Digital reference: a case study of question types in an academic library

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Introduction

From telephones to computers to the World Wide Web, librarians have always been willing to incorporate new technologies in order to improve service delivery. Currently, “digital reference” is the latest innovation that is generating interest. Although libraries have offered e-mail reference services for over ten years, a number of questions remain unresolved:

- What technology is best – e-mail, Web forms, chat, or video?
- Who may use it – the library’s primary clientele, members of a consortium, or anyone from anywhere?
- What types of questions should be answered – short and factual, broad and complex, or whatever is asked?

Because of the lack of “best practices” in this arena, librarians can benefit from gaining additional information about specific aspects of digital reference services. Gray (2000, p. 371) notes, “there is not a great deal of current formal research data that characterize ... users of virtual reference services and the nature of their questions”.

To address this need, this article categorizes the actual questions received over a two-year period by the digital reference service of a mid-sized academic library. The authors conducted a detailed examination of the types of questions posed, and the numbers of questions in each category. The study leads to some new conclusions about how digital reference service is used, and reveals that digital reference services can handle the full range of simple and complicated questions that are typically asked at a physical reference desk. Because broad or complex questions can be difficult to answer remotely, suggests a strategy for improving the process of answering such questions in the digital environment.

Literature review

As previously noted, there is little detailed or systematic information about the questions libraries actually receive and answer via a digital
reference service. Most of the published literature documents the growth of e-mail reference services, and describes its general features. Roysdon and Elliott (1988), Bristow (1992), Still and Campbell (1993), Bristow and Buechley (1995), Frank (1998), and Schilling-Eccles and Harzbecker (1998) all write about their experiences in describing the growth and features of the e-mail reference services in their libraries.

More recently, additional literature appeared. A SPEC Kit published by the Association of Research Libraries (ARL) on electronic reference service provided a snapshot of the extent and form of digital reference in research universities (Goetsch et al., 1999), and Janes et al. (1999) reported on the number of academic libraries offering digital services and described some specific features of these services.

As Garnsey and Powell (2000, p. 245) noted, "the literature has primarily concentrated on the mechanics of providing and administering e-mail reference services." Several articles, however, also include some information about the types of questions received. Roysdon and Elliott (1988, p. 89) reported that Lehigh University's campus-wide REFNET service was intended for factual, short-answer questions like addresses, phone numbers, definitions or dates, and indeed a majority of the questions received were of this type. Bristow and Buechley (1995, p. 459) reported that graduate students were major users of the e-mail reference service at Indiana University, and the largest category of questions was verification of bibliographic citations and addresses, although almost every type of standard reference question was represented.

However, they did not analyze the content of these standard questions in any further detail. Fishman (1998) wrote about the digital reference service for medical school students at the Health Center Library at the University of Maryland at Baltimore (UMAB). This service was "designed to handle general reference questions, database use, password and basic connectivity queries concerning library databases, as well as literature search requests". Of the questions 41 percent dealt with database passwords and connectivity issues, i.e. computer access questions. Only 16 percent of the questions dealt with "locating resources" and 7 percent with "using databases" (Fishman, 1998, pp. 6-8). No further details about the question categories were given.

Schilling-Eccles and Harzbecker (1998, p. 22) described another medical e-mail reference service at Boston University Medical Center's Alumni Medical Library. This service was intended for a primary clientele familiar with the library's procedures and policies. As expected, questions from this clientele were almost entirely ready reference questions that took less than five minutes to answer.

Bushallow-Wilbur et al. (1996) provided more detail about the types of questions received by an electronic mail service in their libraries. Of the 338 reference questions posted to the e-mail reference service at State University of New York (SUNY) Buffalo between January 1993 and June 1994, the authors identified 74 percent (n = 251) as questions that were answered using basic reference tools, such as citation verifications, finding publisher addresses, "looking up the cost of wine in Boston", and other facts and figures. The remaining reference questions were categorized as "library policy" or catalog use ("OPAC") questions and "purchase requests". The authors also reported that 79 percent of the users at that time were faculty and graduate students, half of whom were affiliated with departments of Engineering, Natural Sciences or Mathematics. Only seven questions (6 percent) were received from undergraduates (Bushallow-Wilbur et al., 1996, pp. 360-62).

It is important to note that these articles describe e-mail reference services that were predominantly used by faculty members, graduate students, or other special audiences, or had an explicit policy of limiting users to short factual questions. It is likely that a broader and more diverse client base would generate broader and more diverse questions. Schilling-Eccles and Harzbecker (1998, p. 23), for example, found that the questions submitted by non-primary patrons (e.g. those unfamiliar with the library) were often broad or unfocused and took more time to answer. Similarly, Roysdon and Elliott (1988, p. 89) noted that undergraduates "pose more hard-to-interpret or incomplete questions, as well as questions inappropriate to the purpose of the service", even when a question form clearly prompts them to ask short factual questions.
Roysdon and Elliott’s (1988) article suggested a gap between the types of questions an e-mail reference service is intended to answer, and what it actually receives. Garnsey and Powell (2000) clearly documented this gap. Their survey of 22 public libraries offering digital reference revealed that 55 percent of the libraries intended the service for ready reference questions, that is, questions of a factual nature that can be “answered quickly by consulting only one or two reference tools” (Garnsey and Powell, 2000, p. 249). However, when the authors later categorized 151 actual e-mail reference questions, they found that, while 30 percent were ready reference, almost as many (25 percent) were research questions. The authors concluded that, although digital reference services might have been intended to answer ready reference questions, “patrons do not seem to use them overwhelmingly for that purpose” (Garnsey and Powell, 2000, p. 251).

Although the earlier literature and library policies show that short, factual questions were most appropriate for e-mail reference service[1], there is no current consensus among libraries regarding the kinds of questions that are acceptable. For instance, Straw (2000, p. 377) asserts that short, factual questions are the most appropriate for e-mail reference, while Gray, in an article published in the same issue of Reference & User Services Quarterly, suggests that “libraries need to expand [virtual] service beyond basic ready reference ...” (Gray, 2000, p. 370). Indeed, libraries are doing just that. The ARL SPEC Kit on electronic reference reports that 51 percent of the responding libraries (n = 38) accept any type of questions, and 41 percent (n = 31) accept “basic factual questions” (Goetsch et al., 1999, p. 12).

Other libraries are actively encouraging the full range of questions that are typically asked at a physical reference desk. For instance, the Santa Monica Public Library’s e-mail service provides not only short factual answers, but also “search strategies for locating information on the Web or in other electronic resources” (O’Neill, 1999, p. 303). The University of California Irvine’s digital reference form says, “Need help finding information? Can’t figure out how to begin your research? Well, ‘Ask a Librarian.’” Similarly, North Carolina State University, Raleigh, says “Get answers to the same kinds of questions you might ask at the NCSU Libraries reference desk” (University of California, Irvine, 2001; North Carolina State University Libraries, 2001).

Given the lack of consensus among libraries about how to define their digital reference services, we were curious about our own library’s decision not to limit the kinds of questions we would answer via an e-mail reference service. Were we receiving and answering mostly short, factual questions that early published reports suggested were appropriate? Or, were our questions more representative of the wide-ranging reference and research questions that more recent accounts and library Web pages seem to be encouraging?

Our study is intended to fill a need for detailed information about the types of questions actually received by a library digital reference service. By doing so, it is expected that this information will contribute to the ongoing discussion of how libraries can effectively handle reference questions in a digital reference environment.

The setting

California State University (CSU) Chico is a comprehensive university with an enrollment of approximately 14,000 undergraduate and graduate students. The Meriam Library’s home page, called the ReSEARCH Station, allows users to access the library catalog, over 50 periodical indexes and full text databases, plus library services such as interlibrary loan and special assistance for distance education students. CSU Chico students receive a free e-mail account, and professors increasingly present their course materials on the World Wide Web using such course management programs as WebCT. Thus, the library’s digital reference service, linked from the Library’s home page, is part of a comprehensive array of Web-based services easily accessible to all CSU Chico students, faculty and staff.

The study

The authors analyzed 450 reference transactions received between August 1997 and May 1999.
Five librarians answered questions on a rotating schedule. The question-answer pairs were saved in a “sent mail” folder in a passworded Microsoft Outlook e-mail account, so the actual text of questions and answers was captured. At the end of each semester we transferred the items in the sent folder to an archive folder for past questions, and re-set the counter to capture the current semester’s questions.

Categories of questions received
As we analyzed the sample of e-mail reference questions received, certain familiar reference desk question categories quickly emerged:

- **Catalog look-up and use** (Does the library have...? How do I find a video on...?).
- **Library policies and scope of collections** (Does the library carry textbooks? Do I have to pay for Inter-Library Loan services? Can I renew books by e-mail?).
- **Connectivity questions** (How do I get access from home? What’s the password? Is the server down?).
- **Database mechanics** (features and use of a specific database, for example: How do I find an article in a certain journal, limit my search to book chapters, or print only the abstracts of the article?).

The library’s e-mail service received few requests for specific, easily verifiable facts such as addresses, birth and death dates, or parts of citations. Therefore, we did not establish a separate “ready reference” category for these types of questions. Instead, we defined a category called, “Questions Answered Using Standard Reference Resources”, which reflected a “mixed bag” of general reference questions. Although they did not fall into the category of stumpers, they were not short answer, ready reference questions either. All of them could be answered using standard encyclopedias, dictionaries, statistical references tools, or databases found in the library’s collections or available through the library’s Web site. Examples included:

- “Did Betsy Ross really sew the first American flag?”
- “Where can I find a review of *Men Are from Mars, Women Are from Venus*?"
- “Do you have any books with pictures of what people looked like in 1923?”

We established a complementary category for “Specific Factual but Not Ready Reference”. These questions tended to be difficult, requiring specialized, less familiar sources or more extensive research to answer. Examples included:

- “I am looking for a position paper on methamphetamine use by Scott Lukas published by the Center for Substance Abuse Treatment. I could not locate it on the Web”.
- “I need books or articles in Spanish about Cuauhtemoc Cardenas and the PRD”.
- “What are the current cost of living and tax rates for New Zealand?”

Some of these “Factual but Not Ready Reference” questions required a single piece of information, although the librarian may have consulted numerous sources to find it. Others requested several pieces of information at once.

Two categories reflect the underlying complexity of a digital information environment. The first, “Navigating the ReSEARCH Station”, includes questions such as “Where do I find this database? That link? I used it before, but now I can’t find it.” This is not a large category, but a potentially growing one. Databases change names, subscriptions are cancelled or replaced, Web sites are redesigned, and users are sometimes left wondering what happened. The second category reflecting the complex digital environment is “Information Literacy”.

Questions in this category display a lack of understanding about how information is organized and accessed, and show a need for explicit instruction. Two common examples are:

1. “Do you have a list of all your journals?”, asked when an article on a specific topic is needed; and
2. “Why can’t I see the full-text of the article on the screen?”, asked when using a citation database.

Although it is fairly easy to provide this type of instruction in person, it can become unwieldy to do so using solely e-mail technology.

Perhaps the most significant category of academic library reference question, both in-person and via e-mail, is “Starting Points for Term Papers and Assignments”. This category includes the typically broad, unfocused questions that students ask when researching...
topics with which they are unfamiliar or seeking information in unfamiliar formats such as scholarly articles, statistics or first person accounts. At the beginning stages of a research project, students frequently ask a question such as, “I have to do this. Where do I start?” These Starting-points questions are usually multi-part questions. Information might be needed for a presentation on Mexico, for example, but the information must be written after 1988, and discuss the educational system and the “secular beliefs and ideologies” in Mexico.

The questions in our sample fell into ten categories of reference or information questions, plus the inevitable “non-questions” category for comments, suggestions, complaints and thanks (see Table I).

**Question categories by frequency**

Table II shows the question categories ranked by frequency. Not surprisingly, Questions Answered Using Standard Reference Resources were the most frequent, with 97 questions accounting for roughly 22 percent of total questions. The next two most frequent types of questions were Starting-Points \((n = 76)\) and Specific Factual but Not Ready Reference \((n = 54)\). Both of these question types require more than a simple answer: Starting-Points because there are usually several starting-points rather than a single one and Specific Factual because difficult questions require searching in more than one source before an answer is found. Information Literacy \((n = 26)\) questions are also not simple to answer either, because instruction or explanations are provided along with the answer. Together, these question types, ranked no. 2, no. 3 and no. 8 in Table II, totaled 156 questions and accounted for 35 percent of the total number of questions. Because seemingly simple questions can sometimes require complex answers, it is likely that some of the questions in the top ranking category, “Questions Answered Using Standard Reference Resources”, also required more than a simple answer.[2]

The questions types, “Catalog Look-Up”, “Library Policies”, and “Navigating the ReSEARCH Station” (rankings no. 4, no. 5, and no. 6 in Table II), are usually well-focused, straightforward, and simple to answer questions (e.g. “I need books about...” “Can I renew over the phone?” “What happened to the ‘Books in Print’ link you used to have?”). On the university campus, “Connectivity” questions (ranking no. 9) are also simple because the Student Computing Services unit handles them. Database Mechanics questions (ranking no. 10) are also generally simple to answer because librarians are familiar with database structure. Together, these question types, ranked no. 4, no. 5, no. 6, no. 9, and no. 10 in Table II, totaled 159 questions and accounted for 35 percent of the total of questions. Analyzing the questions types in this way leads to the conclusion that the library’s e-mail reference service receives as many broad,
complex, or difficult questions as it does simple and straightforward. Figure 1 illustrates this relationship.

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 multifaceted or complex questions did pose a surprise. Eileen Abels (1996, p. 355), in her important study of the e-mail reference interview, predicted that “complex reference requests will become more commonplace as electronic information services are expanded”. Our results show this to be true. Librarians at the AskERIC online question-answering service further confirm this trend:

Examples of questions

The number of longer, more complex questions drew our attention to specific questions and their answers, and caused us to wonder about how effectively we were handling these questions. Consider, for instance, these transactions from Meriam Library’s digital reference service:

Q: I need to locate geological information on the formation of Mount Diablo or on an interesting topic related to bay area [sic] geology. All of the sources I have located are written by geologist [sic] to other geologists, and make little sense to people with limited geological knowledge, like myself.

A: What resources have you checked? Have you checked the library catalog? This has books that are not too technical. One title that is simple is Roadside Geology of Northern California.

This answer is barely serviceable and leaves out the possibility of useful articles from such lay science sources as National Geographic, or Discover Magazine. This example also illustrates the value of proofreading for accurate punctuation and capitalization.

In the next example, although an in-person reference interview might have been useful, the librarian was able to direct the student to several starting-points and useful subject headings (correctly spelled).

Q: I have to do a paper on genealogy [sic]. I’m having a hard time finding things about it. The problem is that the paper can’t have anything to do with familys [sic] themselves. What can I use to write a paper? The paper needs to be five to seven pages long. Can you help me?

A: It sounds like you may need to narrow your topic down a bit. (Note the spelling is “GENEALOGY”…). To get started, you can look for books in the Library Catalog under the subject Browse search. Use the term “genealogy” and browse for the best sub-headings, such as “handbooks, manuals, etc.” You can look for articles in Academic Search, also using the subject heading “genealogy”. Also, on the Web, look at Yahoo under the Arts/Humanities/History section. There are a lot of Genealogy Web sites. If you still need more help, feel free to come to the second floor reference desk.

After reviewing the sample of question and answer pairs, we identified some areas for improvement. How could we better ensure that we had interpreted correctly either a complex question or an overly brief or incomplete one? What could we do to improve the clarity of a long answer and make sure that parts of a multi-part question were not overlooked or forgotten?

Reference interview and question forms

Abels (1996) focused on the e-mail reference interview as a way to provide better answers through a better understanding of the questions. She identified a taxonomy of
librarian electronic interview approaches. These included “piecemeal”, “feedback”, “bombardment”, “assumption” and “systematic”. While the “bombardment” approach can provide useful information, the user may have trouble understanding it because it appears “like a stream of consciousness in paragraph form” (Abels, 1996, p. 350). She identified format as a critical component of an effective [e-mail] reference interview. The librarians at CSU Chico assume that format is equally important in the success of an e-mail answer to a reference question.

Likewise, the “assumption” approach met with mixed success in Abel’s study. Although we believe that experienced librarians may have a better basis for their assumptions than the library school students in Abels’ study, we do agree with her advice that it is “desirable for the intermediary to summarize interpretations of the result to avoid misunderstandings . . .” (Abels, 1996, p. 351).

Conceding that e-mail may not be the most efficient medium for question negotiation and clarification, Abels did find that “some substantive reference questions can be negotiated successfully via e-mail”, yet concluded that the systematic approach using a detailed search request form is the most successful and effective for the medium (Abels, 1996 p. 354). Some libraries have indeed adopted a detailed Web form in order to gather more information about the patron’s needs. The Internet Public Library uses an extensive form that makes it easier to discern what the patron needs from the initial message:

Although our form is now much more complicated to fill out than it once was, the quality of the question messages we receive is much higher. We used to get “questions” consisting solely of two or three keywords, with no information to let us know what the patron was really looking for! (Lagace and McClennen, 1998, p. 26).

Although a detailed question form can be a positive step in replicating the systematic aspects of a good reference interview, it nevertheless creates a barrier for users who must answer a series of questions in order to even ask their own question. Janes et al. (1999, p. 147) reported that “more than half the libraries [in their survey] used a simple Web form (which asked only for name, question, and authentication if required) . . .” Conducting a reference interview through a series of e-mails can also delay results – the last thing a student wants!

Rather, librarians in our sample often based their answers on assumptions about the question or the level of information needed. Rarely did a librarian send a follow-up request for more information before providing some information. Instead, the librarians’ answers provided some basic information or a research starting place, and encouraged the questioner to write again or visit the reference desk if more, or different, help was needed. This is similar to the “feedback” technique that Abels (1996, pp. 349-50) identified. In Abel’s study, providing feedback through an actual computer search for the questioner to comment on became a way to expedite a reference interview that had stalled over e-mail. Abels (1996, p. 349) concluded that “the idea was to . . . set a common framework and provoke response and feedback”. As used by librarians at CSU Chico, this assumption-feedback technique allowed for an exchange of further information if the librarian’s answer was seriously off-base, but did not force every user into a time-consuming e-mail interview. Most answers in our sample seemed on target, and a few answers garnered “thank you for helping” replies, indicating that the information need had been met.

We did notice a problem, however, with handling all aspects of multi-part questions, and with presenting the answers logically. We believe that many of the answers we reviewed, including our own, would have been improved if we had been reminded to address all parts of a question, make our assumptions clear, and break long paragraphs into smaller sections. To serve as just such a reminder, we advocate an Answer Checklist.

Answer checklist

By “standing in” for the reference interview, the Answer Checklist may improve librarians’ effectiveness in the digital environment. A checklist can serve as a reminder to reply in a systematic way, while reducing the problems of overly detailed question forms, and bombardment or hidden assumptions in the answer. It may also help to reduce the inherent
tendency of e-mail correspondence to be less formal and more "breezy" than other forms of communication. Because the answer checklist encourages the use of numbered or bulleted sections and adequate white space, complex written answers may be more easily understood and absorbed by the patron. An answer checklist also has the important benefit of placing responsibility for ensuring a successful reference transaction on the professional and not on the patron:
(1) Abstract and number the embedded queries in complex questions. If possible, differentiate key and subordinate queries.
(2) Re-state the topic or quote back selected parts of the patron’s question.
(4) State your own assumptions, and invite the patron to correct any misconceptions.
(5) Offer multi-part answers to “research starting-points” questions. When appropriate, suggest subject headings for finding books, best periodical indexes and key words for finding articles, and reference sources (statistical abstracts, encyclopedias, Web sites, etc.).
(6) Give specific URLs, active links, and call numbers where available.
(7) Enhance legibility and comprehension by breaking long answers into sections with white space, numbering or other formatting. Use complete sentences and punctuation.
(8) Offer the patron a means to follow up if more information is needed. Include a signature block to make it as easy as possible.
(9) Re-read the question and your answer before sending.

Here is a sample question as it might have been answered using the Checklist. (Note that the checklist is utilized as a template to structure the answer, not as a rigid form for every question):

Q: I was just wondering how to find information from (n)ewspaper and magazine articles on a certain subject from the computer and ReSEARCH stations. My topic is Critical Race Theory and the O.J. Simpson trial. Can you help me out?
A: It sounds like you need to analyze how the “Critical Race Theory” applies to the O.J. Simpson trial. Let me know if this does not describe the topic of your paper:

(1) For newspaper and magazine articles written at the time of the trial, use Academic Universe found on the ReSEARCH Station/Resources A-Z.
(2) For scholarly articles analyzing the racial aspects of the O.J. Simpson trial, use Academic Search, also found on the ReSEARCH Station/Resources A-Z. Do a keyword search: Simpson and race. You can limit your search to “refereed/peer-reviewed journals”, so you will retrieve articles only in academic journals.
   (Both of these databases will provide you with some full-text articles but, for articles that are not in full text, use the ReSEARCH Station/Periodicals List to find call numbers for the magazines and journals the library owns.)
(3) If you also want background information on the critical race theory, you can read about it in the Encyclopedia of Sociology (Reference, HM 17 E5). Use the index and look up “race, critical theory” to find a discussion and suggestions for further reading.

If you need more help, be sure to e-mail again or come to the Reference Desk on the second floor of the library. Good luck with your project! Meriam Library Reference Department Libref@csuchico.edu or 898-5833

Conclusion

This study of the types of questions submitted to an academic library digital reference service shows that users ask similar questions whether in person or via an e-mail reference service. Academic librarians should be prepared to answer a full range of questions – general reference, catalog look-up, library policy, and those broad, open-ended “starting-points” questions from the beginning researcher, as well as the advanced researchers’ specific, harder to locate queries.

Limiting digital reference service to “ready reference” questions alone does not adequately meet users’ needs and may not even be understood by them. As more libraries implement virtual reference desk services, incorporate live sessions, and take advantage of other new technologies, many changes will certainly occur in remote question handling by librarians. Because the digital environment is so fluid, digital reference services will require ongoing adaptations in the way librarians work. Our professional knowledge about good
communication, and the types of information sources that users need will remain valuable, however, and will continue to enhance librarians’ performance in a digital reference environment.

Notes

1 Bushallow-Wilbur et al. (1996, p. 360) noted that “little is written about the types of reference questions asked, though it is clear that most librarians . . . encourage patrons to ask factual, ready reference questions . . .”. Roysden and Elliott (1988, p. 87) and Fishman (1998, p. 4) also suggest that short-answer, ready-reference type questions are most appropriate for an e-mail reference service.

2 This analysis is based on Barbara Robinson’s (1989, pp. 52-3) model of the in-person reference process. Robinson identifies two kinds of reference questions: “single faceted” (simple) and “multifaceted” (complex). According to Robinson, complex questions usually require complex answers, but simple questions can sometimes require complex answers too.

References and further reading


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