%	where to find databases, links
Database mechanics	6.0%	finding articles in journals, search strategies, printing abstracts only
Connectivity	5.8%	access from home, passwords
Library policies	4.7%	does library have textbooks, can books be renewed by email
Non-library questions and referrals	2.4%	
Non-questions	2.4%	complaints, suggestions, thanks, etc.

**California State Polytechnic University,
Pomona: 2002
Kathleen Dunn, Ann Morgan**

Question Type	% of total	Example Questions
324 Total # sessions		
Reference	50%	critical essays on Great Gatsby; journals on American foreign policy
Library policies or technical problems	29%	Hours, renewal policies, fines, course reserves, PIN numbers, connecting
Known item or quick look-ups	16%	Can you see the California Manufacturer's Register online?

**Bowling Green State University: 2001-2002
Kelly M. Broughton**

Question Type	% of total	Example Questions
642 Total # sessions		
Other	49%	"extremely diverse"
Articles on	22%	articles on a particular topic
Known item	12%	does library have a particular resource
Patron record	6%	renewals, etc
BGSU info	4%	University related questions: campus events, where to buy sweatshirts
Other librarians	3%	Librarians and library students
Off-campus access	2%	Accessing proprietary resources remotely
Referrals	2%	referred to other depts., such as circulation, branch library or special collection

Illinois State University: Fall 2002
Bruce Stoffel & Toni Tucker

14 Total # sessions

Question Type	% of total	Example Questions
Topic search	34.50%	none provided
Ready reference	18.20%	none provided
Known item search	18.20%	none provided
Technical assistance	16.50%	none provided
Library policy	12.70%	none provided
Citation verification	0	none provided

Murdoch University & Macquarie University: 2003
Ian J. Lee

47 Total # sessions

Question Type	% of total	Example Questions
Accessing databases & electronic resources	43%	none provided
Administrative	19	none provided
Finding known item	19	none provided
Research & reference	19	none provided
Citation of references	0	none provided

University of Illinois at Urbana-Champaign: 2001
Jo Kibbee, David Ward, Wei Ma

604 Total # sessions

Question Type	% of total	Example Questions
Finding specific library materials	33.20%	none provided
Information about library & services	30.50%	none provided
Subject-based research	20.20%	none provided
Ready Reference	9.10%	none provided
Technical problem	5.30%	none provided
Questions about chat service	1.70%	none provided

Carnegie Mellon University: 2000
Matt Marsteller, Paul Neuhaus

N/A Total # sessions

Question Type	% of total	Example Questions
Research: subject based	49%	General, science/engineering, social science, business, humanities
Technical problems	32.60%	Chat software problems, slow connections
OPAC	8.70%	
Circulation	4.60%	
Chat about Chat	3.60%	Other institutions testing the service
Ill	1.50%	Inter-library loan

East Tennessee State University: 2001-02
Kathy A. Campbell, Marie F. Jones, Jerry Shuttle

300 Total # sessions

Question Type	% of total	Example Questions
Specific topic or item request	51.7%	Help locating information on a specific topic
General library information	15.0%	Hours, where to locate an item
Access questions	10.7%	Accessing databases from off-campus
Help navigating website	10.0%	
Connection lost	3.7%	Disconnected during session
Renew materials request	3.3%	
Other	3.3%	
Genealogy	2.3%	
Total number of questions analyzed	2952	(more than since Carnegie Mellon's study did not provide a count)