
The Emerging Reference Paradigm: A Vision of Reference Services in a Complex Information Environment

JOHN W. FRITCH AND SCOTT B. MANDERNACK

ABSTRACT

THE EMERGING REFERENCE PARADIGM in a complex, technologically rich information environment tends toward a more deliberate blending of the conservative and liberal philosophies of reference. As key agents in the advancement of society and culture, librarians must recognize the value of community and the social context of information in providing services that support and enhance the full range of contemporary user needs. The complexity of the information environment, and more uncontrolled distribution and access, lead to new issues for users. Reference services, with a stronger instructional role, must become more proactive in providing a fully developed repertoire of services responsive to the multifaceted queries facing librarians today.

“WHERE THERE IS NO VISION, THE PEOPLE PERISH.”

—Proverbs 29:18

With the explosive popularity of the Internet and the World Wide Web, many authors have foreseen the demise of reference librarians and have predicted their role will become outdated and ultimately irrelevant. At least one article has called for the abolition of traditional reference service, suggesting that information technologies have largely transmuted the role of reference librarians from intellectual endeavors to manual tasks dealing with computer hardware and software (Ewing and Hauptman, 1995). The development of artificial intelligence “knowbots” has been proposed as a possible replacement for human-mediated searches (Zick, 2000). Some contend that Moore’s Law, which suggests that the power of microchips

should double approximately every 18 months (Moore, 1965), will eventually lead to a replacement for human intelligence. Proponents theorize that the combination of artificial intelligence and raw computing power may eventually even surpass the capabilities of the human brain.

Others argue, less dramatically, that change is coming to reference services, that users' reliance on information technology is altering or endangering traditional reference service (for a sampling see Wilson, 2000; Butcher, 1999; Frank, Calhoun, Henson, Madden, and Raschke, 1999; Ryan, 1996). Access to more and more online resources, significant developments in distance learning and instructional technologies, and a growing desire for independence and self-reliance suggest to some that future users will require little or no assistance from trained reference personnel. Indeed, the number of reference transactions reported in recent years indicates decreases in the range of 6 to 15 percent (Coffman and McGlamery, 2000, p. 66). Is this a sign that the role of reference services is in fact declining? Will reference librarians and reference services inevitably be replaced by advanced information technologies? If not, what will sustain the existence of reference services and trained reference librarians?

A HISTORICAL REVIEW OF REFERENCE SERVICE

Reference service, as a distinct function of the library, began in the late nineteenth century, largely in response to the growing prevalence of publicly funded libraries (both public and academic) seeking to serve relatively inexperienced and unskilled readers and scholars. In the mid-nineteenth century, American scholarship and research activity was minimal and unorganized, conducted primarily by independent scholars with private funding. As the U. S. economy became more highly and rapidly industrialized, a spirit of free investigation led to more significant research and inquiry. Greater social and economic mobility and the emergence of a growing democratic philosophy toward education spawned a more popular and more practical orientation. The Morrill Federal Land Grant Act of 1862 provided federal support and funding for higher education in agriculture, technology, and "mechanical arts," promoting even more widespread and significant advances in scientific research and broadening college and university curricula (Rudolph, 1962). Breaking from the custodial traditions of the past, in which the library was simply a storehouse of books, reference service developed (albeit typically only as an ancillary, part-time endeavor) primarily to assist patrons in the use of the catalogs and to recommend titles for reading.

With increasing dependence on the library by readers and scholars, reference service came to be recognized as an increasingly important function. William B. Child offered an early definition of reference work in a statement to the New York Library Club: "By reference work is meant simply the assistance given by a librarian to readers in acquainting them with

the intricacies of the catalogue, in answering questions, and, in short, doing anything and everything in his power to facilitate access to the resources of the library in his charge" (Rothstein, 1972, p. 3). The practice gained acceptance and popularity to the point that separate, specialized reference units or departments became common starting in the late 1890s (Rothstein, 1994). The role of reference as an integral part of the library organization was established even more firmly over the first two decades of the twentieth century. Reference departments offered longer service hours and increased staffing levels, due in part to the extension of reference service in branches, and later, departmental libraries, and via the additional modes of telephone and correspondence (Rothstein, 1972).

Having established the value and necessity of personal assistance as a legitimate library function, librarians began to question the nature and extent of the service. It was generally held that the purpose of the reference department was to instruct and guide the user, and the prevailing philosophy during this early period tended toward one of "cautious and limited assistance." This "conservative" view of reference was justified by balancing the theoretical with the practical. Theoretically, self-reliance would be promoted by providing the resources but leaving the reader to extract or discern the knowledge for him/herself. Practically, staff time devoted to a single user would be limited, thereby providing adequate time to provide service to others as well (Katz, 1982; Rothstein, 1972).

In practice, however, strict adherence to this conservative theory could not be maintained. Librarians found themselves providing direct answers to quick, factual, or ready reference questions for a number of reasons: being pressed by patrons who had no desire to learn the requisite bibliographical skills; realizing that finding quick answers often required less effort than teaching patrons how to find answers for themselves; and maintaining professional pride, either by demonstrating one's knowledge of reference sources or in exhausting all possibilities in seeking an answer. Librarians were also willing to go to considerable lengths to provide answers to telephone and mail inquiries, citing difficulty in maintaining the conservative philosophy (i.e., instructing or guiding) when dealing with patrons at a distance (Rothstein, 1972).

As the role of reference work assumed greater prestige, the "conservative theory" of reference work was increasingly questioned. Adherents to a more "liberal" view advocated "more generous, more thorough, and more scholarly reference service," in which librarians provided direct information and answers (Katz, 1982; Rothstein, 1972). The next forty to fifty years saw the development and expansion of services in support of liberalizing reference work, most notably the establishment of departmental libraries and specialized reference units staffed by expert subject specialists. Business, fine arts, and physical science reference units were not uncommon in both public and academic libraries. Children's departments in public

libraries established reference desks specifically for children and, in the 1950s and 1960s, undergraduate libraries were established to serve the needs of inexperienced college and university students. Specialization also occurred in response to additional forms of materials, such as government documents, rare books and manuscripts, and audiovisual materials (Rothstein, 1994). A further extension of the branch library concept was evident in the national trend toward additional outreach, particularly to rural areas, and cooperative library systems. This was especially prominent among public libraries but eventually led to multi-type systems as well, including public, school, and academic libraries. Other initiatives from this period included interlibrary lending programs, which allowed collections to be more focused (and therefore financial resources could be devoted to improving staffing levels). Bibliographies and other tools and resources increasingly were developed to enhance use of libraries' collections; "information desks" and "readers' advisory services" were established to redirect "less serious" requests from reference desks.

The 1970s and 1980s brought new levels of computerization to reference work, but the questions surrounding appropriate levels of service remained. Several now-familiar strategies were employed in response to the introduction of online search services and online public access catalogs. Online catalogs and remote database searching required additional aid for users, thereby advancing even further toward the liberalization of reference. Separate administrative units were created for online searching; information desks were established with renewed popularity, increasingly staffed by paraprofessionals; the expertise of technical services staff was utilized to provide online catalog assistance directly to users. Practical considerations limited all-out expansion of services, especially regarding online search services. As a specialized professional service, online searching was perceived by many as deserving highest priority for the professional attention of reference librarians. The common practice of charging fees implicitly conveyed an impression of greater value.

While debate raged over the ethics and equity of charging fees for services, the introduction of the CD-ROM format helped to address many of the concerns. CD-ROMs allowed libraries to purchase database content directly, obviating the necessity of charging for searching and search software also became more end-user-friendly so that librarians no longer needed to mediate searches. With the move toward more end-user searching, the balance between the conservative and liberal dichotomy of reference services moved toward the conservative end of the continuum. While more information was made directly available to users, guiding them toward greater self-reliance became more pronounced, particularly as advocates of the emerging bibliographic instruction movement argued strongly for a renewed emphasis on the teaching role of librarians.

The 1990s introduced the Internet to libraries, prompting some fun-

damental changes in the nature of reference work. Rapidly developing technologies allowed phenomenal advances in access to an expanding universe of information at heretofore unheard of levels. Numerous questions arose concerning the librarian's role in this shifting information environment.

THE EMERGING INFORMATION ENVIRONMENT

As the historical overview of reference services suggests, the information environment remained relatively stable over the course of most of the last century. The volume of published information increased dramatically, but the creation, storage, and distribution remained largely under the control of professional societies, publishers, libraries, and bookstores. The past decade, however, has seen a shift from a more heavily controlled environment to one that is much more open and uncontrolled, often even chaotic. While the rate of print publishing continues to increase, the Internet has opened the floodgates of information creation, distribution, and access. The small amount of control that does exist may well reside in the hands of inexperienced users. The following points characterize the information environment of today:

- Computer use has become ubiquitous
- The Internet allows any computer workstation to become an access point to vast electronic resources
- A multitude of information formats exist
- The Internet enables anyone to "publish" information on any topic to the entire world
- Web sites are more ephemeral than print resources and can change or disappear at any time
- The Internet and the World Wide Web constitute a vast, chaotic reservoir of content, some accurate and some inaccurate
- Uniform classification of Web sites is not universally applied
- Many dissimilar search engines and methods promote access to information
- Electronic communication via e-mail, chatrooms, listservs, e-bulletin boards, newsgroups, etc., has become widely accepted and utilized worldwide
- Print media continue to proliferate

Concerning the prevalence of access and adoption of technology, a recent poll indicates that 92 percent of adults aged 18–60 have used a computer, with 69 percent having one at home. Over 75 percent of adults have used the Internet at some time, and the computer is viewed as the single most significant technological development of the twentieth century (Winner, 2000).

With all the excitement and promise of technology, however, the new information environment has brought with it a host of new issues and chal-

enges both for the individual and for society at large. The tremendous amount of information available on the Web and its easy accessibility have led to the common perception (and perhaps expectation) that everything a person needs can be found at one's fingertips, and it will be available 24 hours a day, seven days a week. Whether for school, career, or personal needs, technology has come to be viewed as a panacea for many of society's shortcomings. The Web can purportedly lead to better jobs, higher incomes, healthier lifestyles, more responsive government, and, in general, greater personal and social satisfaction.

These perceptions have contributed to a value system in which lifestyles are increasingly tailored to one's preferences. Individualism, customization, convenience, self-reliance, and self-fulfillment are predominant attitudes in the general culture. Our society has seen a shift from "massification" to "segmental appeal" (Kottak, 1996). Consider the growth of such services as automated teller machines and online banking, online shopping, self-serve credit card transactions at gas pumps and grocery stores, and drive-thrus for everything from fast food to prescription drugs. All these phenomena serve to promote and enable individual convenience and immediate gratification.

The promotion of independence, personal choice, and self-fulfillment is not necessarily a bad thing in and of itself, but we must consider its repercussions. The heavy reliance on technology, the use of which is typically a solitary activity, tends to alienate individuals from each other physically, psychologically, and emotionally. Among those who have a computer at home, 57 percent report that they spend less time with family and friends; high levels of loneliness have been recorded among first-time computer users; computer users in general attend fewer social events (Winner, 2000). While advanced information technology can unite people with common interests from all over the world, it also encourages, maintains, reinforces, and strengthens differences (Kottak, 1996). Examined broadly, these reports suggest that "the underlying worldview . . . projects a society of individuals who move back and forth between the workplace and family, but encounter nothing in between" (Winner, 2000).

The segmentation and isolation that results from the plethora of these solitary, self-selected activities in support of individual interests may have serious negative implications for communication and learning styles and for our notion of community in society generally. "Community" in this context is not limited simply to the age-old concept of individuals sharing a common geographic place. Rather, it refers to a "network of social relations marked by mutuality and emotional bonds" (Bender, 1978, p. 7). Ferdinand Tonnies, a German sociologist, developed a typology of social change in his 1887 work, *Gemeinschaft und Gesellschaft*. He represented the concepts of *gemeinschaft* ("community"), characterized by "intimate, private, and exclusive living together," and *gesellschaft* ("society") as "an artificial construction

of an aggregate of human beings, characterized by competition and impersonality" (Bender, 1978, p. 17).

While this typology has been used to bemoan the demise of community resulting from modernization and urbanization throughout history, its relevance to today's information environment, and its subsequent effects on general society, endure. Its application, as it is used here, is not to represent a sequential or linear progression from one pole to the other (where community is "good" and society is "bad"), but to reflect that the two concepts coexist. The balance between them shifts from time to time.

Technology has promoted a society characterized by independence and self-reliance, convenience and immediate gratification, which is viewed positively by many. On the other hand, technology increasingly enables individuals to create their own "worlds" and to minimize contact with other individuals, potentially lessening the richness that other people can bring to one's life. The information society has brought with it new levels of *gesellschaft*: "Technology has replaced fully sensory-engaged, face-to-face encounters with more indirect, sensory-deprived encounters. Humans, as social beings who benefit from the full engagement of their senses, may suffer psychologically, socially, and culturally if indirect encounters replace direct encounters in human discourse" (Overbey, 1996, p. 17).

Libraries as social organizations are designed for the public good. The first principle of the Code of Ethics of the American Library Association states: "We provide the highest level of service to all library users through appropriate and usefully organized resources; equitable service policies; equitable access; and accurate, unbiased, and courteous responses to all requests" (ALA, 1995). Because of their holistic nature, libraries may be considered "the foremost agency of society involved with the advancement of humanity" (Rogers, 1984, p. 13). The library is the only agent of communication that serves and supports all the generally recognized needs, and resulting institutions, of a society: the need for social control, which establishes political institutions; the need to provide livelihoods for the populace, establishing economic institutions; the need to educate the populace, leading to educational institutions; the need to care for and socialize new members, establishing family and kinship institutions; and the need to explain the unknown, establishing religious institutions (Rogers, 1984). Further, the philosophy of American librarianship has developed "as an aspect of the national philosophy, centering on intellectual freedom, the infinite possibility of progress, public support of education as a necessary part of responsible citizenship in a democracy, and the value of continuing education throughout life" (McCrimmon, 1994, p. 495).

If we accept that libraries have a "particular responsibility to procure and transfer information and knowledge for the advancement of society and its culture" (Rogers, 1984, p. 13), we must continue to foster a full range of services in order to accommodate all the general needs of our society.

"The library does not exist separate from its environment and cannot be considered apart from that environment. . . . it is one facet of society that shares, contributes, and functions as a developmental process and artifact and neither follows nor creates society" (Rogers, 1984, p. 7). To sustain its role as a vital component in the evolving knowledge society, the library must find an appropriate balance between *gemeinschaft* and *gesellschaft*. We must consider our role based on a social network approach, in which we examine "the way in which people may relate to one another in terms of several different normative frameworks at one and the same time and how a person's behaviour might in part be understood in light of the pattern of coincidence of these frameworks." This view allows us to remain sensitive to the "particularity of the context," and to respond and participate accordingly (Bender, 1978, p. 122).

TOWARD A NEW REFERENCE PARADIGM

The Internet is an indiscriminating repository of information, much of it inaccurate, self-aggrandizing, or promotional. Yet it seems unlikely that information consumers will turn away from the Internet: it is too entertaining, too appealing, and too captivating. It offers unlimited autonomy with regard to the availability and selection of information sources. It expands rather than restricts one's options. It is tremendously accessible and convenient. Increasingly, however, information consumers may find that the Internet is not equally suitable for all information gathering purposes. Topics of current interest, news, entertainment, market information, and other clearly defined, ready-reference types of information are well suited to Internet retrieval. However, when it comes to locating high quality, peer-reviewed, substantive information, many users quickly become stymied or overwhelmed.

Amidst this environment of information complexity and technological change there comes a critical point at which the choices themselves become overwhelming. At this point users would likely either decline to make a decision at all, or make a decision based on the choices that are most obvious (though not necessarily the best), or seek a mediator to assist them. In this environment, evaluation becomes paramount. Information consumers may find themselves more likely to turn to reference services when faced with a need for *high-quality* information because of the chaos prevalent on the Internet. At this point librarians must help users discover that it may prove easier and more efficient to locate the information they need through avenues other than the Web, whether via libraries, commercial information vendors, or other resources.

Many of our users are accustomed to an uncontrolled information environment, having grown up knowing nothing else. Often they do not understand or recognize the usefulness imposed by control. They may not even know what control means or when to ask for help. The information

environment that has predominated throughout much of the past decade has developed the "hypermind," shown by individuals who make use of information and facts, but in a nonsequential, random fashion. Characteristics of the hypermind include lack of self-knowledge, using sensory instead of intellectual stimulation, poor communication and thinking skills, lack of metacognitive abilities, and an inability to handle information overload (Campbell, 1998). The emphases of reference librarians must adjust, given the increased user access to these vast reservoirs of information. Wilson (2000) suggests that the roles of reference librarians are shifting to focus more on "training users to access and evaluate reference sources" and also toward the "invisible function" of helping users to articulate their information needs. Although the quantity of reference transactions may decline in this new information environment (due to users finding answers to ready-reference questions on their own), the reference transactions that remain may more than make up for the loss of others due to the complexity of questions (Tenopir, 1998).

With access to so much information in so many formats, helping users understand how to manage and manipulate the information they have found is also becoming a much more important issue in libraries, especially academic libraries. The *Information Literacy Competency Standards for Higher Education*, recently approved by ACRL (Association of College & Research Libraries), defines information literacy as "a set of abilities requiring individuals to 'recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information.'" In particular, Standard Four focuses on an individual's ability to use information effectively: "The information literate student communicates the product or performance effectively to others" (ACRL, 2000, p. 13). Given this explicit goal, libraries must assume some level of responsibility for informing and guiding users in their options for managing information in whatever formats are most appropriate and effective for their intended purposes. This may lead reference staff into new territories of assisting users with bibliographic management software, software presentation packages, graphing tools, and other similar packages. Providing direct assistance in this area challenges what many have, up to now, deemed within the scope of reference services. Even if libraries elect not to offer this level of assistance, they must at least be informed and aware of resources available to users to perform such activities.

User needs in this environment, vis-à-vis reference services, become more multifaceted. Many reference transactions become mini-instruction sessions, with librarians helping to develop the topic idea, lay out the structure of information (catalogs, indexes, Web sites, email, usenet, etc.), explain and differentiate between types of information, provide an overview of general search strategies, demonstrate the use of a particular database, explain the interface, lead users in their search, direct them to where they

can retrieve the materials found, and guide them in presenting their information clearly and appropriately. The librarian must be able to bring all of these elements into a typical reference transaction.

Further complicating our new reference transactions is the fact that many of our users consider themselves experts at searching because they are slightly familiar with Web search engines (where almost all searches return many hits). Not only are we left to fill in the gaps in their understanding of the information environment, as we have been doing for years, but increasingly we must “un-teach” and “re-teach” the skills and attitudes that users have self-developed.

Libraries have traditionally been reservoirs of high-quality, well-organized information. Recently commercial services (such as Questia) have been announced that seem to serve users by condensing the universe of information to a manageable quantity; vendors claim that their collections are comprised only of high-quality, carefully selected information. Such services may appeal to users who have been overwhelmed by the vastness of uncontrolled sources available via the Internet, but they are fee based. These targeted users may prefer to deal with a separate universe of high-quality, carefully selected information provided in a library setting, either because it may be free (or partially subsidized by the library) or because the library setting has the added advantage of offering assistance and expertise through reference and instruction services. Commercial services offer both a challenge and, by comparison, an opportunity for libraries to continue not only to provide access to high-quality information (perhaps some day even purchased from still-nascent vendor packages of e-books, journal articles, and Web information) but also to play an expanded role in mediation and instruction, in search skills as well as in critical thinking, evaluation, and presentation skills.

It is also important to consider the social aspects of information in reference transactions. Useful information exists in a social context, as well as a structural context. Face-to-face interactions between a user and a librarian reflect that social context. In *The Social Life of Information*, Brown and Duguid (2000) argue eloquently that a view of information outside the boundaries of social considerations is a flawed view: “The ends of information, after all, are human ends. The logic of information must ultimately be the logic of humanity. For all information’s independence and extent, it is people, in their communities, organizations, and institutions, who ultimately decide what it all means and why it matters” (p. 18).

Reference librarians are better positioned than most to understand this social context of information and the importance of people in knowledge transfer and information distribution. Librarians serve as both social and knowledge intermediaries every day. In order to be successful, our skills and aptitudes must reflect an understanding of the unique background and experience of each library user. We gather this knowledge through direct

communication with the user in the transaction of the reference interview. This "interview" is inherently a social process, and it benefits from the full communication that comes with face-to-face interactions and the intellectual milieu of the library.

Some authors have recognized the need for increased human intervention in the chaotic environment of the Internet, but their solution involves computer-mediated communication. They erroneously conclude that reference librarians must essentially *become* the Internet, using information technology to offer point-of-need reference service 24 hours a day via electronic means only. This perspective overlooks one of the most important considerations in information transactions: the social context. Certainly select user groups (especially those who are largely self-sufficient) will benefit from 24-hour digital reference service, but this is only one possible response, and one that does not adequately differentiate reference librarians from other potential information options.

Technology is not always the preferred or best method of communication for human users. The power and flexibility of face-to-face interaction with a human is difficult to duplicate even in the best technology scenario, where cost and bandwidth are of no concern. Besides today millions of users cannot afford such technology. We must question whether technology will ever be the most effective way or the most cost-effective way to interact with the less affluent, even if they have access to technology through public institutions.

We endorse a shared partnership with users in learning. As Hales Mabry puts it, in the "reference interview, it becomes obvious that we are in a teacher-learner relationship. It is not obvious, however, that . . . we are both learning from each other in every encounter, and the content of the learning is verbal as well as non-verbal." This is cooperative learning, in which the librarian and the user "mutually . . . come together . . . to make a change, move toward improvement of some kind" (Hales Mabry, 1996, pp. 5-6). Librarians need to recognize the search skills and electronic topographic knowledge that users have cultivated through use of the Internet; we must also understand that users may sometimes assist us in knowing where to seek answers or locate information sources. But users typically do not have the search skills, the vast knowledge of resources (both print and electronic), or the evaluative skills that librarians possess. These value-added services have become the librarian's area of professional expertise and social authority, honed and cultivated over years of working with information sources. For these reasons reference librarians are in little danger of fading away anytime soon—these, and the bountiful communication skills that good librarians bring to their interactions with users.

Libraries today almost universally provide users with access to the Internet, prompting a significant change in the nature of reference work. Librarians can no longer control the quality and authority of information

(even within their own doors) if it is discovered on the Internet. Now librarians must also almost universally provide instruction about the structure of the world of information, about the lack of authority of parts of that world (prompting the critical need to carefully review and evaluate sources), and about methods of managing the wealth of information that is retrieved. The emerging reference paradigm requires an amalgamation of the two traditional philosophies of reference—a more deliberate blending of the conservative and liberal viewpoints. This new framework is not created simply out of choice or of expediency, but out of necessity, given a new reliance on electronic resources in reference service. Since many information sources on the Internet are of unproven quality and authority, discussions with users must now be accompanied by disclaimers from reference librarians and a focus, however brief, on the importance of evaluation. Users are not trained to evaluate information sources, nor are they accustomed to having to do so, especially in a library setting.

Does the reference function as it is performed today constitute a new paradigm? The answer to this question is partly one of definition. A paradigm is “an outstandingly clear or typical example or archetype,” as well as “a philosophical and theoretical framework of a scientific school or discipline within which theories, laws, and generalizations and the experiments performed in support of them are formulated” (Mish et al., 1996, p. 842). If we consider the first definition, with its more practical, applied emphasis, reference service has indeed evolved in response to the shifting information environment. It has become more instructional in nature, and it has broadened its scope and assumed additional emphases. Yet whether there has been a philosophical paradigm shift in reference services remains questionable.

The underlying philosophy of reference services, whether adhering to a conservative or a liberal view, may be encapsulated by Ranganathan's Laws, in particular the First Law, “Books are for use;” the Third Law, “Every reader his book;” and the Fourth Law, “Save the time of the reader” (Ranganathan, 1931). These principles are essentially timeless, and as a vision for reference service they remain largely intact. Certainly they may be limiting if viewed literally, but if the basic message of each Law is considered, they continue to apply to reference work as well today as they did previously. Gorman has developed new laws, interpreting Ranganathan for modern times: First New Law, “Libraries serve humanity;” Third New Law, “Use technology intelligently to enhance service;” Fourth New Law, “Protect free access to knowledge” (Gorman, 1998). Gorman retains the essence of the original Laws but offers a conceptual view that can be applied to contemporary practice.

LIVING THE NEW REFERENCE PARADIGM

Reference librarians need to foster new ways of communicating with information consumers to help them understand what they do not know,

but think they know, about the structure of information. How is this best accomplished? We can establish more flexible ways of communicating with users—at remote locations to be sure; but especially with those who take the time to come to the library because it is a social place in which to conduct research. Some users recognize the inherent value of personal, face-to-face communication and the unanticipated richness that results. If librarians become more skilled at flexible communication with users, users will continue to flock to libraries. Our ability to define and promote the library as a social place characterized by professional expertise will determine whether libraries eventually become empty shells or thriving research, educational, and entertainment centers in their communities.

Given the emphasis that American society places on technology, many libraries are optimistically embracing digital reference technologies as a way to offer human intervention and reference services in a digital environment. As of 1999, at least 75 of 122 ARL (Association of Research Libraries) member libraries offered digital reference service via email or Web-form (Goetsch, Sowers, and Todd, 1999).¹ Yet the efficacy of these technologies for the purposes of conducting reference transactions remains unproven. Further research is needed in order to develop confidence in digital reference service as efficient and effective.

As more and more new technologies are considered for reference service, it is vital that we acknowledge the importance (and the difficulty) of the communication process in reference transactions. The reference interview is still crucial in assisting users and uncovering what questions they actually need to have answered. “Those who argue that the reference interview is not necessary, or moribund, or even dead, are obviously unaware of the rapid developments in information which make that interview more important today than it ever was in the past” (Katz, 1997, p. 162).

Serious questions have arisen regarding the effectiveness of Web-based reference forms or email as media for conducting reference interviews. For example, email reference may require several exchanges of messages just to establish the true question to be answered. Through either medium, the loss of nonverbal cues could be devastating in terms of judging user reactions and responses. Katz (1997) cites research indicating that approximately 90 percent of communicated messages are transmitted via nonverbal signals (p. 174). Straw (2000) and Gray (2000) contend that accomplishing a complete reference interview in a digital environment is more difficult than in a face-to-face interview. Straw examined virtual reference interviews and concluded, “Despite the speed of electronic messages over networks, it is a mistake for reference librarians to conclude that electronic encounters are inherently faster or more efficient. Clearly, reference librarians have to realize that many situations are better handled in a direct, face-to-face encounter” (p. 377).

Observations of high-quality face-to-face reference transactions indicate why establishing high-quality digital reference interactions can be so difficult. High-quality reference interactions establish relationships between librarians and users. The best interactions create a bond, and the possibility of a relationship is always offered through the demeanor of the reference librarian. Relationship-building with users requires extensive communication skills: a friendliness, an openness, an unguardedness that allows a social connection, however limited, to develop quickly. The quality of unguardedness permits the personality of both librarian and user to be revealed, along with the personal foibles and limits of each (ever more crucial in an information environment so vast that no one person can know it all). Users implicitly present a certain unguardedness to librarians by revealing a gap in their knowledge or understanding; there is something they need to know but cannot discover on their own. Librarians also convey a sense of unguardedness simply by accepting the expectation that they are a resource for any request on any topic (regardless of training or expertise). The librarian should be open to a mutual learning experience with the user, learning the true dimensions of the query, the user's present knowledge and actual needs, and then responding appropriately.

Effective reference transactions are about good customer service. Good customer service is about listening to users, establishing good communication, and building relationships. High-quality communication is much more difficult to accomplish in a computer-mediated environment. It is more difficult to hear, to perceive, and to fully respond. In the digital environment, it is much more difficult to read the non-verbal cues that allow librarians to be proactive, to anticipate what users might need and to suggest possibilities. As new communication technologies emerge, which permit more visual and tonal cues, it may become easier to build relationships with users through electronic means.

Librarians cannot afford to alienate users by erecting technological barriers to good communication at the very time when users need them most. Users are more confused than ever about where to turn for high quality information, and librarians need to respond to that concern in the fullest way possible. The "certain bluntness" which Straw claims may be required in digital interactions will not properly transmit librarians' concern for users.

Yet high-quality, personalized, proactive reference services will undoubtedly lead to increased patronage, further setting reference librarians apart in the communication environment of today, where digital technologies increasingly are being employed as a replacement for human communication. Too many potential relationships with users are lost in this environment. As Brown and Duguid emphasize, information is not the same as knowledge. There needs to be a differentiation between the two:

So, while the modern world often appears increasingly impersonal, in those areas where knowledge really counts, people count more than ever. In this way, a true knowledge economy should distinguish itself not only from the industrial economy, but also from the information economy. For though its champions like to present these two as distinct, the information economy, like the industrial economy, shows a marked indifference to people. The industrial economy, for example, treated them en masse as interchangeable parts—the factory “hands” of the nineteenth century. The information economy threatens to treat them as more or less interchangeable consumers and processors of information (p. 121).

This danger exists for libraries as well. Libraries must not become simply information distributors. Librarians must retain, and even expand, their role as guides in the development of the knowledge-based society. The complexity of the information environment, and the similarly complex social networks that have developed in response to it, compel libraries to remain steadfast in their sensitivity to the particularity of the context of each information need that presents itself. Holding to an appropriate and effective balance of “community” and “society,” it is crucial that reference librarians renew their commitment to the vision of reference services established years ago: personalized, proactive, efficient, and effective reference assistance and instruction that is responsive to user needs and based upon fostering relationships through good communication, using the best and most effective means available.

PRACTICAL RESPONSES TO THE NEW INFORMATION ENVIRONMENT

Proactively serving contemporary users necessitates changes in reference services. Services and programs must become more responsive, more flexible, more convenient, and more personalized for users, taking into consideration many different learning styles, attitudes, belief systems, and orientations to technology. Certainly this will be no easy task, but it is one in which each library, each reference unit, each staff member, must be actively engaged.

There follows a sampling of strategies to address the needs of users that will help illustrate some possible directions for reference services in the years ahead.

Digital Reference Services

E-mail, Web-form, chat, visual-capable software such as CUSeeMe, and other customized software packages constitute some of the digital reference options currently being offered or under consideration at many libraries. The obvious advantage to this technology is that it allows remote users to access reference services and assistance, regardless of distances involved and perhaps time of day. Yet successful programs may have staffing implications.

Some also fear that promoting such services will lead to overwhelming response on the part of users, including those affiliated with the sponsoring institution and those unaffiliated who merely have access through the Internet. It seems probable that digital reference will work best with largely self-sufficient users rather than novice researchers, unless questions asked are mostly factual or ready-reference. As noted, it can be very difficult to decipher the true question being asked and to conduct a complete reference interview without normative, nonverbal communication cues. Also, some technologies under development require that both parties possess compatible software; until standards become prevalent and technical support is readily available to large numbers of users, digital reference services may remain problematic. Much is currently being written about such services, but more research is needed to indicate user preferences and the efficacy of digital technologies from both librarians' and users' viewpoints.

Web Portals/Gateways

Recent surveys confirm the value placed by users on the library-added services of selection and organization of quality information sources. One of the most effective means cited for providing such guidance in the electronic environment is through a well-designed portal or gateway site. Users have rated library-based guides and databases third in terms of most frequent uses of the Internet (following email and visiting known Web sites), and they have ranked portal sites as the most helpful resource in their use of the Internet (Lubans, 2000). Straightforward sites that provide links to selected databases, catalogs, Web sites, and other resources through a variety of access methods will play a vital role in sustaining the library's instructional mission.

Searchable FAQ (Frequently Asked Questions) Databases

Since users often have access to digital technologies and desire to be largely self-sufficient, librarians can help them answer basic questions 24 hours a day by offering searchable databases of reference questions and answers. These databases can be offered with Web interfaces to make searching simple and can be linked from library Web pages. The prevalence of institutions offering digital reference services makes the possibilities of creating databases easier, since electronic reference questions and answers can be transferred into a database once the user has received a complete response. These databases, available any time of day, may provide a template for librarians and reference staff to answer basic questions (either in person or electronically); they might also eliminate the redundancy of staff members unknowingly answering the same questions over and over. However, access is limited to those with suitable technology. Patrons may not expect to find such databases or may not be able to easily locate them, and some patrons may have unique questions that are not addressed in the databases.

Online Tutorials²

Web tutorials offer another avenue of approach to users who might be reluctant to ask for assistance or who have learning styles that fit well with a technological orientation and self-paced learning. Tutorials can cover the entire research process or simply a particular aspect of library instruction. Online tutorials offer definite advantages in terms of being available 24 hours a day, 7 days a week, to users on campus as well as to remote users. Disadvantages are that users must be highly motivated; they are obviously removed from a social context, unless they choose to access the tutorial in the library, where questions can always be asked and assistance is available. Some distance education software packages have a great deal of functionality built in (e.g., visible file structure, quizzes, email, etc.) to ease content delivery and user tracking.

Roving Reference

Given the importance of electronic resources, one way to build more connections with users is to provide point-of-need reference instruction. Roving reference sends librarians and staff members out to interact with users at the point at which they most need help. This may be at a computer station where users are accessing electronic information. (Users may be loath to leave because they fear loss of the station if they pause to ask a question at the reference desk.) Or it might be in the stacks where users are having difficulty locating a book. Or it may be in a periodicals area, or a media area. The emphases of roving reference are on providing point-of-need instruction, discovering reference questions that otherwise might never be asked, and on building relationships with users. Roving also breaks down barriers and limitations imposed by physical and mental reference "desks." Reference questions occur anywhere, and roving reference may be another motivation for users to come to a library, even if electronic resources can be accessed remotely. The disadvantage to roving is that it will require more staff members to cover the same number of reference hours per week: new questions will be uncovered by rovers, but users still need a physical location at which to locate reference staff when they have questions and no rover is nearby.

Research Advisory Sessions

The complexity of the information environment can instill uncertainty, confusion, and even fear in some users. Appointment-based advisory sessions allow a personal relationship to develop without interruption and in a non-judgmental environment. A more lengthy interaction also ensures that enough time will be available to fully describe the information environment, assist the user in making choices about where to begin seeking information, and provide an opportunity to introduce databases and search strategies that can be refined as the instruction session continues. An invitation for a followup session, if needed, reinforces to users that support is ongoing.

Peer Mentors

Hiring students or younger/older staff members to act as “bridges” between librarians and particular user communities could be extremely helpful in advertising library services, encouraging the use of library resources, and making users feel comfortable learning to articulate information needs and contacting appropriate staff members for assistance. Matching mentors to others in their peer group may foster greater understanding by the library of that user group’s needs, as well as offer expertise in areas that may be underdeveloped elsewhere in the organization. Peer mentors could take some of the burden from reference librarians, since simple questions might be answered by mentors; costs may be reduced if work-study students can be hired. Mentoring promotes a broad understanding of library resources and also encourages self-development among mentors. Challenges include developing training programs for mentors and making sure that mentors know when to refer questions to librarians. Peer mentors offer a perfect opportunity to try roving reference—they could even be directed to rove in areas outside of libraries such as study lounges, shopping malls, and residence halls.

Reference Exchange Programs

Exchanging librarians and reference staff members between departmental or branch libraries (or even other library systems, if feasible) can be extremely productive in a complex and changing information environment. Learning new resources (both print and electronic), interacting with different user groups, and gaining exposure to new techniques, approaches, and organizational structures are just some of the benefits of such a program. Instilling confidence, adaptability, and flexibility in reference staff members and promoting a better understanding of when to refer questions to other libraries are other obvious benefits. Familiarity with more staff members and resources system-wide also has direct benefits in helping physically separate libraries function as a single library system. However, reference staff time is sacrificed if exchange is uneven, and staff members sometimes feel that they are neglecting work in their own library in order to participate in exchange. Exchange can also require additional staff training. Reference exchange programs may function best if staff members volunteer to participate.

Staff Training

Strong ongoing staff training and development programs have become much more important in the new information environment. Until very recently, reference staffs were not accustomed to an uncontrolled environment, and many assumptions about responding to information requests are increasingly questioned. In many cases, the staff need additional training in reference resources, evaluation methodologies, and also in the instructional methods, techniques, and approaches that will best serve patrons in

the new environment. The proliferation of databases, discovery of new Web sites, and changing database interfaces necessitate that reference training be a constant, ongoing endeavor. Training keeps librarians and staff members current in rapidly changing technologies and gives staff the confidence to approach users sitting at computer stations. It also offers an opportunity to present a discussion of the importance of evaluation and to highlight evaluation methodologies to paraprofessional staff members, who often have no training in the evaluation of information sources.

Staff Hiring

It is crucial to hire staff members with a strong commitment to service in order to maintain quality reference service in the face of an increasing emphasis on technology. A proactive service orientation becomes a priority, as does a strong emphasis on communication skills. Reference staffs with these qualities will be empowered to respond accordingly to the wide diversity of users, regardless of the mode or the context of the query.

CONCLUSION

The foregoing services and strategies represent a variety of options that may be employed to optimize the library's ability to respond to the multifaceted queries facing librarians today. Sensitivity to the unique demands of each interaction requires a fully developed repertoire of responses. Preparing for the diversity and depth of knowledge, skills, and understanding that are required of the reference staff stems from thoughtful consideration of our roles within the context of our institutions, our communities, and the larger society. Keeping focused on a vision of reference service that embodies the mission of librarianship—of providing high-quality service on behalf of the public good—will minimize the turmoil that the evolving information environment seemingly forces upon us.

NOTES

1. The ARL (Association of Research Libraries) survey response was 64 percent of total membership. Therefore the actual number of ARL member libraries offering digital reference service is unknown.
2. A list of online tutorials maintained by LOEX (Library Orientation Exchange) is available at <http://www.emich.edu/~lshirato/islinks/tutlinks.htm>.

REFERENCES

- American Library Association. (1995). *Code of ethics of the American Library Association*. <http://www.ala.org/alaorg/oif/ethics.html>.
- Association of College and Research Libraries. (2000). *Information literacy competency standards for higher education*. Chicago: Association of College and Research Libraries.
- Bender, T. (1978). *Community and social change in America*. New Brunswick: Rutgers University Press.
- Brown, J. S., & Duguid, P. (2000). *The social life of information*. Boston: Harvard Business School Press.
- Butcher, K. (1999). Reflections on academic librarianship. *Journal of Academic Librarianship*, 25(5), 350–353.

- Campbell, R. J. (1998). Hyperminds for hypertimes: The demise of rational, logical thought? *Educational Technology*, 38(1), 24–31.
- Coffman, S., & McGlamery, S. (2000). The librarian and Mr. Jeeves. *American Libraries*, 31(5), 66–69.
- Ewing, K., & Hauptman, R. (1995). Is traditional reference service obsolete? *Journal of Academic Librarianship*, 21(1), 3–6.
- Frank, D. G.; Calhoun, K. L.; Henson, W. B.; Madden, M. L.; & Raschke, G. K. (1999). The changing nature of reference and information services. *Reference & User Services Quarterly*, 39(2), 151–157.
- Goetsch, L.; Sowers, L.; & Todd, C. (October 1999). *SPEC kit 251: Electronic reference service executive summary*. <http://www.arl.org/spec/251sum.html>.
- Gorman, M. (1998). *Our singular strengths: Meditations for librarians*. Chicago: American Library Association.
- Gray, S. M. (2000). Virtual reference services. *Reference and User Services Quarterly*, 39(4), 365–375.
- Hales Mabry, C. (1996). Existentialism at the reference desk. Unpublished manuscript. University of Minnesota at Minneapolis.
- Katz, W. A. (1997). The reference interview. In W. A. Katz (Ed.), *Introduction to reference work: Vol 2. Reference services and reference processes* (7th ed., pp. 153–177). New York: McGraw-Hill.
- Kottak, C. P. (1996). Integration, disintegration, and reintegration via advanced information technology. *Social Science Computer Review*, 14(1), 10–15.
- Lubans, J. (2000). I can't find you anywhere but gone: Avoiding marginalization. *Library Administration & Management*, 14(2), 67–69.
- McCrimmon, B. (1994). Philosophies of librarianship. In W. A. Wiegand & D. G. Davis, Jr. (Eds.), *Encyclopedia of library history* (pp. 494–498). New York: Garland.
- Mish, F. C., et al. (Eds.) (1996). *Merriam-Webster's collegiate dictionary*. (10th ed.). Springfield, Mass.: Merriam-Webster.
- Moore, G. E. (1965). Cramming more components onto integrated circuits. *Electronics*, 38(8), 365–375.
- Overbey, M. M. (1996). Human aspects of the National Information Infrastructure. *Social Science Computer Review*, 14(1), 16–17.
- Ranganathan, S. R. (1931). *The five laws of library science*. Madras: Madras Library Association.
- Rogers, A. R. (1984). *The library in society*. Littleton, CO: Libraries Unlimited.
- Rothstein, S. (1972). *The development of reference services: Through academic traditions, public library practice and special librarianship*. ACRL Monographs Number 14. Boston: Gregg Press.
- Rothstein, S. (1994). Reference services. In W. A. Wiegand & D. G. Davis, Jr. (Eds.), *Encyclopedia of library history* (pp. 541–546). New York: Garland.
- Rudolph, F. (1962). *The American college and university: A history*. New York: Alfred A. Knopf.
- Ryan, S. (1996). Reference service for the Internet community: A case study of the Internet Public Library reference division. *Library & Information Science Research*, 18(3), 241–259.
- Straw, J. E. (2000). A virtual understanding: The reference interview and question negotiation in the digital age. *Reference and User Services Quarterly*, 39(4), 376–379.
- Tenopir, C. (1998). Reference use statistics. *Library Journal*, 123(8), 32, 34.
- Wilson, M. C. (2000). Evolution or entropy: Changing reference/user culture and the future of reference librarians. *Reference and User Services Quarterly*, 39(4), 387–390.
- Winner, L. (2000). Enthusiasm and concern: Results of a new technology poll. *Netfuture: Technology and Human Responsibility*, #103. http://www.oreilly.com/people/staff/stevet/netfuture/2000/Feb2900_103.html.
- Zick, L. (2000). The work of information mediators: A comparison of librarians and intelligent software agents. *First Monday*, 5(5). http://www.firstmonday.dk/issues/issue5_5/zick/.