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The Necessity of Real-Time: Fact and Fiction in Digital Reference Systems

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The Necessity of Real-Time: Fact and Fiction in Digital Reference Systems

ABSTRACT

Current discussions and trends in digital reference have emphasized the use of real-time digital reference services. Recent articles have questioned both the utility and use of asynchronous services such as email. This article uses data from the AskERIC digital reference service to demonstrate that asynchronous services are not only useful and used but may have greater utility than real-time systems.

Introduction

Digital reference refers to the provision of human intermediated service to users over a digital network. Sometimes referred to as virtual reference or e-reference, digital reference has become a hot topic in the library community; it has even been called the first mature application of the digital library, even though its development has been in large part parallel to digital library research and development. At conferences, in articles and on the Internet, there is an ongoing dialog about how best to build and run digital reference services.

Many of these discussions have been summarized by Thomas Peters in his article “Current Opportunities for the Effective Meta-Assessment of Online Reference Services.”¹ In the article Peters states:

“A meta-assessment undertaking could focus on raising several key questions and assumptions about reference service in general and online reference services in particular. Once the questions have been raised and the assumptions questioned, they can be examined and tested-in thought experiments, in controlled research environments, and in pilot programs.”²

One of the findings Peters generates concerns the inclusion of so-called real-time technologies in a digital reference service:

“To be successful, does online reference service have to be conducted in real-time? Examples of delayed service include snail-mail reference, delayed phone reference (where the user calls in the question, then the service provider phones back at a later time with the answer or assistance), and e-mail reference. None of these forms of reference service have proven to be widely accepted and frequently useful to a service population. Although all reference service involves some sort of time delay, it appears to be true that, for most users and most reference needs, delays of more than a few minutes significantly diminish both the usefulness and use of a reference service that routinely incorporates such delays into its service architecture.”³

This article tests Peters’ findings against empirical data gathered through customer surveys conducted for the AskERIC asynchronous question-answering service.⁴ The results of these surveys directly contradict Peters’ findings in relation to real-time services.

Study Background

AskERIC is a personalized Internet-based service providing education information to teachers, librarians, counselors, administrators, parents, and others interested in education throughout the United States and the world. It began in 1992 as a project of the ERIC Clearinghouse on Information and Technology (part of the Educational Resources Information Center) and today it encompasses the resources of the entire ERIC system

and beyond, using the subject expertise of the 16 ERIC Clearinghouses to respond to education requests.

The AskERIC service allows educational researchers and practitioners to ask questions via e-mail or the world wide web. ERIC experts provide users with a list of ERIC database citations, Internet resources, and other relevant information within two business days.

The AskERIC service answers between 800 and 1,414 (at peak) questions per week using this asynchronous digital reference service. Table 1 shows the question loads for AskERIC over the past 8 years.

Clearly AskERIC is a large volume service handling a large number of digital reference inquiries. If, as Peters states, asynchronous services (as opposed to real-time services) “significantly diminish both the usefulness and use of a reference service” AskERIC users should be very dissatisfied with the service. However, the fact that users are generally satisfied with the service is easily confirmed with empirical data.

Methods

This article is based on the results of the 1998 and 2000 AskERIC Informal Marketing Surveys. The purpose of these studies is to assess AskERIC user needs and satisfaction with the electronic question-answering service for the education community. The semi-annual survey asks about the user's profession, how often he or she used AskERIC, how

the information was used, and his or her perceptions of the value and quality of the service. The 1998 survey was sent to every third user of the AskERIC service via e-mail three days after the user received an AskERIC response. The delay in sending the survey allowed users to better evaluate the usefulness of their responses. A total of 689 surveys were sent out between February 23, 1998 and March 16, 1998. One hundred and ninety-six completed surveys were received (28.4% response rate). Table 2 shows respondents of the 1998 survey by type.

Based on the findings of the 1998 survey, the questionnaire was redesigned to focus on satisfaction with the components of an AskERIC response. The redesigned survey was implemented in January 2000. The survey was sent to every third user of the AskERIC service between January 15, 2000 and February 15, 2000, resulting in a total of 443 users. Seventy-nine users responded to the survey for a response rate of 16.8%.

The survey data was collected via a web form, email, and postal mail (hard copy). Most users responded via the web (76%). Microsoft Access and Microsoft Excel were used to analyze the data. Table 3 shows the type of respondents of the 2000 survey.

Assumptions

The researchers assumes that if real-time is a necessary component of a digital reference service AskERIC users would expect real-time service, and would therefore be very dissatisfied with their responses from asynchronous services. Further the researchers assume that AskERIC is revelatory case for asynchronous services where “a revelatory

case is a case for which there is a belief or assumption that the problems discovered in a particular case are common to other cases as well.”⁵

Limitations

This analysis does not test to see if AskERIC users would be more satisfied or better served with a real-time system. It is also based on self-reported data; no attempt was made to determine objective measures of utility or satisfaction.

Another potential limitation of the study is that the service’s primary user population includes members of the education community. While it is possible that educators and educational researchers have specific needs of digital reference services, the researchers cannot identify any bias in the population that would affect the evaluation of such services.

Results

The two most important results from these surveys in regards to the question of the necessity of real-time relate to users’ perception of timeliness and overall satisfaction. In response to the question, “Was the response timely?,” 95% of respondents said “yes” in the 1998 study (see table 4).⁶ In terms of overall satisfaction, when asked, “Would you recommend AskERIC to someone else?,” 97% responded “yes” in 1998 (see table 5).

These trends continue in the 2000 survey. While timeliness and willingness to recommend AskERIC are not specifically asked, comparable questions were asked. In the 2000 survey, 95% of users stated that they would “continue to use the AskERIC Service in the future” with 67% of respondents indicating that they were “very satisfied,” and 96% at least somewhat satisfied with the service (see tables 6 & 7).

Certainly these numbers indicate a satisfaction with the AskERIC Q&A Service. This satisfaction can also be seen in the perceived utility of the service. In 1998, users were asked specifically about the utility of the response they received. Ninety-five percent of respondents indicated that the information they received from AskERIC was relevant, and 85% indicated that the response led to an answer to their original question (see tables 8 & 9).⁷

These results would indicate that asynchronous service is useful, even though responses may be delivered in a matter of days rather than minutes.

Peters concludes in his meta-analysis that “delays of more than a few minutes significantly diminish both the usefulness and use of a reference service that routinely incorporates such delays into its service architecture.” The authors have already discussed the utility (usefulness) of asynchronous services. The researchers also have evidence to indicate increased use of asynchronous digital reference services.

In 1997 and 1998, the Virtual Reference Desk project conducted a survey of the usage of AskA services.⁸ These topical digital reference services are all asynchronous services ranging in response times from two days to two weeks. Many of these services do not even answer all the questions they receive. Table 10 clearly shows an increase in use of these services. Note that the table segments the services by the topic areas they cover. This table shows an average 44% increase in use of these asynchronous services from 1997 to 1998, with an average answer rate of 77% in 1998.

These results do not indicate user preferences for real-time or asynchronous services; rather they speak to the sufficiency of asynchronous service. Asynchronous seems sufficient for the users of AskERIC (and by inference of the increased usage of other asynchronous services, those as well). It appears that setting expectations for response time may be an important factor. For example, when AskERIC users were asked in 1998 if the service saved them time, 92% indicated that it had. When the users were asked to rank the importance of AskERIC features in 2000, “speedy reply (within two business days)” ranked third after the provision of ready to use online materials and the expertise of the AskERIC staff. Clearly users consider their time important, but it is only one factor in their value assessments of a digital reference service. For example, while demand for the AskERIC asynchronous digital reference has remained steady at about 800 questions per week, a recent experiment with real-time digital reference shows this mode of service is virtually unused (see Figures 1 and 2).

This experience of low usage of real-time services is not unique to AskERIC. For example there was a large amount of discussion on the DIG_REF⁹ listserv discussing the lack of patron interest in real-time services¹⁰ in a variety of libraries.

Discussion and Future Research

The data from AskERIC appears to confirm both the use and usability of non-real-time or asynchronous digital reference. In fact, the data, when compared to anecdotal real-time services, seems to show that asynchronous services have greater use. There are several possible explanations for this bias toward asynchronous service:

1. AskERIC and the AskA services are unique environments with little carry-over to the library environment.

This explanation does not seem feasible. Certainly there is a great overlap between the education audience of AskERIC and users of library services. Faculty, school library media specialists, teachers, parents and students are also consumers of library services. One would be hard pressed to find the unique nature of the AskA population.

2. Real-time systems and software are not yet mature.

According to Steve Coffman, current digital reference software is primitive compared to what is yet to come.¹¹ Certainly as bandwidth increases, making possible voice over IP and video conferencing, and software adapts to the digital reference environment rather than a help desk model of closed questions and phone trees, real-time systems will

improve. Perhaps as real-time systems become more sophisticated and easier to use, patrons will move to these systems.

3. Query deferment

Perhaps patrons want the ability to ask a question at anytime, but do not need the answer in real-time. For example, in an education setting, K-12 teachers may ask their questions during a planning period but do not have the time to use the response until the next day. From a reference provider perspective, many librarians have commented on user's perceived utility in speaking a person in real-time, but needing off-line time to determine the answer, or not being able to provide physical resources through the medium.

4. Lack of experience and expectation among the user population

Clearly real-time human intermediated help is a necessity in the commercial help desk industry. Perhaps library and AskA service patrons have not developed such expectations. They are simply not looking to services such as AskERIC or the public library for real-time help.

Conclusion

The AskERIC survey results and research of other asynchronous services indicate that dismissal of this predominant form of digital reference is premature. In the authors opinion, real-time systems and asynchronous systems will need to co-exist (or rather digital reference systems will need to support both forms of interaction). It is posited that

different questions and different users will require different forms of interactions. The vital questions for the field are: What variables allow a digital reference system to predict when real-time is needed? When are asynchronous interactions sufficient?

As Peters states, “We currently enjoy a unique historical opportunity. As reference service migrates to online environments (probably without abandoning real world environments), we have the opportunity to examine the fundamental assumptions and foundations of reference service in a changing environment wherein our examinations really could make a difference in what actually evolves.”¹²

Reference librarians are used to interacting in real-time with patrons. This may well be the driving factor behind today’s quest for real-time digital reference systems. However, we must base these decisions on real data and user preferences. Let us not be seduced by the technological opportunity of real-time and sacrifice services that are currently meeting user needs.

References & Notes

¹Thomas A. Peters, "Current opportunities for the effective meta-assessment of online reference services," *Library Trends* 49, no. 2 (Fall 2000): 334-49.

²Ibid., 344.

³Ibid., 344.

⁴Pauline L. Shostack, et al., 1998 AskERIC Marketing Survey. January 1998, ERIC Clearinghouse on Information & Technology at Syracuse University. Accessed June 29, 2001, <http://www.askeric.org/Qa/survey98.html>; Shostack, P. L. et al., 2000 AskERIC Marketing Survey. January 2000, ERIC Clearinghouse on Information & Technology at Syracuse University. Accessed June 29, 2001, <http://www.askeric.org/Qa/survey00.html>;

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⁵ William Moen, "Organizing Networked Resources for Effective Use: Classification and Other Issues in Developing Navigational Tools," in *Proceedings of the American Society for Information Science Mid-year Meeting*, (1992) 10-21.

⁶This question was not repeated on the 2000 study

⁷AskERIC considers itself an introductory reference and referral service providing pointers to resources more than factual answers.

⁸R. David Lankes, "AskA's: Lessons Learned from K-12 Digital Reference Services," *Reference & User Services Quarterly* 3, no. 1 (1998) 3-71

⁹ The Dig_Ref Listserv is a mailing list dedicated to the topic of digital reference with over 2,000 subscribers. The list archives are available at both

http://www.vrd.org/Dig_Ref/drb.shtml and http://groups.yahoo.com/group/dig_ref

¹⁰See the thread on “Grocery Shopping” and “Homework Chat”

¹¹Steve Coffman, “Digital Reference: The Future of Academic Reference?” Statement made at 10th Annual ACRL Annual Conference, 15-18 March 2001, Denver, Colorado.

¹²Peters (2000): 343