VIRTUAL REFERENCE SERVICES AND THE CHANGING ROLE OF REFERENCE LIBRARIANSHIP IN THE 21ST CENTURY

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Introduction

One of the most potent and complex issues, and perhaps one of the greatest opportunities, before reference librarians today is the delivery of reference service through digital or electronic means. Accordingly, electronic reference has recently emerged as a popular subject for current professional literature and as the central theme for a growing number of conferences for librarians and other information specialists. Some have likened the idea of electronic reference services to a “revolution.”1 Electronic reference services may also be referred to as digital reference, e-reference, online reference, remote access reference, and virtual reference. There is considerable overlap in the use of these terms and they appear interchangeably in much of the literature. To maintain a measure of consistency, virtual reference will be used as the term of choice in the discussion that follows. Further, virtual reference will be defined, in a general sense, as the delivery of reference services via the Internet to library users who are outside the physical confines of the facility. However, this does not preclude the possibility that in-house users with an Internet connection could access virtual reference services as well. In fact, there is evidence to suggest that certain users prefer this approach over the traditional reference desk interaction.2

Why has virtual reference aroused so much attention? With considerable evidence pointing to a decline in the number of face-to-face reference desk transactions and, more
generally, less in-house use of academic libraries, librarians are beginning to explore alternative approaches for interacting with their users. Furthermore, libraries are making an increasing number of electronic resources available via remote access which will likely have the effect of establishing a need for additional means of research assistance as well as product-related support for the many disparate search interfaces. Ferguson and Bunge assert that the primary challenge of the “largely digital library” will be for libraries to provide “the full range of services and support to an extent and of a nature heretofore barely imagined deliverable outside the confines of the library itself.”

The current primary modes of delivery for virtual reference services are e-mail, electronic forms, and real-time chat communication. While telephone reference service has long been accepted and practiced as an effective means of responding to remote patrons’ information needs, the emergence of virtual reference services is much more recent. The past decade has produced an exponential growth in the number of people with home and workplace access to personal computers and the Internet. This enhanced access combined with libraries’ endeavors to broaden their offerings of Web-based information resources have created an environment inviting the use of digital reference technology as an appropriate and necessary means for interacting with patrons.

While the central focus of this paper will be to examine these “mainstream” modes of reference service delivery, it is, nonetheless, worth noting that a number of high-profile initiatives are underway or in the planning stages to link multiple libraries to provide virtual reference through consortiums. The most widely recognized of these is the Collaborative Digital Reference Service (CDRS), which was launched by the Library of Congress and partner libraries in 2000 to
provide virtual reference service “... to users anywhere anytime, through an international, digital network of libraries.” Briefly stated, this is achieved when a partner (member) library, on behalf of one of its users, submits a question electronically to CDRS which, in turn, routes the question to a profiled member library with the optimum resources (expertise and collections) for answering the question. CDRS and the technology it utilizes hold tremendous possibilities for extending access to vast stores of knowledge and information resources worldwide. In keeping with this paper’s attention to the broader outcomes and trends in virtual reference services, the treatment of CDRS will be marginal.

This brief introduction to virtual reference services will now move to a review of selected current literature on the topic, which is then followed by sections highlighting significant findings and a review of several key issues identified in the readings. To illustrate how virtual reference is being implemented in one academic library setting, a brief overview of the initiatives at Appalachian State University’s Belk Library will be shared. The final section will present some concluding observations on the impact of virtual reference services.

**A Review of the Literature**

Given the fact that remote access to libraries’ electronic resources is a relatively recent phenomenon (generally extending back to no earlier than the mid-1990's), it follows that the body of professional literature on virtual reference services has an even more recent advent. A rapidly expanding base of journal articles account for a large portion of this literature and attest to its prominence and currency, and it is the latter which limits availability of relevant full-length works. A search of the WorldCat database suggests that there are perhaps less than five titles currently available with content pertaining to virtual reference services as it has been defined
above. Accordingly, all of the sources selected for this literature review, except one, are journal articles from the library and information science literature. To complement the periodical literature, a review of *Digital Reference Service in the New Millennium*, a highly-regarded full-length volume covering a broad range of eminent virtual reference issues, has been included.

A thorough overview of the early years of virtual reference is presented in an article by Still and Campbell entitled “Librarian in a Box: The Use of Electronic Mail for Reference.” Still and Campbell note that the first application of e-mail to library reference services can be traced back to the mid-1980's. It is interesting that many of these early (pre-1990) e-mail reference services generally recorded low usage for traditional reference desk-type queries; use for making photocopying and document delivery requests were much more common.

In “The Shape of Services to Come: Values-Based Reference Service for the Largely Digital Library,” Ferguson and Bunge attempt to define the service values that librarians must be prepared to advance as libraries shift to a more digital environment. Though the year of publication (1997) could raise questions about the article’s relevance in the current information setting, much of what the authors articulate as impacting the role of the academic librarian is as applicable today as it was then. They detail the virtues and limitations of a number of widely-accepted reference service models, and describe the traditional values that are integral to the success of these approaches. While the traditional values have served the profession and library users well, users’ evolving needs and expectations in the digital environment will require reshaping the core values, particularly those relating to end-user access to electronic information sources. Libraries aspiring to be largely digital will need to contemplate more than just the formats they will select; indeed, service delivery configurations must also be evaluated to gauge
their relevance for the present, and whether they are flexible enough to adapt as the shift toward
electronic resources becomes more pronounced. The authors envision libraries and computer
user rooms (labs) converging and becoming holistic computing environments where users have
immediate access to bibliographic tools (online catalogs, periodical indexes, full-text databases);
Internet navigation and communication tools (Web browsers, e-mail clients, FTP); and
productivity tools (word processing, spreadsheets, graphics and presentation software). In such
an environment the library is defined less by locus and more by the electronic equivalents of the
long-standing reference services it has provided for decades. Despite the many challenges
involved in moving toward a largely digital library environment, it is imperative that core values
such as equal access to information and users’ freedom to choose among information sources be
retained as touchstones to guide the change process. Equally important for reference services
will be the challenge to continue to provide a human, personalized interface to a body of diverse
and widely dispersed clients.

Oder provides an interesting and concise overview of digital reference services in “The
Shape of E-Reference.” As Q&A dot-coms proliferate and the number of people seeking
information on the Web increase dramatically, libraries are responding with online services
designed to showcase the reference expertise that has been developed and shaped over many
years and has traditionally been offered in face-to-face or telephone transactions. Though
librarians may disavow any organized effort to compete head-to-head with private companies
offering Internet Q&A sites, there is a general sense that libraries must be about the business of
reestabishing themselves as the primary purveyors of knowledge in their communities. Among
the notable initiatives now underway is the Library of Congress’s ambitious Collaborative Digital
Reference Service (CDRS). CDRS will eventually link hundreds of libraries in an international network that will share reference expertise. Another newcomer, the Virtual Reference Desk (VRD), a project initiated in 1999 with funding from the U.S. Department of Education, is also mentioned. The VRD annual conferences are recognized as being among the leading professional conferences dedicated to the rapidly changing field of reference systems, standards, and practice. Attendance at these conferences has grown significantly since the initial conference was held in 1999. Even more recent is the emergence of real-time chat software that allows librarians to send Web sites to a remote user’s browser while chatting with the user. LSSI, a library vendor and producer of call center software, unveiled the first commercial adaptation of this product at the 2000 annual conference of the American Library Association.

“Providing Virtual Reference Service” by Breeding is another article providing a useful summary of the digital reference environment and products. After defining the issues that invite the launching of digital reference services, Breeding contributes useful information regarding the basic features that need to be considered when evaluating digital reference products for potential purchase and implementation. Most of the article’s content is dedicated to outlining customer relationship management (CRM) software and several of the more prominent products currently in use. Breeding’s overviews of CDRS and of Library Systems & Services, LLC (LSSI) Virtual Reference Desk are concise and well-articulated. Though the topic is technical in nature, this article offers excellent information that will be meaningful for the layperson. For readers interested in additional reading on digital reference service, Breeding directs them to a comprehensive list of bibliographic sources that he maintains at his Library Technology Guides Bibliography Web site.
In her article “Virtual Reference Services: Directions and Agendas,” Gray offers a far-ranging analysis of various digital reference services. She notes that while most virtual services are presently conveyed through electronic mail, experiments using “videoconferencing, shared work spaces, mail lists, and chat rooms have also been undertaken to create transactions more closely approximating those that take place in a face-to-face reference transaction.” To determine the nature and extent of the digital reference service being provided in academic libraries, the author analyzed the Web sites of ten large research libraries and observed that a wide range of approaches exist for providing digital reference services. This analysis provides the basis for discussion of centralization of digital reference service, location of links to digital reference services in libraries’ Web sites, the use of electronic forms for submissions of queries, definition of the patron base, standards applied to response time, and limits imposed on “acceptable” questions. Gray also explores the area of a virtual user profile, and how these patrons and their needs differ from the traditional user, a perspective that would be valuable for libraries contemplating a launch of digital reference service or a refinement of services they are already providing.

Tenopir’s “Virtual Reference Services in a Real World” discusses the results of a questionnaire she distributed to academic member libraries of the Association of Research Libraries (ARL). Her instrument was designed to elicit information regarding the libraries’ reference services and the effects of electronic resources on these services, and the responses clearly indicate that virtual reference is becoming an increasingly important and visible element of reference librarians’ expanding repertoire of modalities for interacting with library users. Citing specific responses, Tenopir documents the shifts in the number and point of origin of
reference transactions processed, and the resulting impact on reference staffing patterns. It is evident that most libraries are successfully offering some form of e-mail reference service, which provides a catalyst for moving to the newest option, live (real-time) virtual reference. The majority of the responding libraries indicated that they were in the planning stages with regard to real-time services, and several of those already offering this type of service are still experimenting to identify the optimal software solution for their setting and user needs. Moreover, software compatibility and cost issues have been key factors in prompting most libraries to proceed cautiously in offering live virtual reference, with many electing to use limited-scale pilot projects.

A mode of virtual reference with a recent genesis is real-time or live chat with patrons through electronic communication which relies upon commercial call center (instant messaging) software. Foley’s “Instant Messaging Reference in an Academic Library: A Case Study” reviews an application of real-time online chat communication to reference services in an academic library. The impetus for this pilot study is linked to the University at Buffalo’s emphasis on student access to computers and electronic resources, and the library’s effort to extend reference hours and make reference services more inviting to young people and others who regularly use real-time chat communication. This article presents a general introduction to this form of electronic communication in addition to the special focus on defining the advantages and limitations of chat when employed to provide reference service to remote users. Libraries contemplating the launch of a chat reference service will be challenged to successfully negotiate a host of issues including software selection, staffing, training, publicity, and data collection. Foley notes that “chat reference will not supplant the library’s other reference services, but it
offers another way to reach and educate patrons."

As the title suggests, the purpose of Francoeur’s “An Analytical Survey of Chat Reference Services” is to assess the nature and extent of libraries’ current usage of real-time chat communication to connect with remote users. The author presents a brief history of chat reference, noting that the software currently in use is considerably more sophisticated and feature-rich than the earlier versions which were first used around 1997. The first survey area discussed relates to the number and types of libraries offering chat reference services with academic libraries having the greater number of these services. Francoeur then proceeds to a thorough and well-documented discussion of the three primary types of software packages being used in libraries today: chat, Web conferencing, and Web contact center software. Several of the more interesting software features are detailed and evaluated with regard to reference service application. Following this, Francoeur links the two preceding survey areas by showing the number of libraries using each type of software. In addition to identifying who is using what to provide real-time chat reference, Francoeur offers a convincing analysis of the forces driving libraries’ move toward virtual reference. Many of the issues central to the viability of virtual reference as a worthwhile service are carefully examined and extensively referenced to other scholarly literature on these topics. The successful launching of any chat reference service demands that attention has been given to understanding who the likely users will be and the probable information needs that will be channeled through this type of service. Another key element is knowing the strengths and adaptability of the reference staff that will be responsible for providing the service. Francoeur concludes this excellent treatment of chat reference service by reviewing some of the user interaction and technology problems that are common with this
mode of communication.

Horn reports on two virtual reference service initiatives at the University of California, Irvine (UCI) in her paper “The Future is Now: Reference Service for the Electronic Era.” She notes that technological advances and radical changes in the information environment within the past ten years have been major factors leading to implementation of reference services that can be accessed electronically by remote users. UCI’s first effort with virtual reference was to establish an “Ask a Librarian” e-mail reference service in 1998. Horn recounts the process by which that service was developed, its management and utilization, and evaluation of the service through user surveys. The second type of virtual reference service Horn examines is made available through real-time chat software. Librarians engage in live interactive communication (“chat”) with remote patrons who submit reference queries directly to a link on the library’s Web site. In addition to the immediate feedback afforded the user via a chat session, many of the chat software products have a feature which enables the librarian to send or “push” pages directly to the user’s Web browser, thus permitting the user to follow the search process jointly with the librarian. As libraries investigate offering this type of virtual reference, they will no doubt encounter a host of issues that must be reconciled, ranging from practical matters such as staffing and hours of service to more complex technology-related questions. To further facilitate planning, several key requirements for implementing a real-time virtual reference service are listed.

In her keynote address to the Ninth Australasian Information Online and On Disc Conference and Exhibition, Lipow focuses on the acute challenges confronting reference librarians in the electronic information age. She asserts that reference librarianship as it presently
exists is in trouble due to a dramatic shift in the way information is being accessed by end users. To support her assertion, Lipow points out that the business world is already aggressively funding research and development of customer-support software that is designed to deliver library-type interactive remote reference service. She goes on to note what many others have already observed - that as public access to the Internet and Web-based resources increases, reference desk statistics generally decline. Such a trend could potentially prove detrimental for all aspects of reference services should funding be reduced by administrators who envision the Internet as the new information provider. Fortunately, Lipow goes on to offer an analysis of information seeking behavior which suggests that what users usually want and need to satisfy their queries can best be delivered by a human intermediary, i.e., a reference librarian. The key to reversing the downward trend in the use of reference services lies in recognizing that an increasing percentage of our clientele is comprised of remote users, and then devise interactive point-of-need services which make the reference librarian more convenient to these users. Though the application of real-time chat communication to reference services was not available at the time of Lipow’s address (January 1999), her comments strongly suggest that this is exactly the type of “in-your-face” service delivery mechanism that she envisioned. She maintains that librarians have an obligation to respond to the increasing availability of the Internet and electronic resources by using technology to connect with users wherever they may be. If librarians fail to reposition themselves to meet this challenge and maintain libraries’ status as the providers of evaluated and relevant information sources, then the unthinkable scenario of remote users having to negotiate boundless Web resources on their own comes closer to reality.

Though there are few full-length works that provide comprehensive coverage of virtual
reference services, *Digital Reference Services in the New Millennium: Planning, Management, and Evaluation* by Lankes et al. fills this niche remarkably well. This book is a collection of short papers from participants in the Virtual Reference Desk’s 1999 Digital Reference Conference. This work represents the first systematic exploration of virtual reference, and it includes both academic discussion and pragmatic experiences. Of the thematically arranged five parts, it is Part I, “The New Reference Culture: Traits and Trends,” which covers many of the primary discussion points of this paper, i.e., the changing nature of reference services and how the current information environment has been impacted by the emergence of the Internet. Also useful is Lankes’ “Introduction,” where he examines two key issues that virtual reference services must address: scalability (the ability for services to grow) and ambiguity (identifying the resources needed to meet users’ needs before answering a question).

**Summary of Key Findings**

Virtual reference services are widely regarded as a present-day innovation, though the beginnings of e-mail reference can be traced back to the mid-1980’s. Ease of use and universal access are among the factors that have contributed to e-mail reference being the most heavily used type of virtual reference service. The development of sophisticated real-time chat and videoconferencing software as applied in library settings, however, generally dates back no more than five years and often involves significant technical support and fiscal issues. Apart from e-mail reference service, libraries have been much more deliberate in launching other types of virtual reference service.

As libraries have increased the number and variety of electronic information resources (online catalogs and indexes, digitized collections, full-text databases, etc.) available through
their Web sites, they have, in effect, helped produce an environment that beckons convenient Web-based reference assistance. With many reference desks experiencing a decline in the number of face-to-face transactions, libraries are being challenged to closely examine possibilities for connecting with remote users through virtual reference services.

Virtual reference services offer users a convenient, high-tech way to connect with a library’s information specialists, but that potential must be tempered by acknowledging that some user queries do not “fit” particularly well with either e-mail or real-time chat communication. For instance, responses that rely on in-depth consultation of a variety of resources may prove difficult for the librarian to communicate efficiently. As Viles has observed, another limiting factor is “the loss of non-verbal communication cues and the conversational exchange of information in the face-to-face [reference] interview ....” However, it may be reasonably argued that some users prefer the anonymity of electronic communication as a more comfortable way of seeking assistance.

While many of the libraries that offer real-time chat reference assistance have launched this service on a stand-alone basis, several libraries have chosen to participate in collaborative ventures to ease the impact of software costs and staffing for extended hours. On an international level, the CDRS project of the Library of Congress is a network of member libraries, which offers the Web-based facility to provide access to expert reference service to users anywhere anytime. It is very common for libraries to launch a chat reference service as a pilot project or on a limited-hours basis to gauge users’ response and to assess the impact on staffing assignments.

Libraries are able to choose from among several different chat software products
depending on the user needs that have been identified, level of staff expertise with this communication technology, fiscal considerations, desired features, etc. The development and vending of these products tends to be quite fluid, with new software constantly being introduced and existing products being refined. Competition among producers has already lead to some companies being bought out by rivals.

**Issues Identified**

The above findings raise several issues for additional study. As libraries contemplate the information environment of the new millennium, the question for most isn’t *whether* they will offer virtual reference service, but *when and how*. Indeed, key administrative issues including staff allocation and training, software selection, costs, and promoting and evaluating the service will pose significant challenges to successfully launching these endeavors.

What defines a quality reference transaction in a virtual reference environment? It may not be useful to rely on the criteria used to evaluate in-person reference service, so the development of new standards will likely be needed. It is also important for libraries to consider guidelines on how they will respond to and track virtual reference queries.

How will virtual reference change the relationship between librarian and library user? From the librarian vantage point, they must continue to place high value on the user and the information request the user communicates; the mode of service delivery should not alter that fundamental principle. On the other hand, it may be difficult to predict how virtual reference will influence remote user behavior and attitudes. It is not untenable that user behavior might become more abrupt and impatient, since most virtual reference service configurations do not
permit direct observation of the librarian’s search efforts.

The pluses and minuses of partnering with other libraries in virtual reference ventures must be weighed. An obvious benefit seems to be the sharing of staff to provide coverage, but, on the other hand, how knowledgeable can a librarian be of the resources (print or online) that are specific to another library when the remote user’s information need relates to one of those resources.

Selection of appropriate software may be one of the more difficult issues. Currently more than 30 versions of virtual reference software are in use and refinements are constant. The process inevitably involves decision making regarding the cost and level of sophistication of the features to be offered, and the availability of technical support.

What are the consequences if libraries are reluctant to move forward and use this new medium of connecting with their users? Lipow and others suggest a scenario where remote users find themselves negotiating the expansive resources of the Web on their own, or else turning to Web-based commercial enterprises for assistance. If, however, libraries and librarians embrace the challenge to incorporate this technology into a well-planned and closely monitored virtual reference service, the payoff may be new users and elevated appreciation for the expertise of those who provide value-added information service.

**Virtual Reference Initiatives at Appalachian State University’s Belk Library**

(This section begins with a brief description of Belk Library’s clientele and resources to establish a context for the efforts to introduce virtual reference services.)

Belk Library is the central library facility for a campus that is home to some 12,500
students and 1900 faculty and staff. The Library has a print collection of approximately 800,000 volumes and 4800 physical serial subscriptions. The Library’s online catalog and other primary automated functions are managed by an Innovative Interfaces, Inc. integrated library system which is shared in a consortium with the libraries at Western Carolina University and the University of North Carolina at Asheville. To complement its print collections and online catalog, the Library provides electronic access to a strong palette of journal article indexes and abstracts, full-text databases, electronic journals, and e-books. University faculty, staff, and students can access most of these electronic resources from remote locations. About 15 percent of the materials budget is allocated for electronic products.

Belk Library’s status with regard to the provision of virtual reference assistance closely parallels that of similar institutions. In early 2000, the Library launched its Web-based “Ask A Librarian” service, which permits University-affiliated users to submit queries via a Web form or through e-mail.\(^1\) This reference service is well-suited for getting quick facts, verifying references to published sources, finding out how to search for needed information in a database or on the Web, or getting advice on strategies for in-depth research. Belk Library’s reference librarians perceive the “Ask a Librarian” to be a worthwhile service that generates a manageable flow of questions. In a recent staff meeting it was observed that little feedback is received from users once a response has been forwarded to them, which may indicate a need to make the service more personal.

Belk Library has not launched a real-time chat reference service, though the reference staff conducted an exploratory in-house exercise with Microsoft’s NetMeeting software during the summer of 2001. As groundwork for eventually offering this type of reference service, staff have attended national virtual reference conferences and contacts have been established with
software vendors to gather information about their products and services. The Library’s head of reference services has a strong interest in continuing this investigation and trial phase, with the expectation that a limited-basis service might be launched as early as spring semester 2003.

Belk Library is presently one of three North Carolina libraries that have joined the Library of Congress’s Collaborative Digital Reference Service (CDRS). Having just recently completed all the necessary agreements and the submission of an extensive membership profile, the Library’s use of and participation in CDRS has been very limited to this point.

**Concluding Observations**

Virtual reference and several of its equivalent terms, e.g., digital reference, are the buzzwords for the innovations that are leading reference services into the uncharted information milieu of the 21st century. Librarians as well as their institutions must be prepared to deal proactively with the technological forces reshaping the reference service environment. While a good number of the venerable print resources and traditional services that have been the hallmarks of trusted reference assistance for many years have survived into the new millennium, it is certain that the increasing presence of Web-based information sources and enhanced remote access to these products will demand that libraries respond with services that are fashioned to meet the needs of this emerging clientele. Fortunately, reference librarians, as does the profession in general, claim a long history of effectively recognizing users’ needs, and then applying that user knowledge toward service delivery schema which competently address those needs.
NOTES


3. Ibid.


11. Mary Beth McKee, Computer Training Specialist, interview by author.
SOURCES CONSULTED


McKee, Mary Beth, Computer Training Specialist, Appalachian State University Instructional Computing Services. Interview by author, April 18, 2002, Boone, NC.

