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

Scott Mandernack
Marquette University, scott.mandernack@marquette.edu

John W. Fritch
Purdue University

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

John W. Fritch
Hicks Undergraduate Library, Purdue University
West Lafayette, IN

Scott B. Mandernack
Hicks Undergraduate Library, Purdue University
West Lafayette, IN

Abstract

The emerging reference paradigm in a complex, technologically-rich information environment tends toward a more proactive, more deliberate blending of the conservative and liberal philosophies of reference, a new balance between the two. As key agents in the advancement of society and culture, libraries 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 the more open, 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 that are responsive to the multi-dimensional, multi-faceted queries facing libraries today.

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"Where there is no vision, the people perish."

Proverbs 29:18

In recent years, with the explosive popularity of the Internet and the World Wide Web, many authors have foreseen the demise of reference librarians, their role becoming outdated, antiquated, and ultimately, irrelevant.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). Further, 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 users will require little or no assistance from trained reference personnel. Indeed, the number of reference transactions reported in recent years indicate decreases in the range of six to fifteen percent (Coffman and McGlamery, 2000). Is this a sign that the role of reference services is in fact declining? Is it inevitable that reference librarians and reference services will be replaced by advanced information technologies? If not, what will sustain the existence of reference services and trained reference librarians?

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An Historical Review of Reference Service

A brief review of the history and development of reference services may help to illuminate our thoughts and responses to some of the issues, questions, and concerns facing reference services today.

Reference service, as a distinct function of the library, began in the latter part of the 19th 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-19th 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 in the mid-19th century, however, 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. Further, 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 in these early years--albeit typically only as an ancillary, part-time endeavor--with the primary purpose of assisting 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 of the library. 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

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reference units or departments became common in the late 1890s and early 20th century (Rothstein, 1994). The role of reference as an integral part of the library organization was established even more firmly over the first fifteen to twenty years of the 20th 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, libraries 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--of direction to information resources and instruction in their use--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. Libraries 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; finding that 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 finding an answer. Libraries 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

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provided direct information and answers, rather than leaving it to users to discern for themselves (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 '60s, 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 '80s 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, however, 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, as evident by the common practice of charging fees, implicitly conveying an impression of greater value.

While the 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 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 fundamental 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 hundred-plus years. The volume of published information--books and periodicals, for the most part--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, accessible, and uncontrolled, often even chaotic. The rate of print publishing continues to increase, while 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:

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- 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 world-wide
- Print media continues to proliferate

Concerning the prevalence of access and adoption of technology, a recent poll indicates that 92% of adults, aged 18-60, have used a computer, with 69% having one at home; over 75% 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 challenges for both 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, especially

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"the web," has come to be viewed as a panacea for many of society's shortcomings, purportedly leading to better jobs, higher incomes, healthier lifestyles, more responsive government, and, in general, greater personal and social satisfaction.

These perceptions have, however, contributed to a value system in which lifestyles are increasingly tailored to an individual's choices and preferences. Individualism, customization, convenience, self-reliance, and self-fulfillment are predominant attitudes among 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.

In and of itself, the promotion of independence, personal choice, and self-fulfillment is not necessarily a bad thing, 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. A number of reports document such trends: among those who have a computer at home, 57% 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, if left unchecked, 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). Individuals in a community are bound together by emotional ties and commitments, rather than by a perception of individual self-interest. Ferdinand Tonnies, a German sociologist, developed a typology of social change in his 1887 work, Gemeinschaft und Gesellschaft. In this work 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 the information environment of today and its 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 rather to reflect that the two concepts coexist, but the balance between them shifts from time to time.

Such is the situation we face in the evolving information environment, with the increasing integration of technology having potentially enormous implications for reference service. We are seeing a shift in the balance of gemeinschaft and gesellschaft. 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 minimize contact with other individuals, reducing social interaction, and potentially lessening the richness that other people can bring to one's life. Not unlike other eras throughout history, 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 respond and participate accordingly (Bender, 1978, p. 122).

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Toward a New Reference Paradigm

The Internet is an undiscriminating 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, where the options are too numerous to assess adequately. It seems likely at this point that users would either decline to make a decision at all, make a decision based on the choices that are most obvious (though not necessarily the best), or seek a mediator to assist them, such as a reference librarian. 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. It is at this point that 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, and 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," 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).

Additionally, with access to so much information in so many formats, helping users understand how to manage and manipulate the information they have found is 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 in 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-a-vis reference services, become more multi-dimensional and multi-faceted. Many reference

transactions, therefore, must 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 most all searches return many hits). Thinking they understand all of this, we are faced with having to erase inaccurate information that has been etched in their minds. Not only are we left to complete and 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 over the courses of their lifetimes.

Libraries have traditionally been reservoirs of high quality, well-organized information, a function considered the stronghold of librarianship. Recently commercial services (such as Questia) have been announced which seem to serve users by condensing the universe of information to a manageable quantity; the vendors claim that their collection is comprised only of high quality, carefully selected information. This may appeal to users who have been overwhelmed by the vastness of uncontrolled sources available via the Internet, but they are fee-based services. It may turn out that these targeted users will 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 to provide not only access to high quality information (perhaps some day even purchased from still-nascent vendor packages of e-books, journal articles, and web information) but

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also to play an expanded role in mediation and instruction, not only in search skills but also in critical thinking, evaluation, and presentation skills.

It is also important to consider the social aspects of information in reference transactions. Information, at least 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. Brown and Duguid (2000) argue eloquently in The Social Life of Information 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, and, 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 will benefit from 24 hour digital reference service (especially those who are largely self-sufficient), but this is only one possible response, one which does not adequately differentiate reference librarians from other potential information options.

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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. Yet 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 rather 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. If viewed literally, certainly they may be limiting, but if the basic message of each of the Laws 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). Thus, Gorman updates and reinterprets Ranganathan, retaining the essence of the original

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Laws, but offering 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, remotely, 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, whether the research pertains to electronic or print material. 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 precisely because they desire a place where knowledge transfer exists in a social context that is recognized and celebrated. 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 an efficient and effective service to offer.

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

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> 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. And through either medium, the loss of non-verbal cues could be devastating in terms of judging user reactions and responses. Katz (1997) cites research which indicates that approximately 90% of communicated messages are transmitted via non-verbal signals. Straw (2000) and Gray (2000) contend that accomplishing a complete reference interview in a digital environment is more difficult than 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 and connection 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), and by being open to a

mutual learning experience with the user, learning the true dimensions of the query, the user's present knowledge, their 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 suggest possibilities. Use of computer-mediated technologies is simply a more difficult communication environment. 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 and 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. They 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 over time. Services and programs must be designed to be 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.

A sampling of strategies to address the needs of users will help illustrate some possible directions for reference services in the years ahead:

Digital Reference Services--Email, 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 access to reference service and assistance regardless of distances involved and perhaps time of day. Yet successful programs may have staffing implications, and some 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. Disadvantages, as noted, are that it can be very difficult to decipher the true question being asked and conduct a complete reference interview without normative, non-verbal 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 continue to be 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 (second only to email and visiting known web sites), and portal sites as the most helpful resource in their use of the Internet (Lubans, 2000). Clear and 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 make the

possibilities of creating databases easier, since electronic reference questions and answers can be easily transferred into a database once the user has received a complete response. Advantages include the fact that these databases would be available any time of day, they may provide a template for librarians and reference staff to answer basic questions (either in person or electronically), and they might eliminate the redundancy of staff members unknowingly answering the same questions over and over. Disadvantages include that 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 patrons may have unique questions that are not addressed in the databases.

Online Tutorials[2]--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 who are present on campus as well as to remote users and distance learners. Disadvantages are that users must be highly motivated and 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 make content delivery and user-tracking easier.

Roving Reference--Given the importance of electronic resources, one way to build more connections with users is to provide point-of-need reference instruction right where users are—often at computer stations. 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 loathe to leave because they fear the loss of the station if they pause to ask a question at the reference desk); it might be in the stacks where users are having difficulty locating a book; 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, since 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, where a user can feel free to express what s/he does not know. 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 relevant databases and search strategies that can be refined as the instruction session continues. An invitation for a follow-up 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 question might be answered by mentors, and may reduce costs 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. Disadvantages include loss of reference staff time if exchange is uneven, staff members sometimes feeling that they are neglecting work in their own library in order to participate in exchange, and the fact that exchange can 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 websites, and changing database interfaces necessitate that reference training be a constant, ongoing endeavor. This 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 be responsive to the multi-dimensional, multi-faceted queries facing libraries today. Sensitivity to the unique demands of each interaction requires a fully developed repertoire of responses from which to draw. 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 fluctuations and turmoil that the evolving information environment seemingly forces on us, so that our users will not perish.

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NOTES

1 The ARL (Association of Research Libraries) survey response was 64% of total membership, therefore the actual number of ARL member libraries offering digital reference service is unknown.

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2 A list of online tutorials maintained by LOEX (Library Orientation Exchange) is available at http://www.emich.edu/~lshirato/ISLINKS/TUTLINKS.

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About the Authors

Author name: Text.