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Technological Advances in Reference: A Paradigm Shift?

Evelyn L. Curry

Issue Editor


**Library Trends**

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CONTENTS

Introduction
Evelyn L. Curry
165

Values for Human-to-Human Reference
Michael Gorman
168

What Is the Best Model of Reference Service?
David A. Tyckoson
183

Faculty Relevance Criteria: Internalized User Needs
Lynn Westbrook
197

Evaluating Reference Services in the Electronic Age
Jo Bell Whitlatch
207

An Ideological Analysis of Digital Reference Service Models
Juris Dilevko
218

Reference in Library and Information Science Education
Yvonne J. Chandler
245

Long Live Old Reference Services and New Technologies
Bill Katz
263
The Emerging Reference Paradigm: A Vision of Reference Services in a Complex Information Environment

John W. Fritch and Scott B. Mandernack

About the Contributors
Introduction

EVELYN L. CURRY

The social context of reference work in libraries has changed dramatically in the past two decades—some would argue more than ever before in its history of 126 years (Green 1876). Forces bringing about such change have included political, economic, cultural, and technological developments that have affected libraries and information centers in a number of ways. Yet the raison d'être for reference practice—and indeed for library work in general—has remained the same: to bring together library users and the knowledge they seek. In other words, the user and his needs remain at the heart of the information profession.

Computer-based reference has significantly improved library service to contemporary users—from the introduction of online and cataloging databases to local and wide-area networks to electronic reference sources. The appearance of the Internet in the 1990s heralded a new era for libraries in terms of networking opportunities. More specifically, “virtual reference” (or Web-based reference) has had a major impact on the referral function. This issue examines the extent to which (and how) technological advances have changed basic reference practice.

A paradigm is a universally recognized scientific achievement that for a time models problems and solutions to a community of practitioners (Kuhn, 1961). It is a conceptual understanding, an agreed-upon construct for conducting the business of a profession. The structure takes some time to formulate and shifts only when the professional community agrees that significant changes in the knowledge base beg to be acknowledged and incorporated into new practical forms.

Reference work in today’s libraries has been influenced by a host of
related social and economic factors, chief among them being the increasing use of technology. This issue has three specific objectives: to examine the reference tradition within the context of recent technological advances, to determine the extent to which the paradigm is shifting, and to explore the implications for library practice.

Gorman's paper on "human-to-human reference" sets the tone for the entire discussion. Librarianship, he argues, is based on a core set of highly regarded principles that must not be forgotten in the present milieu. His recent book, *Our Enduring Values* (2000), is an important reminder of the service ethic to which librarians subscribe.

Tyckoson continues the discourse by reviewing the history of reference and the various models of reference service delivery (e.g., traditional, tiered, teaching, virtual). Each model, he maintains, has its distinct advantages and disadvantages; however, the "best" template for any given library can only be measured against its community of users.

Westbrook's user-needs analysis of a selected patron group pulls together elements of the information-seeking process that determine user satisfaction with library search results. Conceptual questions she raised in her study include: To what extent does the user's definition of relevance mesh with the librarian's definition? What implications do these differences have for library practice? Her "internal" definition of relevance expands the classic interpretation of pertinence (Lancaster and Warner, 1993).

Whitlatch contributes an assessment of strategies for the evaluation of electronic reference. Useful measures, she maintains, can only be reached after study goals and objectives have been determined; those could fall into several categories: economics, the reference process, resources, products/outcomes (user satisfaction with results). She further identifies various research methods (surveys, interviews, case studies and focus groups), noting that shifting patterns in user demands provide libraries with opportunities to emphasize different strategies for bringing together users and needed resources.

Dilevko's paper serves as a wake-up call for reference workers in the virtual environment whose jobs have been, and are being, phased out. His chief concern is that "call centers" are "de-skilling" the library profession. Reference librarians, he cautions, should consider how best to develop a unique knowledge niche that would allow them to differentiate themselves from potential library users, thus positioning themselves as market leaders instead of followers.

Chandler outlines the library and information science curriculum needed to prepare information professionals for the twenty-first century. She argues that, contrary to a widely held view, the library profession is not on the decline; the next few years will find librarians in high demand. Graduates with technological library expertise and interpersonal communication skills will have the strengths needed to understand the diverse user popu-
lation of the new millennium. The case study she includes is her own curriculum at the University of North Texas School of Library and Information Sciences, where the reference course is one of several offered in the distance education (online) format.

Katz paints a picture of the old reference standard versus the new technologies. Providing access to the right information, he contends, is a goal in danger of tripping over the new technology. He also touches on the growing digital divide between the haves and have nots.

Fritch and Mandernack round out the issue with a two-part presentation. The first part reviews the history of reference; the second is a template for the "paradigm shift." The social context for reference work, they hold, is still very important. The "shift" requires an amalgamation of the traditional philosophies of reference—a more deliberate blending of the conservative and liberal views.

Does the "new face" of reference constitute a paradigm shift? According to the authors in this issue, yes and no. Yes, in the sense that reference librarians have new responsibilities in the digital era (e.g., how to achieve high tech, high touch). No, in the sense that new delivery mechanisms have not changed the basic tenets of the profession. In fact, the technological options have strengthened the base.

The working title for this issue was "The Emerging Reference Paradigm." However, after reading the authors’ contributions and reflecting on them, one might safely conclude that reference practice has an already established paradigm (though time is only one criterion in paradigm formulation). Reference librarianship is not in a "pre-paradigmatic state," in classic Kuhnian terms. Rather, the model appears to be shifting as knowledge evolves. The traditional values of librarianship are as true as they ever were—only more so. Libraries are still sanctuaries (not repositories) for the masses, not boutiques for a privileged few. Emerging technologies offer more alternatives to the contemporary library user, and these alternatives are opportunities in disguise. Elizabeth Cady Stanton once observed: "Nothing strengthens the judgment and quickens the conscience like individual responsibility." Therein lies the challenge for the profession. Librarians and information professionals are up to that challenge.

References
Values for Human-to-Human Reference

MICHAEL GORMAN

ABSTRACT

Defines "values" and lists the eight values derived by the author in an earlier work. Gives a brief history of the evolution of human-to-human reference service and discusses its future. Relates each of the author's eight values to the practice of human-to-human reference. Concludes with some thoughts on library instruction.

In a hubristic act in my book Our Enduring Values (Gorman, 2000), I formulated eight fundamental values that I believe should inform librarianship. Those values, based on experience and reading in library literature and beyond, are:

- Stewardship
- Service
- Intellectual freedom
- Rationalism
- Literacy and learning
- Equity of access
- Privacy
- Democracy

WHAT ARE "VALUES"?

Before I seek to relate those values to work in public services—particularly human-to-human (i.e., face to face) reference work—I would like to define what I mean by the word "values." This is important, because the word is used so loosely in modern discourse that it is in danger of being drained of meaning. For example, the phrase "family values" is nothing
more than a political shibboleth in which “values” means the social and religious ideas of the speaker and, by inference, is critical of anyone who disagrees with her or him. My study has led me to the following definition of value:

A belief that is of deep interest (even self-interest) to an individual or group, and that animates the individual or group's conduct and states of existence.

A group of such beliefs is called a “value system.” We must recognize at the outset that values involve belief, though by no means either credulity or blind faith. To take an uncontroversial library value—service—we must believe in service, but that belief is informed by a rational assumption that a library motivated by the service ethic is a better thing—for individuals and society—than a library that is not. We should also recognize that values involve self-interest as well as altruism. Clearly, values that make libraries strong benefit librarians, since strong libraries provide employment and good working conditions. In that way, values enable the achievement of altruistic aims and of personal benefit. To take another instance, librarians are committed to intellectual freedom as a societal good in itself and as conducive to an environment in which they can lead happy, productive lives. In the world of values, the personal and the societal are two pages on the same leaf.

I derived my definition of value from reading in a variety of fields, including philosophy, ethics, and management. I derived the eight values listed above from reading the work of various library writers and thinkers, principally Pierce Butler, Jesse Shera, S.R. Ranganathan, Lee Finks, and Samuel Rothstein, mapped to my own experience in libraries of different kinds for more than forty years. These are, then, my own concept of basic library values and should be seen as such. They are not a substitute for the agreed values of the profession of the type that ALA gamely tried to establish with its first Task Force on Core Values, a spin-off of its Congress on Professional Education, though whether any such can be achieved remains to be seen. (It must be noted that ALA, exhibiting true grit, is trying again with a second, and differently constituted, task force.)

A False Dichotomy?

The terms “public services” and “technical services” are engrained in our collective culture. I have never been a fan of either term or of the dichotomy they embody. That mild opposition has been rendered even milder by recent coinages such as “access services,” “information delivery services,” and (shudder) “interpretative services.” (The latter always summons a vision of white-faced mimes.) There has been a chasm between the two “services” for many years, and I believe that has been to the detriment of service to users and to the quality of worklife of librarians. “Public services” seems to imply groups of people who are uniquely suited to interaction with the users of the library; “technical services” denotes groups of secre-
tive, hidden librarians, devoted to the arcana of cataloging and the dark world of systems. These stereotypes have led to a lack of communication and interaction, even to the belief that the two groups have different psychological profiles—one introspective and incapable of dealing with people, the other extroverted and too large-minded to be bothered with the pettifoggery of cataloging. The truth is that each group has much to offer the other. True collaboration between them has great potential for the improvement of service to the “public”—a cause to which both should be dedicated.

**The End of Real Reference?**

With the currently fashionable talk of “disintermediation,” “live reference,” and “everything being available on the Internet,” it might seem that human-to-human reference service (the key element in public services as defined up to now) is on its way out, that it will go the way of the Library of Congress catalog card and readers’ advisory services. As with many other predictions concerning “virtual libraries” and the like, forecasting the “death of face-to-face reference” seems to ignore the manifest advantages and popularity of this service. It seems to me that one must have extremely strong arguments to facilitate or allow the demise of a service that is both expected and appreciated by a wide range of library users.

In November 1876, Samuel S. Green of the Worcester Free Public Library wrote an interesting article on what was not then called “reference work” in what was to become the *Library Journal*. In that simpler world he wrote of “Modest men in the humbler walks of life, and well-trained boys and girls” who needed “encouragement before they become ready to say freely what they want” (1876, p. 74). Green refers to “the reference department,” though there were no such things as reference librarians then. Still, he summed up the question in terms that, *mutatis mutandis*, have much resonance today: “A hearty reception by a sympathizing friend, and the recognition of someone at hand who will listen to inquiries, even although he may consider them unimportant, make it easy for such persons to ask questions, and put them at once on a home footing” (1876, p. 74). Green’s description delineates the ideal personal attributes of a reference librarian: friendliness, the ability to put an inquirer at ease, the realization that all questions are important to the questioner, and willingness to help. Combine these with a thorough knowledge of resources and you have the recipe for the “personal relations” of 125 years ago and the reference interview of today.

Green went on to give numerous instances of what we would now call reference encounters on a wide range of subjects and with all kinds and conditions of people. The common thread is the desire to help and the matching of question and source that most closely meets the expressed and unexpressed wishes of the library user. Green states, with justice, that good
things flow from this “personal intercourse” between librarian and user. To paraphrase, they are:

1. After gaining the respect and confidence of the library user, the librarian can direct her/him to the best sources of information and foster the love of learning.
2. The librarian acquires a fuller knowledge of the collection and can use experience in developing that collection.
3. Mingling with the library’s users and gaining their trust strengthens the view of the library as an indispensable institution.
4. The librarian can use the trust good reference work engenders to elevate taste and improve reading.

No doubt this is a touch too high-minded and Victorian for our low-minded and cynical age, but the desire to serve, to help all people, to elevate the public taste and level of learning, to consolidate the library as an essential part of the community, and, above all, to help can be dismissed only at our peril. What we dealt with then, and what we deal with now, is the interaction of librarian, users, and collections, defining “collections” expansively so as to include resources tangible and electronic, local and distant. There must be a sympathy between librarians and library patrons, a knowledge of the collections on the part of librarians, and the ability of collections to meet all the knowledge and information needs of the library’s users. Inadequacies in, or lack of, any of its components threaten this intricate mutual dependence. The most exalted reference skills cannot make up for seriously inadequate collections. Lack of sympathy toward the library user can make even the most knowledgeable reference librarian ineffective, even when the collections are adequate. Knowing the reference collections well is important to good reference work, but so is an intimate knowledge of wider collections. If we can use technology and electronic collections to enhance this complex structure, so much the better.

It borders on the fatuous to propose that technology can be employed to provide a satisfactory alternative to the nuances of the interaction between librarian and user, knowledge of the whole range of recorded knowledge and information, and the subtleties of information and knowledge seeking. This has not stopped some from trying (See Campbell, 1992; Coffman, 1999). Among the proposals aimed at replacing human-to-human reference are:

- expert systems
- e-mail reference
- triage service (the Brandeis model)
- reference service by appointment
- elimination of reference service

Each of these (other than the last) has some superficial attractions and some
inherent and fatal flaws. Dave Tyckoson has analyzed and dismissed each in a magisterial 1999 article, so I need only state that technology can enhance but will never supplant human-to-human reference service. Further, if the latter were to disappear, it would be a severe, and possibly fatal, blow to the whole concept of library service.

Values in a Time of Change

Change imposes stress, even evolutionary change of the kind that technology will bring to human-to-human reference. I believe that agreed values will help us to manage change and will provide us with a basis for assessing how well change has been assimilated into library service. Most librarians have unexpressed or even dimly formulated values that govern their working lives. This is certainly not a bad thing for those individuals in their daily existence. However, I believe that we need to express and formulate our values collectively if they are to become a useful evaluative tool and an explicit consideration in creating a new librarianship. Absent that agreement and public expression, libraries and librarianship can fall prey to the kind of technological neophilia described above. Moreover, making our case to those who fund libraries is vitally important. How can we make such a case if we have no intellectual structure and shared beliefs? How can we refute the ideas of the digitize-everything crowd without reference to a coherent, value-based concept of what libraries are, can be, and should be?

Reference and the Eight Values

I now seek to relate each value listed at the beginning of this essay to human-to-human reference. I shall show how they can be used as the basis of a philosophy of reference, today and in the future.

Stewardship

In order to be good stewards, we must ensure that the human record survives and grows. We must also be stewards of our profession and its useful policies and practices. Both of these aspects of the value of stewardship are under threat from an uncritical and lopsided embrace of technology. Though reference librarians are not always directly involved in the preservation of the records of civilization, they are, and should be, vitally concerned about the totality of that record. In particular, much useful recorded knowledge and information is lost to most libraries when older reference resources are discarded in favor of newer, updated editions or other resources. It seems that some reference librarians are concerned only with the materials housed in the reference department itself. This runs smack into one of the great circular definitions of all time: a reference book is a book housed in the reference department. The truth is that the knowledge and information sought by library users may be found in any of the collections available to the modern reference librarian; and the tangible documents in the
reference department are merely the closest and most conveniently arranged. As far as electronic resources are concerned, the reference librarian has a duty to view them in light of all other resources, using them when they are the best source and eschewing them when they are not. The lazy resort to the Web first and last displays the worst sort of abdication of responsibility. Charles Ammi Cutter said that the convenience of the catalog user should always be preferred to the convenience of the cataloger. The same goes in spades for the reference librarian and the inquirer at the reference desk. Good reference librarians are aware of and value the whole world of recorded knowledge and information—from books, maps, videos, electronic resources, and everything in between. With a concern for all resources and their transmission to posterity, they cannot, therefore, be indifferent to that fact that the inchoate nature of electronic resources and their mutability poses an unprecedented preservation problem. There is a very real chance that much of what is now available electronically will be unavailable in a few years. By unavailable, I mean lost forever, not merely difficult to find. This is a sea change—or, rather, a reversion—in the history of communication.

In the mid-1500s, Bishop Diego de Landa ordered the Conquistadors to burn all the Mayan bark-cloth books they could find, because these [sic] “contained nothing but superstitions and falsehoods of the Devil.” The great collection of Mayan astronomical knowledge was thus destroyed. Descendants of the Mayans live today in the forests of Guatemala... but all the knowledge their ancestors accumulated over the centuries is lost. (Stockwell, 2000, p. 11)

It is not hard to see what Mayan bark-cloth books have in common with electronic resources: they were easily obliterated (from malice or inadvertence) and, once gone, were gone forever. The same could be said of all the manuscripts, papyrus rolls, etc., that predated the printed codex. If the latter is an aberration in human history, it behooves us to come to terms with that fact and ponder what we should do when only the records of the last handful of years are available as reference sources.

In an age when a student of librarianship is as likely to take a course on Javascript as a course on reference work, reference librarians should be alert to the peril that threatens their specialty. They should be even more alert when that peril is reinforced by those who believe that:

- untutored users can find everything they want and need by themselves on the Web ("disintermediation")
- reference help should be available only by appointment
- we do not need human-to-human reference at all

Good stewards are custodians of cumulative professional skills and ensure that those skills are taught to their successors. This requires reference librarians to take an enlightened interest in library education and to lobby
for reference courses. It also requires that they take the products of library schools and, through example and instruction, train them to be good reference librarians with a comprehensive knowledge of sources, superior communication skills, and a commitment to reference service.

*Service*

Service, in the highest sense of the term, is central to all library work. We seek to serve the individual and, in doing so, to serve society and humanity as a whole. This is altruistic, of course. Reference librarians have to be animated by a desire to help—that desire being based on sympathy for the individual and for the library’s users as a group. The former is sometimes less of a problem than the latter, as it is easier to stereotype groups than to reject an individual seeking help. Service is not the only motive in reference work—intellectual curiosity is also a strong element for many—but it is surely the indispensable motive.

In a way, one can see human-to-human reference as the capstone in the evolution of library service. In the beginning, there are collections, then collections have to be organized, and then they have to be interpreted.

The story is told that Aristophanes of Byzantium, who was Director [of the Library of Alexandria] from ca. 200 to 185 BC and who “working daily with the utmost drive and diligence systematically read all the books,” when serving as a judge in a competition of poets held before the king, disqualified all but one on the grounds of plagiarism. Called upon by the king to prove his case, he rushed to the library and “relying just on memory,” from certain bookcases produced an armful of rolls.

This bravura feat may have been possible for Aristophanes of Byzantium, but after the collection had reached a certain size, ordinary readers needed the sort of help locating works that they enjoy today. (Casson, 2001, p. 38)

That help came, of course, from the first great cataloger—Callimachus of Cyrene—but it must also have come from the omni-lector Aristophanes of Byzantium and his successors in the form of what we now call reference service. Viewed in this sense, and perceiving the continuity between libraries over more than two millennia, we can see that bibliographic control and reference work are mutually dependent and complementary. A collection, once beyond a certain size, must be organized for retrieval—a task for latter day Callimachuses. But that organization can work only up to a point. That point is the one at which a skilled human being (a reference librarian) is needed to give guidance and assistance in using the bibliographic architecture of organization and acting as a guide, philosopher, and friend to all users of library materials.

A true service ethic treats a child’s enquiry as being as important as a Nobel Prize winner’s, a relevant book as being more important than a marginally relevant electronic source (and vice versa); and makes no value judgments when it comes to questions or answers.
Intellectual Freedom

Libraries are devoted to free enquiry and the freedom of each mind to consider any aspect of the human record. Banned books and filtered databases place restrictions on those freedoms, surrendering to the forces of fear. The question of intellectual freedom is essentially a clash of cultures—one inward-looking, timorous, and closed; the other outward looking, adventurous and open. Let this question not be muddied by reference to the question of “protecting children” (an opportunistic cry of the congenitally censorious. That is a separate discussion. Let us consider adults and their natural and, in the United States, constitutional, right to read and view whatever they wish. Instead of being afraid of what is unfamiliar, distasteful, or not congruent with our beliefs, we should remember the wise words of S. R. Ranganathan: *Bad thought laid bare to the world is rendered sterile*. We must let time and the tides of thought take care of that which we do not care for and, in doing so, liberate ourselves from being arbiters of taste or propriety.

Surely the right to intellectual freedom is nowhere more established than in reference service. My understanding of intellectual freedom and reference is that people have the right to ask any question that does not infringe on the rights of the person being asked, and that the reference librarian must be able to draw on the whole human record in order to answer that question. If that is so, human-to-human reference calls for qualities of tact and understanding that may be difficult for many, but that are essential if free enquiry is to flourish. Areas of thought that are “sensitive” arouse, inevitably, strong emotions in both reference librarians and seekers of knowledge and information. How many feel completely at ease in asking for information on abortion, religion, racism, safe sex, or any other topics that are the stuff of argument, dissent, and the formulation of public policy? All the more reason, then, for the reference librarian to be as neutral as humanly possible in attempting to provide factual, unbiased information and referring questioners to the best recorded knowledge. This problem has been magnified by the advent of the Internet and the Web. It cannot be denied that there was much of merit in the way publishing in the Age of Print, particularly scholarly publishing, provided stability and authenticity to the recorded knowledge and information that was the stuff of reference work. Did any reference librarian ever question the value and authenticity of the knowledge and information contained in, say, an Oxford University Press reference book? In fact, it could be argued that we were, if anything, too unquestioning. No human endeavor is infallible and the very solidity of print made us accept without question almost everything presented in blue cloth covers with gilt trim. Be that as it may, few reference librarians went far wrong in relying on the work done by the publishers, editors, and writers of the OUP, Britannica, Merriam-Webster, and thousands of others. Their one flaw lay in currency. The practicalities of the print publishing industry made the information contained in many reference books and other print sources out
of date (even if only slightly) on the day they were published. There is a great deal of enduring value in the majority of reference books, but in some cases the question of currency looms large.

To get a true flavor of the jam we are in now, compare respectable medical resources such as *Mosby's Medical, Nursing, & Allied Health Dictionary* or *The American Medical Association Encyclopedia of Medicine* with the innumerable sources of medical information and misinformation found on the Internet. The former have every virtue except currency; the latter may have no virtues at all. Reference librarians are rightly wary of being accused of practicing medicine without a license. When it comes to printed sources of high repute, all they have to do is to indicate the sources and mention the date of publication as a possible warning. When it comes to Internet resources, when does encouraging critical thinking tip over into warning people away from sites that are worthless or not what they purport to be? We are dedicated to intellectual freedom and free enquiry, but that dedication may be sorely tested in the inchoate world of the Internet.

*Rationalism*

Reason lies at the heart of all librarian practice and philosophy. It can be said that idealism tempered by pragmatism is the mental hallmark of a true librarian. We yearn to do the right thing, but we also yearn to deliver the best service of which we are capable. Librarians do not espouse ideas built on faith but seek that which can be proved and demonstrated to reasonable people. Reason affects how we assign priorities and carry out our programs and services. It is also the intellectual bedrock of all our specialties, from collection development to cataloging to reference services.

Although human-to-human reference service is based on the exercise of human capabilities and their attendant subjectivities, it too must be governed by reason as far as possible. This has several ramifications. Although the reference interview is a matter of human communication, it can be systematized as far as the librarian is concerned. The reference librarian should always follow certain rational ideas well entrenched in librarianship (such as proceeding from the general to the special, from the class of question to the question itself). In that way it is possible to ensure that what seems to the library user to be merely a helpful conversation is, in reality, a rational path to an answer. Another aspect of reference service that is subject to rational analysis involves the sources used to provide answers. We have already looked at print (with its attributes of fixity and authenticity) compared with electronic resources (with currency as their strong point). The rational approach is to use each in areas in which they are strong and to understand and explain the advantages and drawbacks of each. Moreover, an important aspect of modern reference work lies in steering library users (particularly young people) toward appropriate printed resources and to teach them to look upon electronic resources with a critical eye.
One enduring question of reference work involves the classification of types of reference enquiry. There are commonly accepted categories: locational, library policy, data seeking, term paper advising, consultation, etc. The level of expertise required and the time to be taken obviously vary greatly depending on the type of enquiry. The rational approach is to try to ensure that each type of question is answered efficiently, with the minimum expenditure of human resources and time. The simplest situation is that of the small library in which one person answers all questions, reference or otherwise. Larger libraries have the possibility of deploying different kinds of staff to deal with different kinds of reference enquiry and with the general enquiries that are made in all libraries. Few would question the fact that, if possible, purely directional ("Where is the Music Library") and library policy ("How many books can I check out?") enquiries are best dealt with by support staff or even by student assistants. Few would dispute that in-depth reference consultations require librarians trained in reference work. The dispute lies in the middle ground. In a hypothetical world, one could classify and filter incoming enquiries and deflect them to finely defined classes of answerers. This may be intellectually appealing, but it is unrealistic. If possible, it makes sense to siphon off the non-reference questions, but even those are sometimes possible lead-ins to true reference enquiries. "Where are the public terminals?" might lead to "I'm looking for good Web resources on Africa." The sad truth is that such veiled enquiries often come from the people most in need of reference service. Their initial questions may be vague and general because they feel awkward about asking any question at all. Ideally, all enquiries would be addressed to a human being who is sensitive to such issues and willing to seek the questions behind the question and to answer, or refer the user to someone who can.

Another aspect of the rational approach to reference service is assessment. Though there have been many studies of reference service, they tend to concentrate on factual questions and the accuracy of responses to them. This is a narrow, though important, slice of reference service and really goes only to the question of the "information center" role of a library. Certainly, the accuracy of such responses should be assessed, and other common tallies (e.g., the number of questions in pre-set categories) should be collected systematically. There are more difficult areas to assess and they are among the most professional and valuable aspects of reference service. Naturally, they require sophisticated and time-consuming methods that are seen by many as being antithetical to the practical delivery of reference service. In addition, the more complex human interactions they seek to assess have inherent subjective elements that are not readily amenable to assessment. The many difficulties should not deter us from taking the rational approach that demands assessment of all our services in order to justify the funds we spend on them.
Literacy and Learning

Though librarianship is no longer inherently bound up with the love of books (something seen as central to our profession as recently as a generation ago), we are and should be concerned with the ability of people to interact with complex texts. This is not a matter of preferring print to electronic resources (or vice versa), but a recognition of the fact that human knowledge and information is recorded in words, images, and symbols. Although the latter two are of great importance to a minority of scholars (art historians, mathematicians, musicians, etc.), honesty compels us to recognize that learning in most disciplines is inextricably linked with the ability to decipher, understand, and learn from complex texts. The medium in which those texts are found and preserved is a question of practical, not philosophical, importance.

Though a distressingly large number of American adults cannot read and write, illiteracy is not the chief enemy of learning in modern society. The enemies are the low level of functional literacy and the rise of aliteracy, particularly among the young. People who can read but choose not to are as shrouded in the darkness of ignorance as the truly illiterate.

All librarians have an interest in encouraging literacy. Reference librarians can empower individuals by steering them to classes of material beyond the exigencies of the question in hand. In other words, adding value to a reference answer can increase the impulse toward more and more reading. A good reference librarian will not only answer a question accurately but will also suggest other readings in that area or related areas. When it comes to literacy and learning, a reference query can be seen either as a closed loop (a question asked, a question answered, and no more) or as a knock on a door. Opening the door may lead to a lifetime of learning.

Equity of Access

The pervasive cliché, “the digital divide,” grants that some classes of people have greater access to some services than do others. If it were not so sad, it would be almost comic to see the gravity with which our lords and masters tackle a fact apparently previously unknown to them. Although this divide is seen as unique to digital information, those not blinded by the white light of technology recognize that the disabled, the poor, the rural, the aged, the young, members of minorities, and other disadvantaged persons have long had fewer privileges than those who do not belong to any such category. This sad state of affairs is true of health, educational, and public services of all kinds. It is scarcely an exaggeration to say that the bulk of domestic public policy arguments are about the best way to reduce these many societal gaps. Let us be charitable and assume that agitation about “the digital divide” is not motivated by the kind of technophilia that says putting computers into under-funded inner city schools is a panacea. Let us also assume, for the sake of argument, that the digital divide is an issue
to be solved, rather than a symptom of far wider social problems. Given those premises, there is no doubt, that libraries can be front-line agencies in closing the divide, and that reference librarians can assist and train those on the wrong side of the divide.

If you believe, as I do, that the digital divide is simply one manifestation of societal inequities of all kinds and that the goal is equity of access to the whole range of library services, then it is clear that reference service has a vital role to play. To take but one example, is the quality and level of reference service the same in major research libraries and in junior college libraries? Given the inequity of funding between these institutions, the answer is probably no. Do the students in junior colleges need more assistance and training than students in major research institutions? The answer is probably yes. Here is the essential paradox: the service is funded adequately for people who need it the least and funded inadequately for those who need it the most. Middle- to upper-class suburbs have well-stocked, well-staffed libraries; the inner city has only the library service that can be obtained by dedication and battling against all the economic and societal odds. Good reference service should not be a matter of socioeconomic class. That is why it is vitally important that reference service be provided to all, and that reference librarians seek to provide that service as equitably as possible.

Innumerable issues come to mind in this context. Is the furniture of, and the equipment in, the reference area conducive to its use by the disabled? Do students receive the same level of reference service as faculty? Do the physical arrangements of the reference area induce shy, comparatively uneducated people to ask questions without fear of embarrassment? Such questions must be asked often (and from the user’s point of view) if the goal is equitable reference service.

It is here that the underlying altruism of most librarians comes into play and that one of the benign effects of technology is felt. That effect is the leveling of access to electronic resources. The users of Yale University Library have access to print and other tangible collections of untold richness. The users of a junior college in a small town in central California are lucky if they have access to one-hundredth of those resources. The difference between the number and range of electronic resources (and assistance in their use) available to these two groups is probably still great, though orders of magnitude less than with "traditional" resources.

Another way in which technology can be used to lessen the inequities in provision of reference services is in such programs as e-mail reference, "live" (i.e., remote electronic synchronous) reference, and other ways of reaching remote users. (It should be noted that the best of these is the use of the telephone—the most advanced and the most widely available network in human history.) As observed previously, none of these methods is as effective as human-to-human reference, but they are far better than no
reference service for the rural, the home bound, or other such seekers of knowledge and information.

Privacy

Few fundamental rights are more under siege than privacy. Global networks and the increasing involvement of technology in all aspects of life have led us to a situation in which only our unexpressed thoughts are truly private. All expressions, all actions can be made public without our consent. There is no guarantee of privacy in e-mail (the most widely used application of electronic technology), but many believe that sending an e-mail is the equivalent of mailing a letter. Telephone calls are monitored and tapped. Video cameras record all actions in public places in the name of security. The U.S. Supreme Court has even approved the use of infrared and heat photography to spy on people in their own homes. Inquisitor Kenneth Starr was allowed to poke into the book-purchasing habits of one of his victims, and only a few brave booksellers and civil libertarians spoke against this egregious invasion of privacy. In such a climate, the insistence by librarians on privacy might seem positively old-fashioned, but it still matters, in principle and in practice. We believe that people are entitled to read and view what they wish without others knowing what they have read or viewed. For that reason we ensure that circulation records are not revealed to others, and that libraries are furnished with places in which people can read, view videos, and listen to sound recordings in privacy. (The aberration is the way we make computer screens visible to the casual passerby—partly for aesthetic reasons, and partly because we do not trust people’s use of such a “hot” medium. Small hand-held computers linked to wireless networks may well be the instrument that restores privacy in the electronic arena.)

Users of reference services are entitled to privacy. This presents a practical problem. Most libraries seek to make reference areas open and welcoming, but those virtues are inimical to privacy. This can be a real problem in dealing with “sensitive” subjects or with shy, easily intimidated library users. The latter might well ask a question if assured that only the reference librarian would hear the question and answer. Because there is no formula for dealing with this issue, we must rely on experience and tact on the part of skilled reference librarians. Tactics include a low voice, appropriate body language, walking away from the desk with the library user, positioning screens so that only that user can see the result of a search, writing (rather than saying) the name of a source, and many other methods that fit the individual situation. This all centers on respect for the user’s right to privacy, and it requires the kind of tact and understanding that can be developed but never taught. The ideal of the librarian as sympathetic friend, first advanced by Samuel Green 125 years ago, is still relevant in an age in which we are told, “There is no privacy. Get over it.”
Democracy

Libraries are supremely democratic institutions. They stand for freedom, equality, and the rights of humankind. The idea that democracy depends on a well-informed electorate may be a truism, but it is true for all that. Libraries are in the vanguard of institutions that support democracy by providing the recorded knowledge and information upon which democracy depends. In a wider sense, democracy depends on education, and libraries are integral to education. We should always remember the words of that tough-minded thinker H. G. Wells: “Human history becomes more and more a race between education and catastrophe.” When Wells wrote those words, more than half a century ago, the catastrophe he foresaw was physical—the destruction of civilization through wars (especially nuclear wars) created by ignorance. Though much of the world is still threatened physically—by war, famine, flood, drought, AIDS, and overpopulation—the catastrophe we should seek to avert in the developed world is cultural and societal. We are far less threatened by the thermonuclear technology of death, and far more threatened by the sedative technology of infotainment and the consequent flight from learning. Another of Wells’s visions tells us of a world in the far distant future in which society is divided into the mass of degraded ignorant toilers called Morlocks and their decadent rulers, the Eloi. The time machine obviously projects his take on the state of late 19th century capitalist society, but it is not too hard to extrapolate present trends into a society of ignorant Morlocks, subservient to vulgar diversion and materialism, ruled by educated Eloi.

Reference service is key to the library’s struggle to improve democracy and to bring knowledge and information (free of specific charge and free of value judgments) to all who ask. If, in this representative democracy, the people (demos) are to show good judgment in electing their representatives, they must be educated and have access to recorded knowledge and information. They are unlikely to have the latter without the sympathetic guidance that reference librarians supply and the critical thinking that is fostered by the higher levels of library instruction. Can anyone imagine a better illustration of democracy in action than this: a student from a disadvantaged background—the child of migrant farm workers who never graduated from high school—goes into a state-supported library, confident that someone with an advanced degree will assist her in her life-changing pursuit of education, without charge, without prejudice, and without constraint.

A Few Thoughts on Library Instruction

Time was when what we called “bibliographic instruction” was largely an exercise in damage control. The creaking bibliographic architecture of the period—typified by the huge card catalogs of research libraries—made it impossible for even the most informed student to find her way around the library. Library instruction changed for the better as card catalogs were
replaced by OPACs, cataloging rules were rationalized, MARC was intro-
duced, computers became commonplace, and electronic resources became
ever more numerous. Instruction was still concerned with understanding
the bibliographic architecture of the library, but in a more user-friendly
environment. It also became concerned with elementary computer instruc-
tion and with critical thinking. (Contrary to popular myth, the young are
not all "computer literate"—whatever that means—and today’s students are
not all young.) This trinity of 1) elementary computer and library biblio-
graphic instruction, 2) information competence (for both "traditional" and
electronic resources), and 3) critical thinking make today’s library instruc-
tion an essential part of the general-education curriculum. If students have
the benefit of such a program in their first year of higher education, they
will have a solid platform for the rest of their studies. They will possess the
ability to profit from continuing human-to-human reference services, and
the lifelong power to control their lives through knowledge and informa-
tion.

IN CONCLUSION

We must examine and affirm the core values of our profession if we are
to flourish in a time of change and maintain the ethic of service to individ-
uals and society. In particular, we must maintain the vital human-to-human
component that typifies reference service across our history. This is an age
in which human values are under strain; human contact and sympathy
become more prized as they become rarer. Let us always have an open door
and give to all the fruits of our skills, our experience, and our willing hearts.

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What Is the Best Model of Reference Service?

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ABSTRACT

Reference service is based upon a set of core functions that have remained valid since the earliest days of the public library movement. Inherent in those functions is a set of core values, including accuracy, thoroughness, timeliness, authority, instruction, access, individualization, and knowledge. Models of reference service that emphasize different aspects of those values take very different forms. In determining the best model for a specific library, the values of the community that the library serves must be taken into account. No one model is best for all libraries.

For anyone using libraries today, reference service is a standard feature. Regardless of the type of library, the size of its collections, or the demographics of its users, patrons expect to get help with everything from complex research projects to finding materials in the collections. Service has become almost synonymous with libraries.

This was not always the case. Reference service is a relatively recent development in library history, and the methods in which reference services are provided are still evolving. Administrators and reference librarians alike struggle to develop the most efficient and effective means of providing reference service to their users. During a time when change seems to be the only constant, librarians are seeking new models for providing service to their users.

Beginning around 1980, a number of innovative methods for providing reference service began to be created and promoted in the literature. From the Rethinking Reference project (Rettig, 1992) to the Brandeis model of tiered reference service (Massey-Burzio, 1992) to 24/7 online call-
center-based electronic information services (Coffman, 1999), each new method has been promoted as the next revolution in the provision of service. Those who create these methods are often lauded for their innovations; while at the same time, those who retain older models often worry that they are becoming marginalized and outdated. Predictions of the demise of libraries in general—and of reference services in particular (Campbell, 1992)—have left many reference librarians wondering what the future holds in store. Some wonder if reference has a future at all.

Many see the values that attracted them to the field of reference as slipping away in a sea of electrons. Newly hired reference librarians often reinforce this perception as they show clear preferences for the Internet and databases over traditional reference works and the library catalog. At a time when fear seems to be replacing faith as one of the prime motivating factors among reference librarians, we need to reexamine the foundation of what we do and identify the core values inherent in reference services. By viewing change within those values, we can better understand how new models of service can enhance—or hinder—the provision of reference service.

Libraries and Community

With very few exceptions, libraries are not independent organizations. Virtually every library serves a broader institution and is directly responsible to that institution. Public libraries serve the people living within specific geographic and political boundaries—most commonly a city or county. School libraries serve the students of a specific school or district. Academic libraries serve the students and faculty of a specific college or university. Special libraries serve the staff of a specific company, government agency, or organization. In each case, to be effective the library must meet the unique information and service needs of its own community. Expectations for information and service needs vary greatly from one community to another (even for the same kind of library), but the role of each library is to meet particular expectations of its own community. Although the function of a corporate library may appear to be very different from that of a public library, each serves as the information center for its own clientele.

In order to survive, the library must develop a symbiotic relationship with its parent community. Successful libraries serve their community and are rewarded for that service. The community benefits from the information and services provided by the library; the library benefits from receiving a strong political, economic, and cultural status. Both community and library grow and evolve together. A community that neglects its library will need to develop other means for satisfying its informational needs—or go without. If the library fails to provide useful information and services, the community will turn elsewhere for those functions. In each of these cases, the library will wither and die—and the community will also suffer.

Although libraries are highly complex organizations, their activities can
be boiled down to three distinct functions. First, libraries select and collect information relevant to their community. Historically, this selection process has been the heart of what libraries do. Librarians sort through the universe of available information and bring together the portion that is most relevant to the parent institution. To be successful, librarians must know the needs of their community and reflect those needs in the library's collection. From ancient times, libraries have identified and collected information of value to their community.

The second function of the library is to organize the information within its collections. This process is not purely an intellectual exercise, but a necessity that enables librarians and patrons to locate needed information when it is needed. When a library consisted of a single shelf of books, it was relatively easy to browse through the titles to find the one or two pertinent sources. When the collection began to fill a room, indexes and catalogs were developed to guide users. When parts of the library became digital, new tools and organizational skills were needed. As the library became larger, more sophisticated organizational tools were developed, from cataloging rules to controlled vocabularies to MARC records. Each tool was designed to be more efficient and effective in guiding users to information. Regardless of how an individual library is organized, the fact that it is organized adds value to the information contained within its collections.

The final, and most recent, function of the library is to provide direct information services to members of the community. As libraries became larger, even the organizational tools developed by librarians were not sufficient to help patrons find the specific information that they needed. When members of the community required help, they turned to the most knowledgeable resource—the librarian. As faithful servants of the community, librarians took on the new responsibility of helping users find what they needed. This is what we now call reference service.

The Birth of Reference Service

Reference service as we know it today is a direct outgrowth of the nineteenth-century American public education movement (Garrison, 1979). Before universal public education, the vast majority of the American public was illiterate; libraries only benefited the elite minority. Before the 1850s, libraries were limited to colleges, government, and subscription libraries that served small segments of the entire community. During the late nineteenth century, the relationship of the library to the community changed significantly.

The primary goal of the public education movement was to produce a literate working class. Employers felt that having a literate workforce would be more productive on the job; but literacy would also create a better society for those employees off the job. One direct consequence of the public education movement was the development of true “public” libraries. Un-
like subscription libraries, which were open only to paying members, the new public libraries were available to everyone. Communities that established public libraries were often surprised at how well they were received. Not only did the elite patronize the library, but many of the formerly disenfranchised working class took advantage of their new education. There was only one problem—they did not know how to use the library. Thus reference service was developed to solve that problem.

The beginning of reference service is generally attributed to Samuel Swett Green, who in 1876 published the first article on helping patrons use the library. While it is doubtful that Green actually invented the idea of reference service for library users, he was the first to speak publicly about the concept and was the first to discuss it in writing. In both his speech to the first meeting of the American Library Association and his *Library Journal* article, Green discussed the need for librarians actively to assist members of their communities in using library resources. While the term “reference” did not evolve until several decades later (Rothstein, 1953), the publication of Green’s article helped to popularize the new concept of reference service. That patrons appreciated such service is evident from the fact that virtually all modern libraries still offer some version of “personal relations between librarians and readers.”

**Components of Reference Service**

In his seminal article Green (1876) introduced four prime functions for the reference librarian. These functions remain the basic components of reference service today. Briefly stated, the reference librarian:

- Instructs patrons how to use the library
- Answers patron queries
- Aids the patron in selecting resources
- Promotes the library within the community.

The first function came about as a direct result of public education. The newly educated members of the community wanted to gain access to the information resources of the library, but had no idea how a library was organized or functioned. Teaching the community to use the library became an extension of the overall education process.

As community members used the library, they often wanted information about specific topics. Naturally, they turned to the librarian for expert assistance. By applying knowledge of the library and its organizational tools, the librarian was frequently able to find that information. Over time, the reference librarian as question-answerer was born. For many library users, this remains the most visible image of the reference librarian today.

However, not every patron came to the library looking for specific factual information. Many came simply wanting something to read—and, after reading one work, they often wanted to read something similar. In the
early days, the librarian was charged with leading readers to the “good works”—those that emphasized the benefits of honesty, hard work, and strong moral character. As times and tastes changed, this guidance process evolved into the Reader’s Advisory services that we know today.

Finally, Green saw that the library had to demonstrate its value to its parent community. The best way to do this was for the librarian to be highly visible and to become an integral part of the research process. Providing direct service to users would lead those users to appreciate, and by extension to support, the library. Green advocated having the librarian mingle freely with users. While the simple act of mixing with patrons has evolved into today’s polished outreach and marketing campaigns, the idea remains the same—to make the library prominent in the minds of its community members.

Many changes have taken place since the publication of that first article. Samuel Rothstein (1955) detailed the growth and development of reference service from the earliest times until the mid-twentieth century. Others have followed changes in reference service through the 1990s (Tyckoson, 1997). Many new models, new tools, and new ideas have been discussed, implemented, and accepted into practice. However, despite all of these changes, the basic functions of reference service have remained essentially constant.

**INHERENT VALUES OF REFERENCE SERVICE**

Each of Green’s four functions of reference service is built upon a set of core service values. Rarely mentioned or studied, these values underlie each of the primary activities of the reference librarian. An examination of the core values of reference service is essential to understanding the basis for defining that service and for understanding the conflicts that arise around it.

The first of Green’s functions involves teaching patrons how to use the library. In more modern terms, we call this “bibliographic instruction” or “information literacy.” The act of instruction carries with it three distinct facets: the subject content being taught; the process of using that information in the research process; and the ability to critically evaluate information. To be successful, the librarian must teach the patron a specific knowledge base (such as the fact that Education books within the Dewey Decimal System are in the 370 call number, or that the ERIC database indexes education journals and reports), the context and process for using that knowledge (the Dewey system divides knowledge into ten discrete categories and like subjects are categorized together in a hierarchical manner; or searching the ERIC database is most effective when using Boolean combinations of controlled language subject descriptors), and the ability to evaluate the information found in the search (this book is out of date or this ED document is directly relevant to my research project). In this respect, the skills
implicit in teaching patrons how to use the library are factual knowledge, understanding the research process, and critical thinking.

Factual knowledge of a different kind is also valued in answering patron queries. In teaching patrons how to use the library, the librarian is transferring knowledge. In answering questions, the librarian is seeking knowledge from the broader world for the patron. In the first example, the librarian knows the process and teaches it to the patron. In the second, neither the patron nor the librarian know the answer in advance; they seek it together. The values associated with answering questions are not related to the process of answering, but to the answer itself.

The most common value associated with answers is accuracy. Regardless of how well the process of a reference query is handled, a wrong answer will almost always result in a poor satisfaction rating by the patron. For precisely this reason, accuracy has been frequently studied as a measure of reference success. Hernon and McClure’s 55% rule (1985) and other similar unobtrusive studies are based solely upon measuring the value of accuracy. These studies have been heavily criticized by reference librarians precisely because accuracy is not the only value associated with answers to patron queries.

Thoroughness is another such factor. An answer may be accurate but incomplete. When working on a question, a reference librarian often keeps searching for a better answer even after finding one or more possible solutions. By consulting additional sources, the librarian is able to verify the accuracy of the initial response and to determine if the answer may have changed in some respect. For example, a question with an apparently simple answer (Who is the U.S. ambassador to the United Nations?) may be found in any of a number of different directories. Depending on when that specific question is asked and when the source was written, the answer may have changed. To be certain that a published answer is accurate, the librarian might check the answer found in a government directory with other sources such as supplements to the original source, Facts on File, or the Internet. Finding an answer is often simple, but verifying that it is completely correct can be very difficult. Because a reference librarian usually cannot continue work on one single question indefinitely (what with other patrons or priorities to attend to), a good professional librarian has an intuitive feel for when to stop working on a question.

Timeliness is another important value. Often patrons need an answer quickly and the reference librarian does not have sufficient time to conduct a thorough investigation of the topic. Some patrons (such as those working on genealogy) may be willing to wait days, weeks, or even months for an answer. Others (such as those who need data for a presentation, paper, or meeting) have a definite time limit, and information delivered after that limit is useless. The first patron wants accurate information regardless of the wait. The second will accept a quick answer even if it is not thoroughly
researched. Accuracy and timeliness are both valued by these patrons, but in much different ways.

Finally, reference librarians value *authority* when answering questions. During the time when most answers came from published reference sources, the authority of the answer was most frequently reflected in the identities of author and publisher. For example, an answer from a newspaper citing an unnamed source was not considered as authoritative as an answer written by a university professor and included in an encyclopedia published by Macmillan. Similarly, an answer found in the *Statistical Abstract* had the authority of the United States Census Bureau behind it, whereas data included without attribution in a magazine article had only the validity of the article’s author. Reference librarians learned which sources and publishers were most likely to produce authoritative material and tended to use those sources to answer patron queries. With the advent of the Internet, it has become very easy to find unauthoritative sources, but finding an answer that is believable can be quite difficult. The value that sets reference librarians apart from other services that answer questions is their dedication to finding authoritative information.

The third function of the reference librarian is what we now call Reader’s Advisory. Public libraries offer reader’s advisory services in order to guide patrons to books that they might like to read. Reader’s advisory services in public libraries are most commonly associated with fiction collections, where patrons read one author or genre and come to the librarian in order to find similar works. For example, a patron who has read works by the author Rita Mae Brown might be referred by the librarian to Lillian Jackson Braun, since both authors involve cats in their mystery novels. Academic librarians do a great deal of reader’s advisory service as well, but they do not usually call it by that name. In academic libraries, reader’s advisory often takes the form of referring students to sources or databases relevant to their research. In academic libraries, the question “Where should I look for information on my topic?” is really a request for reader’s advisory service. The student is seeking not an answer to a specific factual question, but sources that can lead to further information on the topic. As libraries have come to rely more upon electronic databases, the number of reader’s advisory requests has risen dramatically.

The key value involved in reader’s advisory is knowledge: knowledge of the reader; of the literature; and of the collection. A librarian who is good at this service must understand the needs of each patron. The librarian must understand the general interests of the community served by the library and must also relate to the specific needs of each patron. Reading level, language skills, and educational background all factor into good reader’s advisory service. The librarian must also be aware of the universe of sources from which to recommend selections. Most reference librarians are also involved in collection development, and the subject knowledge gained from
building the library collection transfers over to reader's advisory. Finally, the librarian must know the local collection. Suggesting sources that the reader cannot use is not only unhelpful, it is downright irritating. For example, it does little good to suggest that a patron search a database that the library does not offer. It aggravates the user, and it reflects poorly on the library, since the student will inevitably wonder why the library lacks the recommended source. Reader's advisory services depend on librarians who value and understand the relationship of the reader, the literature of the discipline, and the local collection.

The final function of Green's reference librarian is to promote the library within the community. While this function is certainly self-serving, it ensures that the other functions will continue to be available. Without support from the community, the library itself would fail. The implicit assumption is that the librarian is promoting the library on a one-on-one individual basis. According to Green (1876), "One of the best means of making a library popular is to mingle freely with its users and help them in every way" (p. 78). Reference is not something that is packaged and marketed to the masses; rather, it is a service that treats every library patron as an individual with unique needs. The library is promoted because each patron feels that the librarian is working specifically for him or her. For many community members, the library is one of the very few social institutions where they receive such service. Access and individualization are highly valued aspects of reference service.

Although much has changed in society over the past 125 years, these basic values remain at the foundation of reference service. Today's technology allows us to offer information services to anyone in anywhere. We now have more information available than at any other time in human history. Despite these advances, the basic values of reference service are virtually unchanged. The tools with which we work are very different from those in Green's time, but the process in which we are engaged is very similar.

**CONFLICTING VALUES AND MODELS OF SERVICE**

While the individual values upon which reference service is based remain unchanged, the emphasis among those values can vary greatly. Different models of reference service exist because each model emphasizes a different set of basic values. When a model that is based upon one value is evaluated on the basis of another, misunderstanding and conflict arise. Even within a single function of the reference process, such as answering patron questions, values of accuracy, timeliness, thoroughness, and authority are frequently in direct conflict with each other. To guarantee that an answer is thorough and accurate, the librarian may have to compromise on timeliness. For an answer to be timely, the librarian may not be able to guarantee authority or accuracy. The model of reference service chosen by an
institution is an indication of which values are considered most important to the library—and to the community that it serves.

Debates on models of reference service are nothing new. Not long after reference service became common in libraries, a conflict developed between the values inherent in the first two functions—offering instruction and answering factual queries. Some librarians emphasized the instructional aspects, whereas others emphasized question answering. Throughout the twentieth century, librarians debated these two models of service.

This debate has been well documented by Rothstein (1955, pp. 75–79) and is summarized in the *Encyclopedia of Library and Information Science* (Galvin, 1978). The model of service that emphasizes education over information has been termed the "conservative" or "minimum" model, with the ultimate goal being to train patrons to use the library independently. The process of finding information is valued above the information itself. This model has long been the predominant approach in school and academic libraries, where the mission of the broader institution is clearly educational. Its many variations culminated in the concept of the "teaching library" (Guskin, Stoffle, and Boisse, 1979), in which bibliographic instruction becomes the central role of the entire academic library.

The "liberal" or "maximum" model emphasizes information over process. Under this model, when a patron asks a question, the librarian finds the answer and may even deliver it to the patron. The librarian does not attempt to educate the patron in the process, but puts all of the effort into finding accurate and authoritative information. Proponents of this model believe that libraries are highly complex organizations and that attempting to train all patrons in the skills necessary to navigate this organization is impossible. Rather than spending time and effort to create independent library users, the librarian serves as a subject expert who is to find and analyze the information in the collection. Used heavily in corporate and government libraries (where the librarian is viewed more as a research colleague than as a teacher), this model places a high value on accuracy, thoroughness, timeliness, and authority.

Obviously, neither of these extremes is the "right" model for all reference departments. In fact, most libraries offer services that fall between these two extremes. Reference librarians tend to value both the teaching aspects of reference work and their ability to answer specific questions. Both models can even exist simultaneously within the same institution. Some large universities have general, undergraduate-oriented libraries that emphasize the teaching side of reference work, and small, discipline-oriented departmental libraries that emphasize factual knowledge. Even within the same reference department, librarians may practice one model with one group of users and another model with a different group. In some libraries, it is standard policy to show students how to conduct research (the
conservative/minimum model) while librarians will actually conduct extensive searches for faculty (the liberal/maximum model). Departmental guidelines on how much work to do for any given patron or how much time to spend with a single user stand as attempts by reference librarians to regulate the relative strengths of these two opposing viewpoints.

**Technology and Change**

While technology is not the only factor that has changed in libraries, it is most certainly a driving force. In an interview published shortly before his death in 1985, Hugh Atkinson (Alley, 1985) predicted that technology would spark a revolution in reference service by the end of the twentieth century. His prediction came true, as reference librarians explored and adopted an ever-growing number of innovations for providing information content and delivery. Before the mid-1980s, information technology had been applied primarily to the technical and organizational sides of the library, mostly to develop large centralized catalogs and databases. As the power of computing became more decentralized and universally available, librarians used it to enhance the service models of the past.

In most reference departments, the first encounter with information technology was through mediated online database services such as Dialog and BRS. Such services became widely available in the mid-1970s through the mid-1980s. Since most libraries were unable to absorb the costs associated with this kind of database searching, patrons usually paid for some or all of the direct costs. Although the librarian worked with the patron to develop search strategies and review results, it was the librarian who understood the process and who had access to the technology. To reduce costs, the librarian actually did the work while the patron observed the process. In many ways, the economics of mediated searching dictated that librarians follow the liberal/maximum model of reference service.

From the mid-1980s to the mid-1990s, there followed a period of unmediated searching of some of those same databases on CD-ROM. Librarians purchased databases that members of their community could use; while the librarian still controlled the possible sources, it was up to the patron to perform the search and evaluate the results. Since the cost of the database did not depend on usage, a library could purchase the database and make it available to all community members at no charge. Not surprisingly, the total number of database searches rose dramatically. The librarian’s role shifted from that of performing the search to that of teaching patrons how to do their own searches. The model of service shifted along with this change in technology, from the liberal/maximum model toward the conservative/minimum model.

What neither Atkinson nor any other visionary could predict was that information technology would be directly adopted by library users in their homes and offices. With the advent of the Internet in the 1990s, the public
gained the ability to find information virtually anywhere. Information that once would have required retrieval by a reference librarian was now in the hands of anyone with a computer and a phone line.

As information technology became available in the household, new predictions began to emerge. Some said that the reference librarian—indeed, the entire library—would no longer be needed. Others felt that the new technology required a new means of delivering reference services, especially for those patrons who were not physically present in the library. These predictions often cited the declining statistics of reference use in libraries of all kinds in all areas of the nation. A variety of new models of reference and library service were proposed and touted as the way of the future. In addition, a number of commercial information services and dot.com companies attempted to take on some roles formerly reserved for the reference librarians. In a matter of a few short years, there arose a feeling that reference librarians had lost control over their chosen profession (Tyckoson, 1999).

**New Models, Old Values**

The key to understanding and evaluating the new models of reference service is to examine them in light of the traditional values. The new models of reference service do not dismiss the traditional values; they simply emphasize different combinations or aspects of those values. The most effective way of evaluating a new model of reference is to compare the values associated with that model to those of the community that the model is designed to serve. Some examples of this analysis follow.

*Traditional Reference Model*

The traditional reference service is closest to the liberal/maximum model. In the traditional model, the reference librarian works at a desk or counter and handles all types of queries, from directional questions to in-depth research. The role of the librarian is primarily to answer patron questions and secondarily to provide reader’s advisory services. Patrons receive individual attention and service, although they may have to wait in line when the library is busy. The traditional model of reference service emphasizes the values of personal service, access to information, knowledge of the discipline and collections, accuracy, and timeliness. Traditional service deemphasizes the values of instruction and thoroughness.

*The Teaching-Library Model*

The teaching-library model represents the extreme opposite of the traditional model and is a primary example of the conservative/minimum approach. The role of the librarian is not to answer questions, but to provide instruction in the research process. Reference librarians working under this model often work with patrons in groups in classroom settings rather than individually at a reference desk. Patrons do not approach the
librarian when they have an information need, but are introduced to the
librarian before such a need arises. The teaching-library model highly val-
ues all of the educational aspects of librarianship, including factual knowl-
dge, the research process, and critical thinking. This model also values
authority and thoroughness over accuracy and timeliness. Personal ser-
vice is not as important as in the traditional model. Knowledge of the dis-
cipline and collection is also considered subordinate to knowledge of the
research process.

**Tiered Reference Services**

In tiered reference services, different librarians or staff answer differ-
ent kinds of questions. Initially made popular as the Brandeis model of
reference service, tiered reference has subsequently developed several dif-
f erent variations. Their common feature is that support staff or students
answer the majority of the simple queries and that reference librarians are
reserved for answering in-depth research questions. In some cases patrons
are required to make appointments for research consultations, whereas in
others they are simply referred to a different desk or area of the library. One
of the primary goals of tiered-reference service is to allow reference librar-
ians to make better use of their subject and research skills.

Tiered-reference service places very high value on a librarian's knowl-
dge of the discipline and of the collection. Since its primary goal is to allow
librarians to spend more time with patrons, this model also values accuracy,
authority, and thoroughness. Tiered reference also values personal assistance,
but places less value on access and timeliness. It is more difficult to reach a
librarian, so patrons who need answers quickly may not take advantage of
the benefits. Tiered service does not place a high value on the educational
aspects of reference service, although those patrons who receive in-depth ser-
vice may also receive personal instruction in the research process.

**Virtual Reference Services**

One of the more recent models of reference service is the virtual ref-
ence desk or online reference service. These services are designed to help
patrons using technology—especially when those patrons are not physically
within the library. Using email, chat, and call-center-based software, librar-
ians help patrons in real time over computer networks. Virtual reference
is advertised as being able to reach patrons at any time of day or night at
any location in the world. As such, virtual reference service places the high-
est value on access, accuracy, and timeliness. Virtual reference also values
personal service, although without having the librarian and patron meet
in person. Values associated with the educational and reader's advisory
aspects of reference service are not as important in virtual reference ser-
vice, since the focus is usually on providing answers rather than instruct-
ing users. Interestingly, some commercial information services that provide
virtual reference service confuse reader's advisory with answers to queries.
Instead of providing information in response to a patron question, they recommend sources (usually web pages). These services often end up disappointing and confusing their customers, who generally expect the quality of service provided by library reference departments.

**THE “RIGHT” MODEL OF REFERENCE SERVICE**

Each model mentioned above is based upon the same set of core service values, but each emphasizes a different subset of those values. For any model to be successful, there is one value that must be emphasized above all others: knowledge of the community that the library serves. A library staff that understands its users and their needs will develop a service model that best supports those needs. Models that work well in one library will not necessarily apply to another that serves a different type of community. For example, a library serving a high school in which every student is given a laptop and an Internet account may wish to set up a virtual reference desk to support homework and after-school programs. However, this model would not be appropriate for a public library serving a low-income community where few families have computers at home. Similarly, a teaching-library model may work very well in an undergraduate liberal arts environment, but it would be totally out of place for a corporate library.

No single model of reference service applies to all libraries. Many new models have been proposed over the past two decades, and many others will be proposed in the future. These models receive attention in the professional literature precisely because they are innovative. However, the fact that they receive attention does not imply that they must be adopted. The needs of the community must remain foremost in the minds of reference librarians, who should not feel pressured to change models of service simply for the sake of change. Just as CD-ROM replaced mediated searching and the Internet is replacing CD-ROM, good new ideas will continue to be incorporated into the mix of library services. Traditional reference service remains the predominant model in libraries today not because reference librarians lack initiative or are stubborn or resist change, but simply because that model still meets the needs of many communities that libraries serve.

Each model of reference service should be measured against its ability to support the values upon which it is based. A model that emphasizes instruction should not be criticized for failing to provide accurate, thorough, and timely answers to patrons’ questions. Conversely, a model that values factual information should not be criticized for failing to teach the research process. Most important, any model should be measured against community values. As new models are proposed, librarians should study those models to determine if they offer advantages over existing systems. Over time, communities change, libraries change, and models of reference service change. Determining the best model of service for an individual library should be a process of evolution, not revolution.
REFERENCES
Faculty Relevance Criteria: Internalized User Needs

LYNN WESTBROOK

ABSTRACT
Reference librarians, online searchers, system designers, and other information professionals work to incorporate user-based relevance criteria into information services and systems. Genuinely utilizing the relevance criteria that patrons employ requires, as a first step, the development of an in-depth understanding of those criteria. This study progresses toward that understanding by providing new data on the criteria used by members of a rarely studied interdisciplinary population and by developing a user-centered methodology. Each of five Women's Studies faculty members was interviewed concerning her immediate reactions to different resources provided in direct response to real, on-going information needs. The criteria identified by this approach went beyond topicality, currency, and other basic aspects of relevance criteria to include elements such as interdisciplinarity and theoretical perspective.

INTRODUCTION
The concept of relevance remains central to library and information studies work, the gold standard by which services and systems are judged. Those that put relevant information into patrons' hands succeed; all others fail to some extent. The practical aspects of relevance work may be loosely divided into two approaches, system-centered and user-centered. The system-centered approach seeks to develop the competence of an external agency (such as a database or search engine) that can recognize relevant information by its similarities to the semantic representation of an information need. A series of OPAC searches, for example, should retrieve rel-

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Relevant items on the basis of semantic clues in the search statement (e.g., words used, context of word use, and word relationships) by placing them in relationship to the document representation (i.e., the cataloging record). The system-centered work builds on an assumption that the information embodied in a document or its surrogate can be objectively, if somewhat imprecisely, matched to the actual information need as articulated in a structured query (Mizzaro, 1997, p. 812). This approach leads to developments in document representation and information retrieval (e.g., Saracevic, 1969; Bookstein, 1979; Janes, 1991).

The user-centered approach to relevance work holds that such a complex, highly personalized array of factors comprise relevance for a single individual in a certain situation at any given point in time—that no outsider can accurately judge relevance. Reference librarians often observe this phenomenon in action when users reject a number of “relevant” items in favor of what appears to be an irrelevant item. This user-centered approach leads to a taxonomy of user-generated criteria and an enhanced understanding of the elements involved in making relevance judgments (e.g., Cool, Belkin, & Kantor, 1993; Park, 1993; Barry, 1994). Reference librarians who understand the full range of possible relevance criteria can effectively serve their patrons. Both approaches strengthen the effort to link individuals with the information they need.

RESEARCH QUESTION

Contributing to the user-centered approach, this study seeks to identify and describe the criteria that members of one population (faculty teaching Women’s Studies courses) apply to information provided, at their request, to assist them in meeting one type of information need (a single curriculum-development project). What range of criteria is possible? This study characterizes and classes the factors pertinent to this sample of this user group in this setting.

Since so little research has been conducted on the criteria used by interdisciplinary scholars, and since nothing at all has been done on Women’s Studies faculty, no hypothesis is yet ready for testing; therefore this is an exploratory study. While no generalizations are claimed on the basis of these data, a range of criteria have been identified and delineated. Finally, some tentative explanations are proposed for the consideration of reference librarians, Women’s Studies faculty, and Library and Information Studies scholars.

DATA-GATHERING METHODOLOGY

In this study, the relevance definition centered on “utility” (see Regazzi, 1988). As in natural information-seeking situations, participants made their own determinations regarding the effort worth expending on each item. In this endeavor to understand what makes information appear valuable, useful, worth some effort to obtain, or simply “good to know about,” it was
critical that the methodological approach focus on actual needs of the participants. A qualitative approach was employed, using an unstructured interview as the primary data-gathering technique and content analysis as the primary data-analysis technique.

For the purposes of this small-scale exploratory study the population was defined as faculty (tenure-track and lecturers, but not teaching assistants) who were actively interested or engaged in a curriculum development project for a course offered or cross-listed by the Women's Studies program of a large midwestern university. As Women's Studies is a highly interdisciplinary field, the two participant-recruitment methods were designed to maximize representation of this diversity. First, the researcher personally invited three faculty members whose teaching areas represented varied information needs: an international social policy perspective, a medical science perspective, and a fine arts perspective. Second, an electronic notice soliciting participation was sent to the Women's Studies chair, who forwarded it with her recommendation to all twenty-three members of the Women's Studies faculty. Two more participants responded electronically and, after brief telephone conversations, elected to join the study. Their information needs represented racial, historical, and lesbian studies perspectives.

Demographic variables were not sought from participants on the grounds that the sample was far too small to provide meaningful information. It is worth noting, however, that Joanna Lewis is African American and probably the youngest participant; Kate Jacobs and Frankie Taylor are a generation older than the others; Jo Lawler is probably not American, given her accent; and Margaret Goodman had a child in daycare at the time of this study, a fact which may have heightened her interest in her area of study. (All participant names are pseudonyms.)

After each participant signed her consent form, an initial interview was scheduled in order to develop as full an understanding as possible of her information needs. The interviews were, with the permission of the participants, taped. Complete transcriptions of these tapes provided some data.

Participants were asked to explain the course and what they needed for it as if they were talking to a research assistant (RA) who would then go out and find the information for them. (While Lewis had not yet had an RA, the others were accustomed to that relationship. Without exception each participant explicitly stated that the researcher was viewed as an experienced librarian, and not as an RA, in that the need was explained in greater depth than it would be for an RA.) As they explained what was needed, probing and clarifying questions were used to elicit additional detail. When nothing more was forthcoming, the researcher asked follow-up questions on the basic points commonly covered in an extensive reference interview; e.g., geographical limitations, language, and preferred information format. In addition, the participants were questioned about their preferences regarding the format of the research results; e.g., printouts of citations alone or citations with
search terms. Finally, they were asked to specify their preference for the format of the meeting at which the search results would be presented to them. They were asked to work in the way they found most comfortable and typical, so long as it allowed face-to-face interaction at some point. Four of the five wanted to review searches with their RAs in person and the fifth was willing to do so. For all five participants computer printouts were quite acceptable. No firm limitations as to the number of cites were set.

In this interview the details of the verbal contract between participant and researcher were firmly established. The faculty were to state a real information need and to offer informal verbal feedback on the results of the searches done for them. The researcher was to provide the best possible search results and was allowed to include items about which there was a sincere question as to relevance. No set number of interviews was requested; the determining factor would be the extent of the participants' interest in continuing to review the information gathered in response to their stated needs.

Based on the understanding developed in the initial interview, the information search was conducted as soon as possible. A variety of resources (print, CD, and online) were used in an effort to find whatever would best meet the need. (Web sites were not of interest to any of the participants at the time of this study; given the rapid growth of sites in Women's Studies, however, that preference may well have changed.) Common tools included: the university online catalog, several Wilson indexes, Dissertation Abstracts International on CD-ROM, and the Social Science Citation Index on CD-ROM. Resulting citations were printed out with abstracts whenever possible. Pages from reference books were photocopied. The final pool of results was then grouped into a single stack with each separate citation numbered. (Dr. Jacobs eventually requested that certain information be created for her, such as lists of United Nations agencies and the most useful OPAC subject headings. Each of these lists was counted as a single item.) The results were given to the participant at each interview with no copy kept by the researcher. Since the purpose was to understand the breadth and range of their reactions, there was no need to record reactions to specific items. Over 1,000 items were presented to the five participants during the course of the study, as indicated in Table 1.

Table 1: Number of Cites per Interview

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lewis</td>
<td>114</td>
<td>89</td>
<td>80</td>
<td>—</td>
<td>283</td>
</tr>
<tr>
<td>Jacobs</td>
<td>52</td>
<td>9</td>
<td>16</td>
<td>5</td>
<td>82</td>
</tr>
<tr>
<td>Lawler</td>
<td>55</td>
<td>67</td>
<td>58</td>
<td>2</td>
<td>182</td>
</tr>
<tr>
<td>Goodman</td>
<td>150</td>
<td>125</td>
<td>—</td>
<td>—</td>
<td>275</td>
</tr>
<tr>
<td>Taylor</td>
<td>65</td>
<td>34</td>
<td>63</td>
<td>91</td>
<td>253</td>
</tr>
<tr>
<td>Totals</td>
<td>436</td>
<td>324</td>
<td>217</td>
<td>98</td>
<td>1075</td>
</tr>
</tbody>
</table>
After the searches were completed, reaction interviews were held by appointment. None of them had a preset length; the time needed for reviewing and discussing the results was always available.

The structure for each interview was the same. First, the search result sets were presented, with a sentence or two to describe the range of sources consulted. The participant would usually choose to begin the interview right away. (Occasionally a general, silent skimming of the items was done first; in one case the entire list was reviewed carefully before beginning.) Second, the participant would, with pen in hand, go through the list item by item. In addition to audio-taping, the researcher took written notes of reactions to the information and asked questions to clarify responses as needed while the participant made notes according to her personal system. Third, as contradictions seemed to arise between one reaction and another, the researcher stopped the review of results, when possible, just long enough to ask for a clarification. Fourth, as new, expanded, or more specific aspects of the need were expressed, the researcher took note of them. Finally, the researcher verbally summarized what was still needed and offered new hints regarding what was not wanted. The summary was posed as a question so that the participant was encouraged to augment, explain, or correct any part of it.

Throughout these interviews a great effort was made to encourage participants to feel comfortable about and to fully express their negative reactions. Since there might be a natural tendency to respond positively to the sheer effort made on their behalf, an emphasis was placed on the great value of negative reactions. Thus, criteria relating to both what was to be sought (e.g., authoritative works) and what was to be avoided (e.g., case studies) were identified.

Finally, member-checking interviews were held after the initial data analysis was complete. Each participant was contacted as soon as possible after the last reaction interview to set up a final, brief meeting. At that time they were given a copy of the summary notes on the general characteristics of their information criteria. They were given an opportunity to provide feedback and further information on their criteria as understood by the researcher.

**Data Analysis**

For each participant, the coding of the initial interview was completed before the first reaction interview took place. Using the constant comparison method of coding (Glaser, 1965), the transcript of the interview tape was reviewed phrase by phrase. Starting without preconceived categories, the researcher identified and eventually defined the categories into which selected phrases fell. Working through successive interviews and concentrating only on those phrases that described the information need and criteria, the researcher grouped similar items. When new categories were
formed, everything that had already been coded was reviewed again, to
insure that nothing had been left out. Throughout this reiterative process,
categories were formed, reformed, split, and combined until a final set of
codes became consistently useful. At this point the final definitions were
written and final checks made to confirm complete, accurate, and consis-
tent coding.

**Trustworthiness and Validity Checks**

The primary validity check of the data gathering was the member-
checking interview, designed to identify missed or misinterpreted data. Each
participant agreed that the criteria identified were in use, that none was
missing, and that none had been misidentified. They noted that the exact
same criteria would not apply to all of their curricular work, but that sever-
al elements were stable. Each participant mentioned keeping the criteria
list handy as a means of helping future RAs to understand their informa-
tion needs.

The primary validity check in the data analysis involved recoding. Ran-
dom sections of each interview were moved to a clean file and recoded using
the established categories. Coding decisions matched with a 90% accuracy
rate, and no new categories were formed. Only after this level of accuracy
has been reached did the final analysis take place.

**Findings**

The coded material broke down into five groups. One group of codes
included established relevance components that are commonly covered in
indexing schemes; another included established components not common-
ly covered. A third included relatively unexplored relevance criteria. The
final two groups concerned items related to the decision-making process
and items related to the research study itself. While all of this material is of
interest, the first three groups are of particular importance.

Seven relevance components appeared quickly, as expected. These
common elements are already covered in most indexing schemes: topic,
subtopic, currency, geographical parameters, temporal parameters, lan-
guage, and length. Long acknowledged as patterns in classification and
indexing schemes, these elements also appear in the literature of online
and reference interview search strategies.

The second group of codes concerned relevance criteria that are com-
monly acknowledged in the reference interview but problematic in index-
ing schemes. This group includes the amount of material needed, its avail-
ability, the citation format, the primary or secondary nature of the material,
and its general quality. These items differ in nature; the first one (amount
of material needed) applies to the search as a whole, while all of the oth-
ers apply to a single item. Availability is sometimes indicated on various
systems, but nothing is accurate at the shelf level. Citation format is increas-
ingly flexible but still far from standardized. Primary and secondary materials are sometimes indicated by terms such as "diaries" or "essays," but they too are not represented fully. Of course, some people determine information quality by examining source (e.g., the title of a refereed journal), publisher (e.g., a university press), or author (e.g., a known expert). Quality as a characteristic is not, of course, objectively determined and is not, therefore, likely to be incorporated into an indexing scheme.

In addition to these expected elements of relevance, another group of criteria emerged. These twelve criteria are not universally acknowledged in either system design (e.g., classification schemes and subject terminology) or system interface (e.g., reference interviews and search strategies). They are, however, in regular use by the participants in this case study and divide into three groups: those that are internal to the participant, those that develop from the teaching focus, and those that characterize information.

The purely internal tie directly to the life experience and personal perspective of the participant and are, therefore, difficult to recognize and predict. The four criteria grouped in this area are curiosity, personal interest, redundancy, and personal knowledge.

On rare occasions, an item piqued the curiosity of individuals without particular reference to the immediate issue at hand. Dr. Lawler, for example, noted that an author had made the TV talk-show circuit with a book; she wanted to see it just to find out "why it's so popular," even though she would not otherwise have been interested enough to pursue it (Interview 2). All of her other relevance criteria would have called for the rejection of that work but curiosity kept it on the list.

Similarly, personal interest in an item might arise out of its use in another setting. The interest could come from work on another course, work on a research project, or something completely private. Dr. Lewis, for example, said, "I need to see that for my own needs" when she was thinking of writing a similar piece and submitting it to that same journal. Her goal was "to see if I'm wasting my time" (Interview 2).

While the first two of these four criteria kept some items in the pool, redundancy excluded items from consideration. Dr. Taylor’s comment regarding redundancy was typical: "This doesn’t tell me anything I don’t already know" (Interview 3). Weeding out duplicates failed to eliminate redundant items, especially for those faculty who had been teaching in an area for some time.

Personal knowledge, however, was a two-edged sword. Personal familiarity with an author, conference, or journal could keep an item in or out of consideration, depending on the nature of the experience. Dr. Goodman, for example, had little interest in British publications on a particular topic because she’d found the scholarship so inadequate in the past. Lacking personal knowledge did not, however, relegate an item to obscurity.
These faculty repeatedly chose to seek out articles from unfamiliar journals so they could judge the journal quality for themselves. They did not assume that an unfamiliar journal was either outside their sphere of interest or of poor quality.

As might be expected when working with faculty who are involved in course development, some criteria tied directly to teaching, readability, and engendering a response in students. Each participant gave some thought to reading level as a criterion. Dr. Lawler, for example, noted that one author was “not an easy person to read” (Interview 1). Some items were deemed too complex for students at the class level, while others were recognized as appropriate for graduate but not undergraduate students.

Perhaps the single most fascinating criterion was the demand that materials help engender a particular emotional and/or intellectual response in students. Rather than simply supplying factual data, the items chosen for class readings were also supposed to spark change and growth on an individual basis. Dr. Lawler, for example, needed to “help students think of American lesbians differently” (Interview 1). Likewise, Dr. Lewis described one item as “good for people who’ve never ever come in contact with African American women” (Interview 1). An interest in exposing people to new ideas, helping them understand the unfamiliar, and helping them recognize their own assumptions underlies a criterion that appeared repeatedly in work with all five participants.

Finally, five criteria centered on information characteristics: analytic or critical nature, depth of coverage, information format, perspective or viewpoint, and popular or scholarly nature. A few of these appear in the MacMullin and Taylor taxonomy of information traits (1984).

The analytic or critical nature of information was occasionally valued. Dr. Goodman, for example, liked items that “frame the issues” (Interview 1) and Dr. Lawler wanted an item that offered “contextualization” of an issue (Interview 2). This type of information was seen as central to the development of student understanding.

Varying depths of coverage were valued in different components of a course or in different types of courses. Dr. Lewis wanted one item on the grounds that it was “good for an undergraduate class since it’s a survey” (Interview 2). On the other hand, Dr. Lawler considered one article “nice for the students to know about” but “too narrowly focused” for general reading; she determined that it would be added to the general bibliography for the course (Interview 2).

The information format criterion covered genres (e.g., poems, letters, diaries, statistics), format (e.g., list of subject headings), and physical structure (e.g., videotape, microfilm, newspaper). Dr. Taylor, for example, found bibliographies generally useful but much more so when annotated, especially when “working on someone you don’t know who has a huge amount” written about her/him (Interview 1). Special issues of journals are “often
very good.” Dr. Goodman would “assume there are a number of things in there” and “would definitely have put it on reserve” (Interview 1).

Perspective or viewpoint is an information characteristic that appeared frequently as a criterion. Although occasionally represented in some subject and indexing schemes, the substance of these judgements was seldom available to these participants in traditional document representations. Dr. Lewis wanted various views because “experiences have been obscured and distorted” (Interview 3). Dr. Lawler believed that “the definition of lesbian has too often ignored class—assumed a middle class, a white middle class, core to itself.” She liked an article that specifically looked at class within lesbian movements (Interview 3).

The final information-characteristic criterion, popular or scholarly nature, is also indirectly included in some subject representations of documents. With terms such as “diaries” and “speeches” available, some citations indicate the primary or secondary nature of the material. Dr. Lawler valued both information types, noting, “Ideally every course would have primary sources as well as secondary” (Interview 2). Of course, the interest in primary materials sometimes overlaps with other criteria, particularly engendering a response in students. Dr. Jacobs, for example, likes congressional hearings, with their verbatim transcripts of women’s testimonies, because they show the “actual voice of the activist” and are “as close as we can get in this environment to having these women speak in the classroom” (Interview 1).

IMPLICATIONS

Obviously a great deal more needs to be done on both this methodological approach and this research question. The approach is too labor intensive and time consuming for use in large-scale studies but it might well, after further case studies, be used to develop an instrument with which to identify and study the use of varying criteria involved in relevance decisions. Faculty reviewing printed citations may use criteria different from those used by others viewing citations online. The impact of the viewing mechanism merits examination. While these faculty requested that no Web sites be included in the citations located on their behalf, the rapid rise in the use of Web sites for instructional purposes would probably alter that request in future studies. How this methodology might be used to capture the relevance decisions made regarding Web sites is another issue.

Although these preliminary findings are extremely limited, they do indicate some useful contributions to the ongoing discussion of relevance. Information gathered, at least in part, to pass along to others may have unexpected criteria involved, such as emotional impact and readability. These criteria were not applied on a binary basis; faculty utilized three to five levels of utility ratings. Each classed certain items as immediately essential, immediately useless, and possibly useful. In at least one interview, each
participant also made other judgments such as “look at later, time permitting.” Certainly the curiosity piqued by citations requires further study in the holistic context of personal information-seeking. Not only are needs situational and dynamic, but they are also active simultaneously and on different levels. Understanding the links between information needs, as revealed by the application of relevance criteria, would illuminate more than relevance alone.

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Evaluating Reference Services in the Electronic Age

JO BELL WHITLATCH

ABSTRACT
In an electronic era, the evaluation of reference and related information services should still be based on the same principles used to evaluate traditional face-to-face reference services and printed reference tools. Traditional research methods—which are surveys and questionnaires, observation, individual and focus group interviews, and case studies—can be utilized very effectively in an electronic environment. However, electronic technologies offer interesting research opportunities not present in the traditional reference environment.

INTRODUCTION
At conferences and workshops on evaluating reference services, the most frequent recurring question librarians ask is, "How can the material on evaluating reference services be applied to assessing electronic reference services?" The best answer is, "Take existing methods, determine which will best meet the study goals, and then adapt those methods to the electronic environment."

In any environment, evaluating reference services still requires starting by assessing why reference services are being evaluated and what the organization plans to do with the study results. Before trying to decide how to evaluate electronic services, performance standards that set the level of achievement expected for the service should be explicitly stated. In determining the performance standards to be adopted, the organization must decide what values are crucial. Are members of the organization concerned primarily with
1. Economics—the cost or productivity of services;
2. The process—aspects of librarian/reference system and user interaction;
3. Resources—books, indexes, databases, staffing levels, equipment, design of physical or electronic environment; or
4. Products/outcomes—information or knowledge that the users obtain.

In an electronic environment the interactions between librarians and users often will no longer be truly face to face. Thus, process standards are the measures that most need to be reviewed in a digital reference environment. Librarian behaviors that are crucial in the reference-desk environment will need to be redefined for remote reference services. Work on redefining process standards has already begun. The Virtual Reference Desk (VRD) project has developed a list of User Transaction Standards to address aspects of librarian/system and user interaction. The standards address several “facets” related to quality: accessible, prompt turnaround, clear response policy, interactive and instructive (Kasowitz, Bennett & Lankes, 2000). Most of these facets address the process standards, rather than standards related to economics, resources, or products/outcomes.

In a remote electronic reference environment, accessibility and prompt turnaround could become dominant in user evaluations. Miwa (2000) used digital reference services features of acknowledgment, responsiveness, and tone of message to represent the process aspects of the reference interaction in a digital environment. She also looks at user situations as part of the process—for example, wording of the request by the user and user’s ability to comprehend the message.

Broad goals for the study should be prepared in writing once a reasonable degree of consensus has been achieved on the particular set of standards that an organization wishes to emphasize. After broad goals have been developed, written objectives should be developed for each study goal. The objectives should be measurable so that, at the conclusion of the evaluation, one can identify any gaps between the present level and the desired level of reference service performance.

This present paper discusses how to apply traditional evaluation methods in an electronic reference environment once the study goals and objectives have been determined. Readers desiring additional information on setting performance standards and developing goals and objectives for reference service evaluation may wish to consult Evaluating Reference Services: A Practical Guide (Whitlatch, 2000).

All methods have strengths and weaknesses. Depending on the goals and objectives of the study, some methods will be more effective than others. As a general rule, utilizing more than one method is recommended in a single study, because the strengths of one method often compensate for the weaknesses of another. The advantages and disadvantages of the various methods may also change somewhat in an electronic environment. This
paper considers how applying surveys, observation, interviews, and case studies—all traditional evaluation methods used in assessing face-to-face services—presents new opportunities and challenges in assessing electronic reference services.

**Surveys and Questionnaires**

Surveys or questionnaires are methods of directly collecting information on individuals' thoughts, beliefs, attitudes, and opinions, plus objective data, such as education, gender, and income. The survey method has been the most frequent way of assessing traditional reference services. In the past, surveys have been relied upon too heavily because they are the most efficient method of assessing a large group of representative users. Also, for the inexperienced researcher, surveys appear easy to design. The disadvantages, such as obtaining meaningless information from poorly designed questions and the lack of depth of information from standardized responses, are often not appreciated until too late. Another significant problem in using surveys is low response rates, particularly from surveys distributed through the mail. A substantial number of nonrespondents can bias the results; those who choose not to complete the survey might hold very different views from those who do.

Internet questionnaires can be used effectively to survey attitudes and opinions on the quality of reference service related to process (the interaction with the virtual reference service) and products/outcomes (the value of the information obtained). An Internet survey asking for an evaluation of service provided can be sent out within days after the user has received an answer. In contrast to surveys distributed in person at the reference desk or in the library, emailing the questionnaire can also be calculated to allow most users some time to use and further evaluate the information obtained through a reference interaction.

As Zhang (1999) points out, the Web provides new opportunities to conduct survey research more efficiently. Research costs for sending out Internet surveys are relatively low and the turnaround time short compared to conventional mail-in surveys. Also, email can be used effectively to follow up on paper-based surveys (Roselle & Neufeld, 1998). Most responses received in electronic format have been precoded, eliminating transcription errors and saving time and expense. McCullough (1998) notes that Web-based surveys are faster, generate more accurate information, and cost less. He has found that a respondent will typically complete a Web-based survey in about half the time it would take an interviewer to conduct that survey by telephone or in person.

Resolving the technical problems with Internet surveys requires greater technical expertise on the part of the researcher than does research conducted with traditional survey methods. However, services that provide Web survey forms and guidance to assist researchers in designing and de-
veloping Internet surveys are becoming common. Names and Web addresses for some of the services that have been positively discussed on the Academy of Management Research Listserv, rnet@listserv.unc.edu, are provided in the Appendix.

Zhang (1999) also reviews potential problems and concerns related to Internet-based surveys. One of the greatest strengths of survey research is the ability to randomly select respondents in a manner that ensures a sample representative of the target population. In telephone surveys, respondents are randomly selected, but most online poll respondents are self-selected (Pew Research Center, 1999). The greatest difficulties with Internet surveys occur when the survey does not reach certain types of respondents who need to be included in the survey population. Biased samples and returns can be a major problem because certain social groups are underrepresented among Internet users.

However, for surveying users of electronic reference services, bias should be minimal. Respondents must have access to the Internet in order to use the electronic services; they can presumably access a Web survey form as well. Some individuals may not have convenient access from their home or office and may use the service only occasionally from an Internet café or a library. If these individuals are not identified, this group may be underrepresented. Individuals who do not have convenient access may, as a whole, be less experienced users of electronic reference services. If these users are not included in the sample, survey results may not truly represent the population as a whole. Other means, such as a telephone interview or mail survey, may be required to obtain responses from them. Finally, if the purpose of the survey is to collect information from people who do not use electronic sources, relying upon the Internet as the principal method of survey delivery will present a very serious problem.

In addition, low response rates are a serious problem with Internet surveys. In her evaluation of AskERIC, Shostack (2000) observed that users were either extremely happy or dissatisfied with digital reference services. These results suggest that only motivated users are responding. A study that replicated an earlier study found a disturbing decline in email response rates: in 1995 the email response rate was 80 percent, but by 1998 it had fallen to 42 percent (Bachmann, Elfrink & Vazzana, 1999). The researchers suggest that the most likely reason for the decline is the respondents' increased reluctance to respond by email.

Zhang (1999) concludes that the Internet cannot serve as the only means to collect survey data if researchers need representative returns from a sample. Schaefer and Dillman (1998) found that giving advance notice requesting participation generally increases response rates. The Pew Research Center (1999) has tested an interesting approach. Email addresses were collected from individuals who were called as part of randomly selected national samples. If these individuals agreed to participate in a future on-
line survey, their email addresses were placed in a pool. Then, in a second phase, a random sample was selected from this pool. Email addresses were used for verification purposes to prevent respondents from taking the survey more than once. McCullough (1998) suggests that the questionnaire be posted on a secure Web site. Respondents can be generated from personal invitations issued by email. He notes that a sufficiently large sample of 300 or 400 respondents can often be completed over a weekend.

In order to apply scientifically tested polling techniques to Internet technologies, Stanford political scientists Douglas Rivers and Norman Nie have created Knowledge Networks. With $42 million in venture capital, they have installed free WebTV devices normally costing $250 each in 40,000 homes selected through random phone calls. Because everyone in the household nineteen or older is involved, there are about 100,000 participants. The homes receive a black box slightly smaller than a VCR, a cordless keyboard, and many instructions. The homes are expected to remain in the survey pool for three years. In exchange for answering brief surveys about once a week, the households receive free Internet access, email, and frequent chances to win prizes. Of those who were asked to join the Knowledge Networks pool, 56 percent agreed—compared with 15 percent of people who usually agree to participate in phone polls. Although the polling is a significant activity, the primary company income comes from consumer research for manufacturers (Konigsmark, 2000).

Zhang (1999) also reports that validity of Internet survey responses can be adversely affected. Unintended participants may respond because of the ease of forwarding email messages to other people. Individuals can respond to a single survey by submitting the same reply many times. Unique case-identification numbers should be assigned to each respondent to control for multiple responses and unintended participants.

Nondeliverable surveys are also a major disadvantage of email. In 1995 and 1998 studies, Bachmann, Elfrink and Vazzana (1999) found that about 20 percent of all emailed surveys were nondeliverable.

Comfort level with the Internet survey form should also be considered. Zhang (1999) found that, while 80 percent of usable replies were received via the Web, 20 percent of respondents chose to complete the survey via postal mail or fax. Internet survey respondents did report problems with the layout of the survey questionnaire on low-resolution monitors, problems going back to previous parts of the questionnaire, problems with printing, and (on computers with low-speed modems) problems with downloading the questionnaire. Users also reported that comments were also more difficult to insert on electronic survey forms than on paper forms. Shostack (2000) also noted a tendency for users to ignore open-ended questions on Internet survey forms. (This problem is not unique to online surveys. In the author's experience, most users completing paper forms also tend to leave open-ended questions blank.) Surveys not conducted by telephone or in-person
interview tend to have rather limited potential to collect qualitative data. An experiment with incentives in the form of cash prizes revealed that, while the overall numbers of respondents did not increase significantly, the number of completed Internet survey questionnaires did rise (Pitkow & Kehoe, 1996).

**Observation**

Observational methods collect information on people as they behave in real-life situations. Forms of observation that have been used to assess the quality of reference services include direct observation of the reference interview, observers disguised as patrons asking preassigned questions, self-observation in the form of diaries or journals, recording interviews with audio or videotape, reviewing data collected as part of daily library operations, and examining information on reference transactions collected for another purpose.

Observational methods have been less frequently used than surveys to evaluate reference services, because this method requires a greater investment of staff time. Safeguarding against observational bias also requires training observers thoroughly and may require using more than one observer.

The electronic reference service environment offers some new and exciting opportunities in use of observational methods. Information on electronic reference transactions can be collected and archived as part of ongoing library operations much more easily than can information on traditional reference interviews. Content analysis of these electronic questions should enable us systematically to study the nature of the questions, sources used, and skills required to a much greater extent than is possible in face-to-face reference interactions. The review and analysis of samples from archives of questions and answers provide a practical tool to diagnose problems and improve services.

Studies of email reference questions that use observational techniques are already underway. Garnsey and Powell (2000) examined and classified email reference questions into one of the following categories based on content: (1) ready reference; (2) research question; (3) genealogy; (4) library technology; (5) request for materials; (6) bibliographic verification; and (7) other. Jones, Carter, and Memmott (1999) used a random sample of academic libraries to study the proportion of libraries offering digital reference services and to examine the characteristics of those services. They looked at size of libraries, direct links from library home pages, ways in which users were able to submit questions, FAQ documents, policies, institutional barriers, and the role of type of institutional funding (public vs. private). Shostack (2000) analyzed questions that had been submitted via a question submission form to AskERIC. She found that over 80 percent of users filled out the form completely. Staff were also asked to change the subject line of the response to the topic of the reference query so that questions could be classified by topic.
However, the ease of collecting such information does raise the level of concern about protecting the individual's rights to privacy. The first rule of ethics in research is to do no harm to the participants. In using data for research, particular attention must be paid to protecting the identity of individual users when archiving questions and answers. Access should be restricted to all information that might reveal people's identities. Names and specific information that have the potential to identify individual participants, such as physical descriptions, very detailed demographic information, or identifying events or places, should be removed or modified. Without proper protections, publication of the analysis could harm the morale and self-esteem of reference librarians, staff, and users.

Gray (2000) used observational methods to analyze Web sites of ten large research libraries that provide virtual reference services. The approaches to centralization, placement of the link to reference services on the Web page, use of forms, definition of client base, response times, and question types accepted were analyzed. Observational methods are also useful for testing the effectiveness of different types of answering sources. To compare the effectiveness of print and paper-based reference sources in answering different types of reference questions, Havener (1990) divided 68 reference librarians into two different groups. Members of one group were permitted to use only print tools in their research, while members of the other group could use only online sources to answer the same set of questions. Information recorded varied by question type—for conceptual questions, librarians were asked to record ten relevant citations; for factual questions, librarians were asked to provide only one relevant fact. Time spent was also recorded. In an exploratory study, Janes and McClure (1999) compared the accuracy of answers found in freely available Web sites and traditional print-based sources by asking participating librarians and library school students to answer 12 questions only with resources they were directed to use (either Web or non-Web). Connell and Tipple (1999) gathered ready reference questions that were actually asked by users over a two-week period and then, using AltaVista as a search engine, searched for and examined the accuracy of answers found on the Web.

Observational methods are useful in determining the difficulty that users encounter with online reference tools. Chisman, Diller and Walbridge (1999) advertised for volunteers who were paid ten dollars for their participation. A usability test was designed to determine how easily users could navigate a Web catalog and whether they understood what they were seeing. Observers recorded the search strategy, comments made by the participants, observations about the participants' responses, success, and the time needed to complete the task.

Unobtrusive observation methods can also be used effectively in an electronic world. Reference questions can be prepared and answers determined for factual types of questions. Graduate students or others who are posing
as users with questions can query both commercial and non-profit “ask a question” services. Results can be analyzed by such factors as response time, accuracy or quality of answer, tone of message, ease of submitting the question, and observations on whether people would return to the site again.

**Individual Interviews and Focus Group Interviews**

Interviews are an appropriate method for collecting information on how people interpret their world, describe their experiences, and articulate their attitudes, perspectives, concerns, and values. Despite the potential for gathering in-depth information, interviews have been less frequently used than surveys because of the expense and time required. As is the case with observational methods, interviewers must be thoroughly trained to avoid bias. The management and coordination of scheduling for either individual or group interviews can be extremely time consuming. Coding and analyzing the data also require considerable time.

Interviews of both users and librarians are also possible in the digital reference service environment. Interviewers can use Web-based survey forms to record the results of interviews efficiently. However, users will probably be harder to reach than in-person users of reference-desk services. Marketers have begun to use online focus groups; chat technology with these methods could certainly be adopted for users of electronic reference services. While online focus groups do not allow moderators to observe how people are interacting, benefits include no geographic barriers, lower costs, more rapid turn-around time, and the possibility that participants may be more open because of the greater anonymity provided by chat rooms (Mad- dox, 1998).

Conventional focus groups can also be used effectively to evaluate digital reference services. By reaching out to user groups in the community (teenagers at risk, small business organizations, etc.) or distance learning communities in an academic setting, participants can be recruited to assess their experience with digital reference services. Food or some other small gift of appreciation and a convenient location will encourage participation.

**Case Studies**

Case studies use a combination of assessment methods to analyze services in one or in a limited number of situations. Case studies have been used to assess new reference services or products. Combining the different methods will enrich study findings significantly, but will also increase the time required to conduct the study and analyze the information collected. Results generally cannot be applied to other situations.

Case studies have great potential to improve our understanding of the quality of digital reference services. Using information provision in a hospital setting, Barcellos (2000) is studying user intermediary interactions through use of organizational publications, site observations, transaction
logs, and interviews of both users and intermediaries. A case study of the Internet Public Library Reference Division examined unanswered questions to determine why they were not being answered and to generalize about the difficulties associated with providing reference services via the Internet (Ryan, 1996). White (1999) has developed a framework for evaluating electronic question-answering services that involves World Wide Web inspection, perusal of publicly available policy documents, and personal contact via email and/or interviews with service administrators.

CONCLUSION

Several years ago, James Rettig (1996) observed that many of the criteria used for evaluating printed reference resources have analogs in the digital world: for example, authority, accuracy, level or audience, and content. Standards and methods used for evaluating traditional reference services also have many analogs in the world of digital reference. Standards and criteria related to economic considerations, the reference process, reference resources, or products or service outcomes will still be important in an electronic world. Traditional methods of survey, observation, interview, and case study remain useful.

Case studies that focus on evaluating experimental digital reference services and employ a variety of research methods may have the greatest promise to enhance our knowledge. Case studies have the potential to improve our knowledge of both the effectiveness of digital reference services and the combination of methods best suited to evaluate them. Over time, the profession should, through the effective use of case studies, be able to build a guide to best practices, not only for digital reference services, but also for the methods necessary to assess and continually improve these services.

Results of initial studies of digital reference services and the now well-known phenomenon of declining business at many reference desks also suggest that these studies should be used to analyze future directions in reference practice. Studies (Connell & Tipple, 1999; Janes & McClure, 1999) indicate that freely available Web materials may serve as well as traditional ready reference tools for answering many of the common types of queries received at reference desks. For most users, convenience is first. The expert in-person assistance a librarian might provide is becoming comparatively less convenient than it once was, when the alternative source is the Web. Many users will love the convenience and be satisfied with "good enough." Others will find it more convenient to take advantage of remote ready reference services, which will probably be supported by a relatively small amount of funding or reference librarians from each local library.

As the demand continues to shift away from the reference desk, libraries have the opportunity to establish much more active outreach programs. The public and administrators may come to view reference librarians as less
essential than in past times. While libraries still have reference librarians, shifting patterns of user demands for reference services provide libraries with opportunities to emphasize different strategies to connect library materials with users. Libraries may develop a stronger role in the community in promoting information competencies through partnerships with community service agencies or, within the academic community, with faculty engaged in critical thinking and writing courses.

Changes in strategy would also have implications for professional education. Marketing skills that are essential for developing active outreach programs, as well as instructional skills, may need to become a major part of the core curriculum in every library school. One of the essential marketing skills is evaluation and improvement of outreach efforts. Perhaps the day will come when all librarians engaged in professional practice will receive, as part of their professional education, in-depth understanding and experience in developing and applying survey, observation, interview, and case-study methods so that reference librarians might change, survive and prosper in the new electronic age.

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An Ideological Analysis of Digital Reference Service Models

JURIS DILEVKO

ABSTRACT
Using the theories of Pierre Bourdieu about occupational fields of struggle and species of capital, this article examines the ideological implications of the digital reference call-center model. This model has the potential to lead to deprofessionalization of reference work because of increased automation and the replication of employment conditions prevailing in private sector call-centers. Call-center work typically involves unskilled women earning low wages in jobs that present little opportunity for career building. Library directors who advocate digital reference call centers as models of the future have neglected the negative aspects of call centers in their rush to cut costs and provide efficient services. One answer to the deskilling dilemma is the simple act of reading: the more a librarian reads, the more he or she becomes an irreplaceable contributor in the reference transaction.

INTRODUCTION
In the headlong rush to redefine reference service for the 21st century, what has been overlooked or downplayed is the fact that increasing reliance on technological efficacy invariably decenters the human intellectual contribution to the reference transaction. To be sure, reference librarians are very skilled and astute in constructing search strings and knowing which databases and Web pages may contain the nuggets of information sought by a demanding user. They are equally adept at teaching users to evaluate "the variety of information formats and interfaces clients encounter" (Frank, Calhoun, Henson, Madden, & Raschke, 1999, p. 154).
Nevertheless, the various scenarios envisioned for reference services of the future have the effect of deprofessionalizing the reference librarian. For all intents and purposes, the librarian becomes an assembly-line information worker not typically conversant with or cognizant of the information dispensed. At one time, the reference librarian was a person who was broadly familiar with contemporary social, cultural, political, and scientific occurrences. Such familiarity was important to delivering high-quality reference service because it added a fresh intellectual perspective and a new knowledge base to the question or problem at hand. Now, to judge from some recent proposals and models of digital reference service, the role of the reference worker is to be a mere technological gatekeeper, a guide who makes minor intellectual contribution beyond the perfunctory act of steering the user to the best Web sites or databases without knowing a great deal about the issues underlying the user’s request.

Wilson (2000) is no doubt correct in her assessment that those who will most frequently use digital reference services in the future are “individualistic or egalitarian,” defined as “those who enjoy working on their own and those who desire greater equality in the way that users and reference librarians interact” (pp. 388–389). The traditional reference desk model was not the most congenial approach to information provision for this group of users insofar as it presented “a hierarchical context in which reference librarians were accorded expertise regarding information resources and access” (p. 388). As Koyama (1998) points out, anonymous digital reference services may be favored by those who do not feel comfortable with “the captive nature inherent sometimes in the personal interview controlled by the librarian” (p. 51). Wilson’s (2000) point is that, because librarians will henceforth deal primarily with a different group of users, reference work must be fundamentally rethought to cater to this new group of users. She therefore urges reference librarians to “improve their technological skills” (p. 389) in order to “align with the new reference/user cultural reality [and] to maintain user allegiance to the value of reference service” (p. 390). Yet Wilson seems to forget that a central reason that all users (whether hierarchically oriented or individualistically oriented) turn to a reference librarian is this: they can no longer move forward to resolve their problem or situation. They implicitly recognize that the reference librarian has some kind of expertise that they themselves lack. A hierarchical relationship, in Wilson’s terms, is therefore still present. Because “independent and individualistic users” are likely to be well acquainted with the vast resources of the Internet and have tried to find needed information there on their own, in the electronic realm, the act of turning to a reference librarian is a tacit admission that they are really at a loss. Thus, non-hierarchical users do not merely want a reference librarian who has strong technological skills—because they themselves may possess those. (After all, students are exposed to the Web at an ever earlier age, and thus develop an impressive facility
with technological concepts and best practices.) Instead, they want someone who can bring something new to the table.

Certainly it is vital, as Wilson recognizes, for the reference librarian to be well-versed in “information therapy” (p. 390), making users more clearly aware of their actual information needs. But it would be a strange therapist indeed who based a practice solely on increasingly sophisticated technological skills and who did not devote much time and effort to developing working knowledge about subject areas. Simply put, why would you consult with reference librarians in the first place if they have a reputation for not knowing much more than you do? As technological skills become widespread among a larger segment of the population, reference librarians should consider how best to develop a unique knowledge niche that would allow them to differentiate themselves from potential library users—to position themselves as market leaders, instead of followers. In today’s frenetic world the key to preservation of the reference librarian and the reference function in North America may lie in forging a reputation as a profession whose individual members are a repository of accumulated knowledge. Only a strong and concerted commitment to a program of in-depth, time-consuming, and painstaking reading in diverse subjects can achieve this goal. Long-term success should be measured not by how frantically one strives to emulate and adopt contemporary reigning paradigms of whatever sort, but by creating a service that is of lasting value to the growing legions of ultra-connected and time-pressed individuals. Ultimately, a service profession such as librarianship thrives not by offering what others already have, but by providing something that others lack—in this case, a wealth of subject knowledge accumulated through an ongoing program of focused and purposive reading.

This article glances at some of the new paradigms for reference service, demonstrates briefly how they lead to a deprofessionalization of reference work, and provides a few examples of how the simple act of extensive reading can help reference librarians provide better service. I suggest that renewed emphasis on voluminous reading is a prerequisite for the revalorization and reintellectualization of the reference librarian and the reference function. Reading has the potential to provide the basis for the reference librarian to make the kinds of intellectual (and, if necessary, interdisciplinary) connections that add real value to the reference transaction.

**The Deprofessionalization of the Reference Function**

Calls for a reformulation and rethinking of the concept of reference work make the human contribution either completely redundant or severely devalued and routinized. For example, Richardson (1998) reports on the Question Master “decision support system automating some of the more routine, fact-type reference questions encountered in libraries” (p. 29). The system, comprising a series of Web pages, is intended to guide librarians
(and eventually end-users) “through a set of clarifying questions before making recommendations of an appropriate electronic or relevant print resource from WorldCat, the OCLC Online Public Union Catalog” (p. 29). Noting that the accuracy rate of this system is about 64 percent, Richardson observes that, even in the beta stage of development, it performed better than the typical accuracy response rate of 55 percent provided by reference librarians. Heckart (1998), extrapolating from the current functionality of advanced “intelligent agent” and “knowbot” systems, predicts a future for the emerging digital library in which machine help will replace human help. A student will complete a paper and post it to the class Web site “without ever visiting the physical library or talking to a real life library staff member.” In an attempt to legitimize this vision, Heckart notes that corporations are “implementing virtual help desks, in which an employee finds answers by keying in a few key words on the corporate intranet” and in which, “if negotiation is needed to refine the request, the employee is automatically prompted with questions” (pp. 251–254).

While Richardson (1998) and Heckart (1998) almost completely eliminate human intervention in the reference process, another cluster of articles proposes the call-center model as something to which the digital reference library of the future should aspire. Writing specifically about academic reference service, Ferguson (2000) postulates “electronic research environments that combine information resources, asynchronous tools and instructional aids, and real-time assistance [from] knowledgeable staff [skilled in] formulating research strategies and solving navigation problems” (p. 307). One “critical component” of such a service is the “Internet call center, which integrates telephone, e-mail, chat, video, and other inputs into a single incoming queue.” There “an information specialist can employ FAQs, voice-recognition database queries, a ready reference collection at hand, electronic reference and other information resources, accumulated service histories within a C[ustomer] R[elationship] M[anagement] system, and a variety of service protocols . . . in directly resolving queries, referring to experts on call, or making appointments with experts” (p. 308). Viewing the call center as the anchor of the model digital reference library because it creates “economies of scale that allow increased flexibility in the allocation of resources for the greater and long-term good,” Ferguson notes that the model depends upon “rich access to, and routine participation of, staff proficient in automatic call distribution (ACD), computer-telephone integration (CTI), CRM software, and Internet call center technologies” (p. 308).

Coffman and Saxton (1999) see the incoming call center as a model for networked reference service in public libraries. They envision reference workers as “agents . . . tak[ing] calls at computer workstations where they . . . have ready access to databases, lists of frequently-asked questions and answers, pre-written scripts for particular situations, and other tools needed
to deliver . . . information” (p. 148). McGlamery and Coffman (2000) recommend the use of “web contact center software” (WCC) in public libraries, specifically pointing to the web site of a mail-order retailer such as Lands’ End . . . as a good model for WCC library reference service because the software available on that site “takes full advantage of collaborative tools, such as pushing, form filling, and taking control of the requestor’s browser” (pp. 381–382). WCC provides the same functionality as traditional call-center technology, but also takes advantage of the fact that many customers now have access to Web browsers. How would this work in practice? As described by McGlamery and Coffman, an individual in search of information about how to start a small business goes to a library web site. From the library’s business page, the user clicks on an icon marked “Talk to a librarian” and chooses to open a chat session. After providing some identification and perhaps a registration number, the user is put on hold while the library pushes Web pages to the user’s browser, much the same way music is pushed to a person waiting in a telephone queue. Because the user has initiated contact from the library’s business page, the user’s request has automatically been directed to business reference staff. When the user does talk to an employee in the business department of the library, the employee makes use of a variety of software tools that have created “a hierarchical script based on the most commonly asked business questions” (p. 382). The library employee listens to the user’s request about information for starting a small business, finds the correct script based on a generic answer, and pushes it to the user’s browser “in the form of a web page, a PowerPoint presentation, a page of frequently asked questions (FAQ), or any other electronic resource available to the library” (p. 382). If the question is more detailed, the library employee could instruct the user how to use a business database with “follow me browsing,” a process that allows the employee to take control of the user’s browser and lead the user “through each step of the process” (p. 382).

In general terms, the “click here to talk to a librarian” icon can be placed anywhere on a public library’s web site. If located on the catalog page, it would help the user find books from paraprofessionals; if located on a page containing reference databases, it would connect the user to someone skilled in searching databases. If located on a subject-specific page, it might refer the user to a reference librarian who, if she or he could not answer the query, would refer the user to other networked subject specialists at other libraries—whether academic, legal, or medical—in the local area.

**The Danger of Deskilling in Call Centers**

At first glance, library call-center scenarios seem exciting and groundbreaking, allowing libraries and librarians to present themselves as forward-looking, cutting edge, and technologically adept. At second glance, however, the library call-center model is part of a disturbing trend toward deskilling
of the library profession. Harris (1992) has identified deskilling as an important issue in librarianship and presents evidence that certain library specializations, such as cataloging and collection development, are at various stages of risk. Citing the work of Nina Toren, Harris understands deskilling to involve “the delegation of routine activities to less qualified personnel [and] leaving the complex and difficult problems to the trained professional. Sometimes, however, not much is left to warrant a distinct professional status and its correlates” (p. 123). Harris and Marshall (1998) show that both budget constraints and rapid developments in computer technology have had the effect of “pushing tasks down the organizational hierarchy.” Tasks previously performed by professional staff are “now assigned to less expensive nonprofessional staff.” Moreover, tasks that were “at one time performed by library staff at the bottom of the organizational pyramid may be pushed entirely out of the waged work structure in libraries” (pp. 570–571).

How can the call-center model be understood as contributing to deskilling? Quite obviously, the call center is associated with the business world. Numerous companies have instituted call centers in order to become more efficient and to cut costs. Call centers try to set up interactive voice response (IVR) systems such that IVRs handle about 80 percent of incoming calls. A great deal of work goes into trying to make IVRs as flexible and information rich as possible so as to handle an increasing percentage of calls. Simply put, IVRs do not require human intervention and are thus extremely cost-efficient. Those calls that cannot be handled by an IVR are put into an automated call distribution (ACD) queue, where they are routed to the next available agent. To manage the ACD queue in the most efficient way possible, the Erlang C algorithm is used to determine optimum staffing requirements. Developed in 1917 by A. K. Erlang, an engineer with the Copenhagen Telephone Company, Erlang C is a complex formula that takes into account the total traffic volume of arriving calls in a set period, the average amount of time spent per transaction, the average length of after-call processing time, and a carefully calculated acceptable service level, usually defined as 80 percent of calls answered within 20 seconds. Theoretically, companies can cut staffing requirements by lowering service levels—for instance, defining an acceptable service level as 75 percent of calls answered within 30 seconds—and by encouraging workers to spend less time on each client call and in after-call processing.

In the library realm, the quest for efficiency and cost-cutting is, on the surface, the primary force behind the fascination with call centers. Lurking beneath these ringing endorsements of streamlined, efficient service is a barely contained disdain for the complexities of library reference work and a devaluation of those aspects not specifically connected to answering user queries. Consider Coffman and Saxton, who begin by suggesting that “the amount of down-time spent waiting around for somebody to ask a question” by reference librarians is a serious concern (p. 143). From the
managerial perspective, such down-time is lost time because professional staff are not spending their entire time answering reference questions. Coffman and Saxton are more than a little disconcerted by the fact that librarians “try to fill up these slack periods by ‘reviewing the professional literature’ and other odd tasks” (p. 143) or by “keeping kids quiet, scheduling staff, ordering supplies, presiding over children’s story times, checking books out, and other details of managing the building” (p. 154). In their minds, circumstances such as these “only raise even more fundamental questions about what the true professional functions are in a library, and how and where they should best be performed” (p. 154).

The scorn with which Coffman and Saxton view traditional reference work is palpable and visceral. Their use of quotes around the phrase “reviewing the professional literature” indicates that they do not think very much of this activity. They use the phrase “odd tasks” to relegate all other job duties of the reference librarian—such as reader’s advisory services, keeping abreast of current events and current reference sources in order to anticipate future reference questions, collection development responsibilities, and so on—to a very low level of importance. Finally, they utterly mock tasks associated with children and the smooth functioning of the library as a whole. In short, Coffman and Saxton do not put much stock in the view of librarianship as a female-intensive profession imbued with an ethic of caring and community service (Harris, 1992; Hildenbrand, 1985). Instead, their watchwords are efficiency and cost effectiveness. Their overall strategy is clear. First, call into question the value of reference work by showing that the job includes many tasks that ought not to be worthy of a professional. Second, because reference work does seem to encompass such tasks, remove reference work from the ranks of professional positions.

Having identified down-time as a serious managerial problem, Coffman and Saxton quantify exactly how much time staff at the County of Los Angeles Public Library system spend answering reference questions. The 88 branches of the system answer 3,016,619 million reference questions per year, with the average length of each reference question being 2.87 minutes (172 seconds). These 88 branches employ 116 reference librarians; total staff time spent answering reference questions is 144,338 hours. However, using the Erlang C algorithm and assuming an industry standard service level of 80 percent of calls answered on average in 20 seconds, they calculate that “a centralized reference center could handle all of the 3,016,619 million questions with a reference staff of only 67, a 42 percent reduction of the 116 staff required to handle reference services as we now provide it” (p. 153). Moreover, these 67 staff would “be occupied and answering questions 89 percent of the time.” However, if the Erlang C algorithm was told that 116 staff would be working to answer all the questions, the staff occupancy rate would be only 51%, “which means they are spending half their time doing something other than reference” (p. 153). Because Coffman and
Saxton believe that anywhere from 50 percent to 80 percent of all reference questions “might not require” professional librarians, “a large percentage of the 67 staff needed to operate the networked reference service would not require professional degrees nor would they require professional salaries” (pp. 154–155). Because most of the 116 staff currently providing reference service do have professional degrees, the “potential cost savings of a centralized service staffed with a high percentage of paraprofessionals could be substantial” (p. 155). The call-center model allows not only for a drastic reduction in the number of reference staff positions, but also for a large-scale depersonalization of those positions that remain. Because the questions asked by patrons at reference desks are not really very difficult, they can best be answered by low-paid paraprofessionals who will do nothing else all day.

Yet Coffman and Saxton (1999) are not satisfied with this increase in efficiency and decrease in costs. For example, they are enthusiastic at this prospect: “Reducing the average question length by just 22 seconds, from 172 seconds to 150, would reduce staff requirements by over 10 percent from 67 to 60 positions” (p. 157). Here queries are turned into mere commodities. The goal is to answer them as quickly as possible in order to process more each hour, raising the productivity levels of the call center by employing fewer people. Similarly, McGlamey and Coffman (2000) wax eloquent about developing library Web pages so that more than 80 percent of user questions would be answered without recourse to human assistance. “We are calling these sites ‘reference front ends’” they write, “and it is our hope that they will help answer a great many of the patrons’ questions before they can be tempted to click on the ‘Talk to a Librarian’ button” (p. 385). Even if patrons do click on the “Talk to a Librarian” button, library staff “can be trained to use the resources on these key sites to answer the bulk of the questions” (p. 385).

The drive toward efficiency and low costs is never ending. No matter the scenario, very little room remains for professional librarians and subject specialists in the call-center model. From a metaphorical perspective, the situation is very much as described by Harris and Marshall (1998), who quote one library director who believes that paraprofessionals could be taught to handle reference questions “without running to mommy” (p. 578). In effect, call centers view “mommy”—the disparaging term with which this library director referred to professional reference librarians—as superfluous. As libraries try to cut costs by employing fewer librarians and more paraprofessionals, the roles of librarians will tend to become very broad—a circumstance that “will eliminate their ability to specialize in the areas of expertise that have defined the core of the profession” (p. 577). The result is a growing depersonalization of the profession as librarians try to conform to the prevailing view, as expressed by another library director quoted by Harris and Marshall: “It’s a larger thing that makes a
librarian [and] it's got something to do with management, and commitment, and analysis, and adapting to change" (p. 579). Left unspoken, however, is the danger that, as librarians evolve into managers, they risk losing the skills that made them librarians in the first place. As their jobs are continually simplified, as paraprofessionals take over these newly simplified tasks at a substantially reduced wage scale, as directors tell librarians that librarianship doesn't have anything to do with such "little things" (Harris & Marshall, 1998, p. 579) as cataloging, collection development, and, now, reference service, librarians may be forgiven for wondering about the intellectual content of librarianship and, indeed, whether there is such a thing as librarianship.

THE POLITICS OF CALL CENTERS

If librarianship is losing its intellectual component through such proposals, what is the face of the call center itself? First, the lists of skills that the new type of reference worker should possess mentions nothing about subject-area knowledge. Instead, necessary skills are confined to proficiency in various types of hardware and software packages, navigating already-constructed Web pages offering scripted answers, and keyboarding. Second, library call-center proposals completely overlook the negative aspects of private-sector centers, often identified as electronic sweatshops. The neglect of these negative aspects is perhaps the most surprising feature of the embrace of the call-center model by Coffman and Saxton (1999), Ferguson (2000), and McGlamery and Coffman (2000).

There is a substantial body of evidence documenting how call centers, whether inbound or outbound, exploit and degrade workers. Building upon Michel Foucault's insight that Jeremy Bentham's design for the ideal prison, the Panopticon, is a metaphor for the workplace of the future, Fernie and Metcalf (1997) argue that the call center is the ultimate manifestation of employer control and worker powerlessness. A philosophy of electronic surveillance discipline encourages an ever-faster pace of performance. Because the tasks performed in call centers are highly routine, highly intensive, and limited in range, Thurow (1989) sees call centers as a significant step toward the industrialization of the service sector. Richardson, Belt, and Marshall (2000) point out not only that the "Taylorist fragmentation of work and flat organizational structures" in call centers restricts opportunities for career progression, but also that, because call centers have few links with local areas, they can "seek out even cheaper locations in order to achieve further reductions in the costs of production" (p. 358). Finally, call-center workers are at constant risk of being technologically displaced as newer and more sophisticated technologies take the place of their already routinized and automated tasks.

With regard to the working conditions in call centers, there has been a long litany of well-documented complaints. Conlon (1998), reviewing the
results of a survey by The Radclyffe Group, a management consulting firm, outlines three major factors that contribute to worker dissatisfaction: inflexible rules that restrict employee movement away from their desk or cubicle area; high call quotas; and strict monitoring of quantitative and qualitative performance levels through electronic surveillance and tracking of calls. Higgins (1996) describes the sense of isolation that call-center workers experience: “It’s supposed to be part of the new economy, but the set-up is really very old fashioned—‘we’re the boss, do what we say’ sort of thing. At one place, they seemed to think they were the commanders on Star Trek—we all worked down on the floor, while the supervisors were on ‘the bridge,’ looking down on us” (p. 8). Menzies (1999) outlines the rigid adherence to a predetermined script and the constant lurking of supervisors who reprimand any deviation from this script. As Richardson, Belt and Marshall (2000) and Buchanan and Koch-Schulte (2000) note, such conditions taken as a whole have resulted in serious health concerns: workers complain about tension, stress, sleeplessness, headaches, eye strain, voice loss, hearing problems and burnout. McFarland (1996), describing strenuous governmental efforts (including tax incentives and resettlement bonuses) that resulted in a massive influx of call centers into New Brunswick, Canada, observes that local workers have no illusions about why call-center companies choose to move there: “The company feels that New Brunswick is a cheaper place in wages and benefits. They see New Brunswick as desperate . . . [where] workers will settle for anything as long as it is a job [but] the strategy of bringing in low-paying jobs is creating a poor society” (p. 13). Reporting on the explosion in call-center jobs in Jacksonville, Florida, Bryant-Friedland and Finotti (1998) note that the annual average wage of $21,000 paid to call-center employees does not compare well to the citywide average of $26,365 in all other industries. As in New Brunswick, there was a concerted strategy by Jacksonville city officials to attract call centers in an effort to create jobs in a depressed area. Together with promises of cheap land and low building costs, business development officers touted “a plentiful supply of low-wage workers, especially Navy wives and college students,” thus institutionalizing a permanent low-income ghetto. Studying the concentration of call centers in the depressed mining area of Newcastle in northeast England, Richardson et al. (2000) observe that “the availability of a sufficient pool of quality labor at a lower cost than other regions” is the reason most cited by managers for the decision to set up shop (p. 362). It is therefore not surprising, as Karr (1999) reports, that call-center turnover rates average about 31 percent in the United States, significantly above a rate of 18 percent for companies in other industries. Richardson et al. cite one female call-center agent who links infantilizing treatment with high turnover rates: “When I first came here . . . I was like a small child, they were watching me . . . I think most call centres are like that and that’s why there’s such a high turnover of staff . . . because people just get fed up with it, the
pressure” (p. 364). Workers are beginning to unionize and embark on strike tactics to win better working conditions, increased autonomy, clearly demarcated career progression ladders, and overtime pay for working evenings, nights, and weekends.

Given the almost overwhelming derision with which call-center work is characterized, many management consultants have proposed ways to improve call-center working conditions. Curtis (1999), for example, recognizes that ways must be found “to make the job fulfilling as call centers get larger” (p. 33) and recommends that companies give serious consideration to “localisation,” that is, mini-call centers “manned by between ten and 15 people, with the feel of a local community center” (p. 37). Thaler-Carter (1999) recommends a series of incentive compensation plans to motivate call-center employees, and especially lauds team-based and department-based objectives leading to low-cost or no-cost incentives such as “fun” gifts or prizes (plastic eggs in Easter baskets with a little prize or toy in each egg and a matchbox-size company car are two of the ideas mentioned) that go a long way to “encourage productivity and create energy” (p. 104). Conlon (1998) outlines a proposal to encourage the creation of “an environment of personal and team accountability” (p. 92). Although these suggestions appear plausible on the surface, they do nothing to address the problematic structural nature of the call-center industry as a disciplinary Panopticon. For instance, a primary purpose of the idea reported by Conlon (1998) is to make employees themselves participants in surveillance activities. Instead of focusing on systemic inequities in the call-center milieu that make for disgruntled workers, employees are urged to develop team spirit such that “if one rep is taking too many breaks, instead of reporting him to a manager, a teammate can confront that person herself about the behavior” (p. 92). Thaler-Carter’s (1998) insight about team-based incentives that stress “fun” (albeit infantilizing) rewards is thus a logical addendum to the Panopticon metaphor: employees motivated by team-based incentives will be more prone to participate in surveillance of their fellow employees, all in the name of winning prizes for the department as a whole. Instituting a policy of rewards does nothing to reduce the amount of electronic surveillance. It even encourages workers to process calls more quickly because those who do not win incentives understand that, insofar as the automated call distribution (ACD) system tracks the amount of time spent on each call, rewards are based on pre-determined quantitative measures that can be increased at the discretion of management. Even Curtis’s (1999) notion that mini-call centers are the wave of the future does not alter the fundamental nature of call-center work, because technology exists to monitor productivity across a virtual and decentralized network. Even though people may be working in small groups of 10 or 15 people, or even at home by themselves, each computer is still being centrally monitored. In addition, the mini-call center model allows companies to avoid a rising wage structure
such as might develop at large central facilities, due to possible low-employment rates in the surrounding area or to unionization pressures. As Curtis (1999) notes, the small telecenter approach allows the company “to set up cost effectively wherever there are people willing to work,” a wily euphemism for a constant search for low-wage geographic pockets.

Despite the numerous drawbacks of call centers, it is somehow appropriate—although no less disconcerting—that Coffman (1999) embraces the retailer Amazon.com as a model for the library of the future. He could not be more fervent in stating his belief that Amazon.com is the epitome of a successful and technologically innovative organization with a firm commitment to superior customer service. Using the Amazon.com paradigm, he pictures the ideal local library as providing access to 43 million items (the approximate total of all items listed in the OCLC database), all accessible through a catalog designed “for the selection decision, with records that carry reviews, cover art, tables of contents, excerpts, and any other kind of content that could help a person” (p. 47). Accessible seven days per week and 24 hours each day, the new library will even provide home delivery of requested books so that patrons’ time is not wasted. Customer service representatives will always be friendly, knowledgeable, and willing to help patrons with their questions and book selections.

The reality of Amazon.com is starkly different from Coffman’s inexplicably naïve vision. Customer service representatives—the backbone of Amazon’s operation—make only between $10 and $13 per hour. As Leibovich (1999) reports, they are expected to respond to 12 e-mails per hour; “lagging productivity—fewer than 7.5 e-mails an hour for an extended period—can result in probation or termination.” Employees complain that their self-worth is measured in “how many e-mails I could answer”: “we’re supposed to care deeply about customers, provided we can care deeply about them at an incredible rate of speed.” Another employee recounts how, after a telephone conversation lasting three or four minutes with a customer to whom he recommended a Civil War-era fiction book, he was chastised by a supervisor who warned him to “watch the schmoozing.” In other words, everyone is expected to work constantly at an “uptime” pace. The infamous Amazon memo entitled “You can sleep when you’re dead” is a brutal reminder of how unforgiving work expectations have become for customer-service representatives.

Amazon regularly orders mandatory overtime to deal with backlogs of unopened e-mail and telephone calls. Managers outline goals to be met—goals couched in the rhetoric of team-building and sacrifice: “You own this goal. I own this goal. We all will share in the consequences of failing to meet this goal.” “Fun-productivity” races held at midnight—where the prizes are “sundaes, smoothies, trail mix, pretzels, award-winning coffee and other yummy things”—are presented as “great news” even though they count as required overtime. But for many customer-service representatives, such
management methods such as these are “like Communist China under Mao. . . . You’re constantly being pushed to help the collective. If you fail to do this, you’re going against your family. But if this is a family it belongs on Jerry Springer” (Leibovich, 1999).

When losses mounted and stock prices collapsed in 2000, the concept of family and “goal ownership” evaporated very quickly. Amazon instituted a round of layoffs and began to outsource customer service representative jobs to Daksh.com, with the expressed goal of having about 80 percent of its customer service work done in India (Guyatt, 2001; WashTech, 2000). Whereas Amazon custom service representatives in the United States earn on average $1,900 per month, Indian workers can expect to earn no more than $109 to $175 per month (WashTech, 2000). In an effort to reach acceptable levels of profitability, Amazon is thus participating in the global outsourcing movement, taking advantage of countries with relatively weak labor standards and low wage structures. It was perhaps inevitable that dissatisfaction with Amazon work practices reached such heights that persistent efforts were undertaken to form a union; as one worker bluntly explains, “Amazon may be the symbol of the new economy, but it has the worst of the working conditions of the old economy” (Greenhouse, 2000a, C3).

Preaching the mantra of ownership and family, Amazon has responded with anti-union activities, distributing instructions to managers about how to dissuade workers from signing union membership cards (Greenhouse, 2000b). In short, Amazon.com stands as a case study of the negative features associated with call centers. The fact that Coffman (1999) has unlimited praise for the Amazon.com business model and management ethos is troubling to say the least, considering his desire to make call centers the heart of the 21st-century library.

**Women and Call Centers**

Perhaps the most salient and intriguing feature of call centers is the preponderance of female employees. Most scholars agree that about 70 percent of call-center employees are women and that many employees find themselves on “the periphery of the labour market for some reason,” usually poverty, transience, or lack of education (Buchanan & Koch-Schulte, 2000, pp. 9–10, 16–19; Richardson, Belt, & Marshall, 2000, pp. 359–361). While the part-time student component of call-center work tends to be evenly distributed between men and women, full-time work is dominated by women who, as one worker put it, “probably have not progressed beyond high school or who have families or for some other reason would not be able to find a job” (Buchanan & Koch-Schulte, 2000, pp. 15–16). This division of labor has gendered consequences, namely the ghettoization of women in routinized, low-paying jobs without much chance for advancement. Buchanan and Koch-Schulte (2000) also document how sexism plays a role in such gender imbalance. Women may modulate the pitch of their
voices in order to deal effectively with male callers. "Guys will respond to
you better if you speak in lower tones like a husky voice. . . . It's almost a
sexual preference. In that sense, I think women get the short end of the
stick because it almost brings them down to sexual objects. . . . I think we
should give women more credit than just pretty faces and nice-sounding
voices" (Buchanan & Koch-Schulte, 2000, p. 15).

Although inbound call centers tend to provide more stability and chanc-
es for advancement, Buchanan and Koch-Schulte (2000) suggest "the dy-
namics of the industry are such that the 'good jobs' are disproportionately
distributed to the few young men in the labour force" (p. 14). Indeed, rel-
atively high-paying inbound call centers that require special expertise (like
mutual fund sales) and that consequently require phone representatives to
pass exams are almost exclusively dominated by men. In broad terms, men
working in call centers have specialized skills that give them numerous
opportunities for advancement, while women tend to be concentrated in
positions that demand sympathy, listening, interpersonal, conflict-
resolution, and communication skills—care-giving functions that may be
summarized as "emotional labour" (Buchanan & Koch-Schulte, 2000, pp.
48–51). Moreover, women do not have much opportunity to learn new and
challenging skills that would lead to better-paying jobs simply because they
are valued for their care-giving role and for their ability to keyboard quick-
ly (Buchanan & Koch-Schulte, 2000, p. 53). Thus, despite the gleaming ap-
pearance of many call centers, with rows of high-powered computers and
sophisticated Web-based digital interfaces, many female workers view their
workplaces as nothing but factories. "You think this is an advanced office
and this is on the cutting edge of technology, or whatever. It is not that at
all. It is a factory" (Buchanan & Koch-Schulte, 2000, p. 53).

As libraries move toward the vision of Coffman (1999), Coffman and
Saxton (1999), Ferguson (2000), and McGlamery and Coffman (2000),
where paraprofessionals in call centers perform functions previously the
preserve of reference professionals, there is a danger that they will become
even more complicit in what Ellis (1997) identifies as "the economy of off-
shore information production" (p. 112). For instance, many cataloguing
and document-conversion tasks are performed in less-developed countries
for low wages and in unsafe working conditions. These are low-skill data-
entry jobs held by women at a rate approaching 98 percent. Reviewing other
studies on the subject, Ellis summarizes that these "data-entry women are
locked into physically damaging work with little or no opportunity for
making transitions to traditionally male (and increasingly scarce) techni-
cal or supervisory roles." He quotes one supervisor of data-entry clerks who
notes "Women are better at this kind of job [because] they are more dex-
terous, more disciplined, more caring about the quality of work and more
agile" (pp. 117–119). This echoes the comments of a call-center supra-
visor worker interviewed by Buchanan and Koch-Schulte (2000), who attrib-
uted the preponderance of women in the industry to the fact that "there were more typing skills among women, and also, I suppose, you aren't trained to anything else. . . . It's a great job for somebody who types real fast and sits there" (p. 53). Studying the phenomena of data processors in various Caribbean countries, Skinner (1998) also offers evidence for the mostly female composition of data clerks. One government official is of the opinion that "women have a natural proclivity for work that is tedious and monotonous" and that "a man just won't stay in this tedious kind of work, he would walk out in a couple of hours" (p. 83).

Siegel (1998) notes that the Silicon Valley high-tech workforce also has characteristics of gendered labor segmentation. Even though women make up only 38.1 percent of these workers, women constitute 79.1 percent of clerks, versus 22.6 percent of managers (pp. 99–102). These statistics indicate the larger forces currently affecting library restructuring and reorganization. Harris and Marshall (1998) remind us that a prevailing attitude among some library directors is that the work traditionally performed by higher-paid women in the library system is overrated, silly, or comprised of what Coffman and Saxton (1999) call "odd tasks." Thus, in the view of library directors, "it makes good sense to pass it on to other women who are a little lower-paid, and who can, with training, take on increased responsibility" (Harris & Marshall, 1998, p. 579).

This deprofessionalization of reference responsibilities is, from one perspective, tantamount to a ready acceptance of a large number of female call-center clerks. They would perform tasks that are tedious, monotonous, and partake in what Jarman, Butler and Clairmont (1998) term “the routinisation of human interactions” (p. 2). At the same time, this approach suggests the valorization of managerial and systems-administrator tasks which, according to the statistics gathered by Siegel (1998), are held mostly by men.

Even though proponents of digital reference call centers in academic and public libraries would strenuously argue that their vision of the future is very far removed indeed from the electronic sweatshop model, the call-center analogy used to describe digital reference work is, on both practical and symbolic levels, extremely telling. Since librarianship is a female-intensive profession that has traditionally paid relatively high wages, any attempt to offload reference functions to paraprofessionals working in a setting characterized by constant electronic surveillance, low wages, labor segmentation, work routinization, stress, and high levels of employee churn is a worrisome setback. Library directors currently do not seem overly concerned about "the economy of offshore information production" described by Ellis (1997), so it is not inconceivable that they would come to accept as normal, and perhaps even desirable, a situation in which clerical workers process reference questions under less than stellar working conditions. For all intents and purposes, library directors who are enthusiastic about call
centers appear to be willing victims of technological determinism. It is almost as if they are saying to themselves: If the technology exists and if everyone else is using it, why shouldn’t I use it too? The opportunity to cut costs and show oneself to be an adept and forward-thinking manager is irresistible. Scant heed is given to Gramsci’s (1971) warning against the danger inherent in blindly accepting that which seems to be the commonsensical approach and “the spontaneous philosophy which is proper to everybody” (p. 323). In short, unexamined acceptance of late 20th-century information technology (IT) has created a hegemonic dynamic insofar as non-IT-based solutions are held to be without much value.

Revaluing Reading as the Basis of Reference Work

To be sure, there are numerous suggestions about how to improve the call-center experience. Buchanan and Koch-Schulte (2000) propose a series of significant ameliorative actions, including monitoring the “gender and racial segmentation of workers” in call centers, ensuring that call centers create intellectually challenging “good jobs” that provide advancement and career opportunities, regulating the working conditions with regard to pace and stress, and emphasizing the value-added and skilled nature of call-center work (pp. 63–72). These changes, if instituted, would certainly improve library reference call centers. Yet the dangers remain: not only would the “bad jobs” prevalent in call centers assume an increasing share of the totality of jobs in a library universe heretofore characterized by “good jobs,” but the fundamental human-centered and caring aspect of traditional reference work would also be eviscerated in the rush for efficiency and cost-effectiveness.

Ferguson (2000) would disagree with this assessment. Instead, he believes that a three-tiered integrated “on-site/remote service matrix” (p. 306) would ensure that the “enduring service values [of librarianship] can be reinterpreted and sustained in meaningful ways by promoting user satisfaction that derives from personal contact and by increasing the ability to verify customer satisfaction in arenas not currently monitored well” (p. 308). He envisions first-tier gateway services (“basic use and finding questions related to core information resources”) staffed by students and paraprofessionals who make use of asynchronous user aids through Customer Support Centers; second-tier intermediate services (“general research support and initial triage of complex software or hardware issues; referral to experts”) staffed by paraprofessionals, computer consultants, and librarians making use of e-mail reference; and third-tier expert and specialized services (“subject or resource experts by appointment or during office hours”) staffed by librarians and computer consultants (p. 305). Yet, at the same time, he foresees that an “Internet call center” would be the cornerstone of all these services, dealing around the clock with most questions and situations, making only a small number of referrals to librarian experts.
(p. 308). Keeping in mind that, according to Coffinan and Saxton (1999), the primary purpose of library call centers is to increase efficiency and reduce costs by decreasing time spent per call and hence the number of staff required to take calls, the nature of the “personal contact” that Ferguson (2000) still believes to be possible is, to say the least, problematic.

From another perspective, Ferguson’s plan also devalues the majority of reference questions and information requests by assigning them to less-qualified personnel. In effect, he forgets that each reference question comes with a complex history and, often, a psychosocial context. As Dervin (1992) has shown, individuals seeking reference assistance may be thought of as experiencing a gap in their understanding of a particular situation, whether intellectual, psychological, emotional, practical, or recreational. They have a discontinuity in their knowledge about something, and they are unable to continue on their journey of achieving knowledge without obtaining “gap-bridging” information (p. 68). Reference staff may therefore be instrumental in offering a series of “helps” that can assume such diverse forms as initiating a new idea or a new way of looking at things; offering a sense of direction; assisting in the development of a new skill; regaining control; moving out of a bad situation, or obtaining support, comfort, or reassurance (p. 75). Kuhlthau (1993), moreover, sees the librarian as a counselor who establishes, with the patron, an ongoing dialogue “that leads to an exploration of strategy and to a sequence for learning” (p. 144). Typically, the dialogue may be reformulated, redefined, and nuanced throughout the many stages of the information-seeking process, as librarians “facilitate understanding, problem solving, and decision making” (p. 188). In the call-center model advocated by Coffinan (1999), Coffman and Saxton (1999), Ferguson (2000), and McGlamery and Coffinan (2000), with its emphasis on speed and rote answers through electronic FAQs, the opportunities for caring, personalized reference service delivered by library professionals who understand the psychological insights of Dervin (1992) and Kuhlthau (1993) would be few and far between.

Is there another approach to rethinking reference service that would valorize the intellectual contribution of the individual reference librarian to a greater extent and still provide value-added service? Early practitioners of library reference work were convinced that general-interest reading, especially reading of newspapers and magazines, was an integral aspect of success on the job. Walter (1925) urged librarians not only to promote reading among the public, but also to realize that “[i]n self defense the librarian [too] must read if she wishes to succeed.” (p. 31). More specifically, to keep up with the pace of world events, “One often must get out of the current to see the progress of the stream and to notice that it is the stream and not the banks which moves” (p. 32). Continuing his analogy, he suggested that, because “[i]nformation is the real water of life to the mind,” it is “most often in books, in magazines and newspapers that one can get the
best perspective of social progress in the limited periods of leisure [available to the librarian].” Wyer (1930) urged librarians to “[f]aithfully read at least one local newspaper” and to “[k]eep somewhat in touch with affairs of state and nation as well as city . . . through a metropolitan daily or an able review” (pp. 120–121). Hutchins (1944) was adamant about the central role that newspapers play in the provision of superior reference service. She noted, first, that “a very large proportion of the reference work in practically all types and sizes of libraries is accomplished by means of periodicals and newspapers (p. 103). Newspapers and periodicals are “indispensable” because they “supply the most up-to-date information on all subjects” (p. 103). Ranganathan (1961) also insists on the value of reading newspapers and periodicals on a regular basis: because “sometimes research studies and investigations are reported in the newspapers at their inception. Sometimes newspapers have feature articles on important conclusions brought to light.” Accordingly, a “close scanning of both newspapers and periodicals is really necessary for useful, intelligent long-range reference service” (p. 349) because the reference worker must constantly anticipate the types of questions that could possibly be asked, and because periodicals “provide opportunities for the reference librarian to keep himself [or herself] abreast of the world’s progress in knowledge,” in effect “keep[ing] ahead of the game [and at] the very wave-front in the advance of knowledge” (p. 352). When reading newspapers and periodicals, “the variety of questions actually brought up by enquirers and of the questions anticipated on the basis of local knowledge and contemporary happenings should get interlaced in the mind of the reference librarian” (p. 350).

The emphasis on reading current publications is undergoing a renaissance. There is some indication that a handful of companies are recognizing that general-interest reading (sometimes called “environmental scanning”) by their in-house corporate librarians contributes to the bottom line. For example, the librarian for Highsmith Inc. spends “20% of her time scanning newspapers, magazines, on-line databases, and Web sites . . . and her antennae are always up for interesting tidbits from television, radio, advertising, or casual conversation” (Buchanan, 1999, p. 54). The significant point here is that she never knows what she is looking for or what she will find. Instead, she must be alert to a wide variety of issues, themes, social trends, and occurrences, and her perusal of media sources must be sufficiently detailed so that she can reject material as well as flag it as potentially valuable. As a result, she becomes a walking, well-informed resource for everyone in the company, not just for those who have assigned her specific tasks and searches. In addition, Thomsen (1999) suggests that one important way for librarians not only to survive constant change, but also to provide the type of service users demand and expect in a fast-paced world, is to read newspapers, magazines, and generally make themselves into “active and informed citizens” through a diversified and continuous current-awareness program.
Indeed, in order to anticipate the myriad questions and concerns that affect "the lives of our patrons and sends them off in search of information" and to avoid embarrassing gaps in their own cultural knowledge, Thomsen argues that reference librarians, "should spend several hours a day reading a variety of newspapers and magazines—cover to cover—listening to National Public Radio (NPR) and watching CNN" (p. 34).

**Benefits of Newspapers and Magazines in Library Reference Work**

In sum, intensive reading of a wide array of current publications gives librarians intellectual tools with which to confront an equally wide array of information requests. They can then use this knowledge to understand the comprehensive context of the question and to make innovative connections to other fields and subject areas, giving the library customer a richer and more robust answer than if they had very little background knowledge about the particular question. Or, quite simply, they can provide the answer in a shorter time, thus fulfilling one of the desiderata of reference work in the digital era.

How does this work in practice? To give some idea about the range of situations where knowledge of information contained in newspapers and magazines has had or could have a demonstrated positive effect in reference work, I want to present four documented examples from often overlooked reference texts.

In one of his reference case studies, Ranganathan (1961) tells the story of the "Kra Canal Enquiry." Here, "a young graduate stepped into the library. Mentioning an alleged agreement between Siam and Japan, he asked for information on Kra Canal." Unfortunately, the librarians "were absolutely ignorant" of [the problem]" (p. 391). A long and frustrating hunt for the desired information commenced. Librarians and the patron worked hand in hand, searching unsuccessfully through the following sources: encyclopaedias; books on Siam; book on Japanese foreign policy; books on naval bases in Singapore; and books on Far Eastern problems. Subsequently, periodicals were searched, with a little more success. The magazine *Pacific Affairs* contained an article called "The Kra Canal: A Suez for Japan?," which contained a number of footnotes leading to the *Parliamentary Debates*, which in tum gave a number of references to key articles in *The London Times*.

Grogan (1987c) describes how "a young girl obviously on her way home from school" approached the reference librarian wishing to know as much as possible about the first woman in space, whom she said (incorrectly) was Sally Ride (pp. 65-67). Vaguely aware of the recent publicity surrounding Sally Ride, the librarian searches first (unsuccessfully) in the American, British, and international versions of *Who's Who*. He then searches *Biography Index* and finds references to only very brief articles that he knows will not be very useful to the patron. He then remembers the existence of a
magazine entitled *Current Biography*, looks at the cumulative index of the most recent issue, and locates a reference to a cover story on Sally Ride in an issue about three or four months old. The article is about three pages long, mentions that Sally Ride was the first American woman in space, and contains a wealth of personal information about the astronaut.

Grogan (1987a) recounts how a public librarian was asked about spontaneous human combustion. Convinced that such a thing cannot exist, she looked in five encyclopaedias, but only found that this phenomenon occurs in hay, coal, and other such substances. She then consults the *Oxford English Dictionary*, which states that human combustion is possible in people who consume much alcohol. She then searched the library catalog. Finding nothing there, she was “at something of a loss where to turn next” when she asked a senior colleague, who immediately told her, “There was a letter in *The Times* about that a year or so ago” (p. 9). Once located, this letter turns out to be the key to finding a vast array of information about spontaneous human combustion.

Grogan (1987a) describes a request for information about the present whereabouts of Noah’s ark. The unsuccessful search encompassed, again, numerous encyclopaedias, numerous periodical indexes, and the *British National Bibliography*. Two promising-sounding books were indeed found but did not contain the desired information. Grogan then relates how “[t]his was the point at which the librarian indicated that he had taken the search far enough” (p. 18). But, some months later, “by one of those chances that happen so frequently in reference work,” the librarian noticed “in his routine scanning of *The Times*” a story, datelined Ankara, that reported on a recent discovery of “a boat-shaped formation found 5,000 ft. up Mount Ararat in Eastern Turkey” which the archaeologist was confident would turn out to be Noah’s Ark (p. 19).

In the first two examples, intensive reading of newspapers or magazines could have facilitated answer provision. Librarians would have been aware that they had read about the Kra Canal in a newspaper and would have immediately gone to *The Times* index to find the appropriate issue. Or, if the article in question was too recent to have been indexed, they could have leafed through back issues to locate the correct article. Either way, much time could have been saved. Similarly, in the case of the young girl and Sally Ride, even the most cursory scanning of recent magazines and newspapers—the idea of environmental scanning as described by Buchanan (1999)—would have allowed the librarian to locate the cover story article about this famous American astronaut. The last two examples, on the other hand, provide ready evidence that newspapers indeed do serve a valuable function. Even a seemingly innocuous letter to the editor can become the starting point for finding an answer to a difficult reference query such as the one about spontaneous human combustion. In addition, as the Noah’s Ark example demonstrates, even the most intractable queries can
frequently be resolved through careful attention to information contained in newspapers.

Although these examples come from an era when online information sources were nonexistent or in their infancy, newspapers and magazines still remain an unparalleled source of up-to-date information. Consider, for instance, five seemingly simple reference questions.

- What is the state flag of Mississippi?
- What is the state motto of Ohio?
- Where is the border between the Canadian province of Québec and Labrador?
- Where is the seat of government of Equatorial Guinea?
- What is the minimum wage in Duluth, Minnesota?

At first glance, these are ready reference questions that could be answered by looking in almanacs, statistical sources, atlases, encyclopaedias, or various online compilations of facts. In reality, they address complex issues that have no one simple answer. Indeed, these complex issues were described in newspapers and magazines throughout the fall of 1999 and spring/summer of 2000, and reference librarians who had not been regularly scanning newspapers and magazines would not have been able to provide correct answers to these questions. In the case of the Mississippi state flag, Firestone (2000) reports that Mississippi has had no official state flag for 94 years because “during a codification of all state laws in 1906 all laws before that date had been repealed unless they were specifically put into the new code of laws” (p. A1). Because the state flag (with its Confederate symbol) that everyone considers to be the state flag had been so designated by an 1894 law, but had not been placed in the 1906 codification, it could no longer be considered as the official state flag. The question about Ohio’s motto is equally complex. Simply put, it is not “With God, All Things Are Possible” because in April 2000 the United States Court of Appeals (6th circuit) ruled that the words are a direct quotation from the New Testament, clearly Christian, and thus an infringement of the separation of church and state (Fritsch, 2000, p. 2). In the case of the border between the Canadian province of Québec and Labrador, the problem lies in the fact that Québec has never officially recognized that Labrador is part of Newfoundland. Even though a British Privy Council decision in 1927 gave Labrador to Newfoundland and most international maps and atlases show Labrador to be part of Newfoundland, Québec believes that Labrador is its own territory, and that, accordingly, there is no border (McKenzie, 1999, D1). With regard to the seat of government of Equatorial Guinea, a correct answer would have been, again, almost impossible to find without recourse to newspapers. Onishi (2000) reports that, as part of a novel developmental strategy, Equatorial Guinea has decided to move its government to a new town every six months so as to stimulate economic, social, and cultural progress in hinterland
areas. The question about minimum wages in Duluth, Minnesota, is perhaps the most intriguing of all. One of the most obvious places to look would be Minnesota state government Web sites such as the Minnesota Department of Labor and Industry. Indeed, this site does contain a page entitled “Wage, hour and employment laws,” which states that minimum wages in the state are defined according to the size (wealth) of the employer and how recently the worker was hired. Thus, a large employer—whose annual gross volume of sales made or business done is not less than $500,000—would have to pay a minimum of $5.15 per hour, while a small employer only has to pay a minimum wage of $4.90 per hour. Although technically accurate, this information would nevertheless be false for Duluth insofar as this city is among the few that have adopted a “living wage” law, which mandates that any company doing business with the city of Duluth must pay a wage that is above the state minimum (Uchitelle, 1999, C1).

Librarians who relied on convenient print or electronic sources such as encyclopaedias, almanacs, atlases, and statistical sources to answer these questions about Mississippi, Ohio, Québec/Labrador, Equatorial Guinea, and Minnesota would have given outdated and incorrect information to users. Knowledge of the information contained in newspapers and magazines would have permitted these same librarians to provide a correct answer in a relatively short time. As Grogan (1987) suggests, newspapers are irreplaceable repositories “of much information completely unavailable elsewhere,”—all the more so because “a substantial minority of the enquiries in all types of libraries stem from the news of the moment” and because they present “the best source there is for assessing the Zeitgeist, the life of the time as seen through the eyes of contemporaries” (p. 94).

CONCLUSION

The theories of Pierre Bourdieu, as explicated in the series of conversations collected in Bourdieu and Wacquant (1992), provide some insights about the processes of change in library reference work. Bourdieu formulated the notion of “field,” defined as a “social microcosm” or a “configuration of objective relations between positions.” There are numerous “fields” in society, and each follows “specific logics” (p. 97). For instance, the world of economics is a field, as is the world of art, religion, or literature. At the same time, however, the limits of a field are fluid and “always at stake in the field itself” (original emphasis; p. 100). A field, Bourdieu believes, can be compared to a “game,” with the difference that a field follows “rules, or regularities, that are not explicit and codified” (p. 98). In addition, a field has “stakes which are for the most part the product of competition between players” (p. 98). Each participant or player has one or more “species of capital” (knowledge of a certain skill, for example) which can be deployed during the competition. For Bourdieu, it is the “species of capital” that is “efficacious in a given field, both as a weapon and as a stake
of struggle" (p. 98). Whoever has capital can wield power and influence. In a sense, capital allows an individual “to exist, in the field under consideration, instead of being considered a negligible quantity” (original emphasis; p. 98). Accordingly, it is “the state of relations of force between players that defines the structure of the field” (p. 99). To clarify his point, he compares “species of capital” with tokens of different colors. The position of each player within the field thus depends not only on the number and arrangement of that individual’s tokens, but also on “the evolution over time of the volume and structure of this capital” (original emphasis; p. 99). More important, individuals can decide to play in order to transform, partially or completely, the immanent rules of the game. They can, for instance, work to change the relative value of tokens of different colors through strategies aimed at discrediting the form of capital upon which the force of their opponents rests (e.g., economic capital) and to valorize the species of capital they preferentially possess (e.g., juridical capital; p. 99).

A field is therefore dynamic. Indeed, it can be said to be a “field of struggles aimed at preserving or transforming” the configuration of “potential and active forces” within it (original emphasis; p. 101). Because the field is “a structure of objective relations between positions of force,” participants within the field attempt to “impose the principle of hierarchization most favorable to their own products” (p. 101).

If librarianship is considered to be a field in Bourdieu’s terms, it is possible to understand it as a “field of struggle” in which one form of capital (subject knowledge of a diverse array of topics) is in the process of being discredited. Another form of capital (ready acceptance of any form of technological innovation) is being valorized. Lengermann, Niebrugge-Brantley, and Kirkpatrick (1996), using the sociological theories of Dorothy Smith’s *The Everyday World as Problematic* and *The Conceptual Practices of Power*, locate the library as the “mediator between the sphere of the extralocal apparatus of ruling” (defined as the sphere shaped by “capitalism and patriarchy” and including such “documents of control” as laws, contracts, news reports, media portrayals, etc.) and the “sphere of the local actuality” (defined as possessing a feminine consciousness insofar as it is concerned with the “dailiness” of living, personal relationships and concrete coping activities) (pp. 84–85). As the technology-driven information revolution marketed by “the extralocal apparatus of ruling” is enforced as a new “textual revolution” to which all must submit, the library, a place inscribed with a feminist notion of professional service, is faced with numerous challenges to remain “a supportive environment focused on the needs of individuals in the local actualities of lived experience” (p. 93). In effect, reference librarians are in danger of allowing their field to be defined by external forces that have decided to make technology-based solutions the primary “species of capital” in an effort to “impose the principle of hierarchization most favorable to their own products.”
Reference librarianship is undergoing profound changes. On both symbolic and practical levels, there is competition to lay claim to the field of reference librarianship, to make it conform more closely to the interests of one group of players who feel that they are currently in the ascendant. The ideas of this group of players have been represented by the ideas found in Coffman (1999), Coffman and Saxton (1999), Ferguson (2000), and McGlamery and Coffman (2000). These players are deploying their “species of capital”—belief in the efficacy of technological innovation as represented in the call-center model—in order to render less valuable the “species of capital” of reference librarians whom they accuse of being concerned only with “reviewing the professional literature” and other odd tasks” such as “keeping kids quiet, scheduling staff, ordering supplies, presiding over children’s story times, checking books out, and other details of managing the building” (Coffman & Saxton, 1999, pp. 143, 154). However, these supposedly valueless tasks go a long way toward creating “a supportive environment focused on the needs of individuals in the local actualities of lived experience” (Lengermann, Niebrugge-Brantley, & Kirkpatrick, 1996, p. 93) and privileging an in-depth subject knowledge about a wide variety of topics. From the perspective of Bourdieu, this is a strategy “aimed at discrediting the form of capital upon which the force of [an] opponent rests” and emphasizing the superiority of an opposite species of capital. The end result is that the “relative value of tokens of different colors” has changed in the field of reference librarianship. From this perspective, technological innovation has become a weapon allowing one group of individuals to exert power and influence on their own behalf and to marginalize the contributions of more skeptical others. It allows this first group of players to paint themselves as innovators in the profession, and it renders the second group a “negligible quantity.” In a very real sense, technological innovation is being construed as a synecdoche for progress, which in turn will allow the field of reference librarianship to survive. The terms of the debate thus permit any skeptic of technological innovation to be branded an opponent of progress and thus an impediment to the field’s survival.

The specter of deprofessionalization of the reference function looms ominously. An increasing percentage of reference questions are being offloaded to paraprofessionals working in call centers notorious for low pay, high turnover, lack of advancement opportunities, and stressful working conditions. As reference functions become more and more automated through call-center interactive voice-response systems and automated call-distribution systems, the intellectual component traditionally associated with reference librarianship becomes increasingly etiolated. Indeed, the kind of subject knowledge gained from an intensive program of reading is fast becoming an endangered “species of capital.” It may seem trivial to suggest that reading newspapers and magazines can help to re-intellectualize reference work and reestablish a “species of capital” that could be “effica-
cious in a given field, both as a weapon and as a stake of struggle.” But, as the examples discussed above suggest, there is real value for reference work in reading newspapers and magazines, especially since such reading often leads to the reading of book-length matter. Although few would discourage reference librarians from reading intensively and extensively in diverse subject areas, by the same token, such reading is not, for the most part, encouraged and valorized as a vital component of reference work. Were it to be so encouraged and valorized, such inherently deprofessionalizing proposals as digital reference call centers, with their implications of labor market segmentation and the feminization of “bad jobs,” might prove to be unnecessary.

REFERENCES


Reference in Library and Information Science Education

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ABSTRACT
Technology has affected the reference and information culture in libraries. With the increasing scope of information transfer, users have higher service expectations of library and information science professionals. The emergence of a digital information environment has changed the century-old role of the reference professional. After the rise of the Internet, many skeptics foresaw the end of a need for librarians, particularly those working in traditional positions such as reference. Nevertheless, data from the Bureau of Labor Statistics indicates an increase in the number of information professionals by the year 2008. Reference professionals are becoming more—not less—essential. Graduate programs must examine the curriculum for reference and information access professionals. Greater access to information sources by users has highlighted the need for reference and information professionals to develop new skills including more technological knowledge, a better understanding of user information-seeking, new instructional techniques, and better communication skills. In addition to live classroom instruction, most schools offer reference and information access courses to a more diverse student body by employing distance-learning technologies.

INTRODUCTION
This is an exciting time to be an information-access professional providing reference services. Abels (1997) broadly defined reference services as “those services that provide access to information through direct or indirect intermediation” (p.136). With the increasing scope and rapidity of
information transfer and the many new opportunities opened up by network technology, the pace of information change has accelerated. In response to expectations placed on the information profession, graduate programs must examine reference and information-access training. The movie *Desk Set* illustrates the fear of replacement that afflicted many librarians after the introduction of the computer. This was one of the first visualizations of the “human versus the machine” debate in the information profession. Although only hired to install a computer to better handle research requests, the presence of the computer specialist causes rampant paranoia as the staff worries about losing their jobs to the machine. Early reaction to the development and growing popularity of the Internet was a sequel to this fear.

On the contrary, the importance of reference librarians is actually growing in this age of the Internet. Keller (2000) reports that the number of reference librarians working at public libraries in the United States has grown from 2,634 reference librarians in 1995 to 4,100 in 2000. In addition, a survey conducted by the Urban Libraries Council in 2000 confirmed that the Internet is not driving people away from libraries. More than three-fourths of the surveyed Internet users reported that they also use libraries. The study found that access to the subscription journals and databases in libraries keeps those users coming back. Crosby (2000) reported in the *Occupational Outlook Quarterly* that the number of librarian jobs is projected to grow about 5 percent between 1998 and 2008. By 2008, librarians will hold 7,000 more positions than they did in 1998 (p. 9).

The *Occupational Outlook Handbook* (2000) describes the changes in the information access profession:

> The traditional concept of a library is being redefined, from a place to access paper records or books, to one which also houses the most advanced mediums, including CD-ROM, the Internet, virtual libraries, and remote access to a wide range of resources. Consequently, librarians are increasingly combining traditional duties with tasks involving quickly changing technology.

The *Handbook* specifically defines the need for reference librarians:

> Librarians in user services, such as reference and children’s librarians, work with the public to help them find the information they need. This involves analyzing users’ needs to determine what information is appropriate, and searching for, acquiring, and providing information. It also includes an instructional role, such as showing users how to access information. For example, librarians commonly help users navigate the Internet, showing them how to most efficiently search for relevant information.

Information technology is an ever-changing field that has affected the reference and information culture of libraries. Libraries are in the midst of a phenomenal explosion of technological change that began during the
From high-speed Internet access to desktop hookups for laptops and computers to full-text electronic books, journals, documents, newspapers, and articles, technology offers multiple ways for today’s information user to retrieve, send, or receive information. The advent of the electronic library, digital library, data warehouse, or virtual libraries, however they may be termed, has changed society’s thoughts on libraries in general. Libraries, such as the Library of Congress with the National Digital Library, provide access to the library’s historical collections in schools and homes. Peek (1998) wrote in an essay on library buzzwords, “In a simpler time, we had no problem defining the term library. Libraries were a collection of information, usually databases called books, held in a specific location. The presumption is that this information was intended to be shared—perhaps not shared with the entire world, but available to a specific community” (p. 36). In her definition of a digital library, Peek (1998) identified three similarities between a physical and digital library: “Both own and control the information; Both provide access to information, not merely pointers to it; and Both must have a unified organizational structure so there are consistent points for accessing the data” (p. 36). Traditional print and virtual libraries have a great deal in common. Crawford (1998), a self-described “life-long technologist,” wrote that the future will include “both print and electronic communication. . . . Both linear text and hypertext. . . . Both mediation by librarians and direct access. . . . Both collections and access. . . . The future means a library that is both edifice and interface.”

During the “Library of Congress Institute on Reference Service in a Digital Age” participants grappled with the issues of delivery and quality of reference provision in digital environments. Over 130 professionals representing 25 states plus foreign countries attended the Institute, which focused on how reference professionals can assist users in making the transition to digital libraries. During the keynote address, Nardi (1998) stated, 

The notion of the “keystone species” is taken from biological ecology and centers on the idea that some species are more critical to the functioning of the ecology than others, because of the special roles they play. . . . In the information society, librarians are a keystone species. With the advent of massive amounts of information available on the Internet, librarians are increasingly important. The Internet provides our clients with the same bewildering array of information sources they encounter in the library—only much worse! The intelligent search and filtering provided by human agents needs to be part and parcel of the electronic world. (p. 49)

Issues addressed during the Institute included providing services to diverse users or clients, distance information services, and education. Delivering quality reference and information services in a print or digital environment will require a commitment to providing traditional and remote reference services to widely dispersed users and clients. Information technologies and
advanced telecommunications such as Web-based chat and conferencing programs can provide these services. The role of the librarian has also changed, requiring a much higher level of interactivity.

TRENDS IN LIBRARY AND INFORMATION SCIENCE EDUCATION

Curriculum changes have resulted from the dispersion of technology throughout the profession. These trends include a focus on the user of information, in whatever context or setting, and on the diversity of information behaviors. A de-institutionalization of the focus of information services is also reflected in education for the information profession. The development of the "library without walls," "the digital library," or the "virtual library" has dissolved the boundaries for providing information in a physical facility or a limited area.

The recent Kellogg-ALISE Information Professions and Education Renewal (KALIPER) project is the most extensive examination of library and information science education since the Williamson Report, published in 1923. The purpose of the KALIPER project was to analyze the nature and extent of major curricular change in LIS education. In a summary of KALIPER study findings made at the Annual Meeting of ALISE in 2000, Durance stated:

The Williamson Report, credited with major changes in education of librarians including the development of the first standards for library education, was quite negative about the state of library education at the beginning of the 20th Century. On the other hand, the KALIPER Scholars have found a vibrant, dynamic, changing field which is undertaking an array of initiatives as seen in the large number of schools examined by the KALIPER Scholars.

Researchers reported a number of trends that are shaping LIS programs in the Executive Summary of the KALIPER research (2000).

1. In addition to libraries as institutions and library-specific operations, LIS curriculum is addressing broad-based information environments and information problems.

2. While LIS curriculum continues to incorporate perspectives from other disciplines, a unique core has taken shape that is predominantly user-centered.

3. LIS schools are increasing their investment and infusion of information technology into their curricula.

4. LIS schools are offering students greater flexibility in tailoring their programs around specific areas of interest.

5. LIS schools are offering instruction in different formats to provide students with more flexibility.

6. LIS schools are expanding their programs by offering related degrees at the undergraduate, master's, and doctoral levels.
The implication is that curricula of graduate programs must be constructed to equip graduate professionals with the knowledge, skills, and techniques to acquire, organize, and disseminate information according to the new demands.

When Melvil Dewey opened the first library school at Columbia University in 1887, the core curriculum was designed to provide students with a set of professional skills to assist users in a particular institutional environment. As Wiegand (2000) wrote in a White Paper for the Congress of Professional Education of the American Library Association,

> For more than a century now, information handling has constituted our unique professional responsibility, and teaching efficient ways to acquire, organize, preserve and circulate certain approved and legitimated kinds of information, no matter their textual format, has constituted the content of LIS's core curriculum. That is what was taught in 1887; with minor modifications to accommodate newer information technologies, that is what is taught in 1999, and in the intervening 112 years billions of people have benefited from the professional practice grounded on this core.

According to the International Federation of Library Associations (IFLA) *Standards for Library Schools*, the core curriculum consists of the fundamental subjects that all students should master first. The traditional core curriculum for the master's degree in library and information science included book selection, cataloging and classification, reference work, administration and management of libraries, history of books and libraries, research methods, and libraries in society (including communication). This core was constant in all schools for the first half-century of U.S. library education.

The introduction and use of computer technology has expanded the knowledge base for library and information science. Marco (1994) identified two factors that greatly diversified and deemphasized this core base of knowledge (p. 176). The first factor was the introduction of technology itself into the curriculum: students must use technology to solve information problems. The second factor was the emphasis on specialization in library practice and the introduction of elective courses. The diverse range of professional opportunities has expanded the knowledge and skills that graduates must possess.

The KALIPER researchers stated in the Executive Summary (2000) "the importance of consolidating the LIS core and clearly delineating what makes LIS distinct—as a knowledge domain—from other disciplines." The researchers found that most schools emphasize a user-centered perspective, and that core curriculum revisions by LIS programs incorporated instruction in information-seeking from the cognitive level to the role of information in society. These factors are and must remain included in the curriculum of reference or information access courses at graduate institutions. The researchers concluded that the focus on users makes library and informa-
tion science distinct from other fields that play a role in the creation, organization, management, accession, and dissemination of information. In other words, graduate programs must prepare information professionals to have a client-centered perspective—to be able to design or adapt information products and services that are responsive to user needs, rather than trying to adapt users to the services.

Barron and Blessinger (2000) reported that the size of the core curriculum for schools ranges from six to 48 hours of courses in master’s programs on the semester system and from 24 to 32 hours for those on the quarter system. The average among schools on the semester system is 19 hours. My recent analysis of the core curriculum for all library schools found that the majority of schools still require a reference course. Marco (1994) found that reference was one of only two courses from the traditional core curriculum required by most accredited U.S. schools (p. 183). My examination of the core requirements in 2000 found that 45 of the ALA-accredited schools required a course covering the knowledge and skills associated with reference services or information access provision.

PREPARATION OF REFERENCE AND INFORMATION ACCESS PROFESSIONALS

Historically, reference professionals have played an important role in the transfer of knowledge and ideas by providing people with access to the information they need and want. Among the major functions in librarianship—collecting materials for a particular constituency, organizing those materials on the shelves and creating public records, circulating materials, and assisting users to retrieve materials and information—reference service was the last to develop, in the late 1800s. Green (1876) outlined the four general responsibilities of reference librarians as instruction, satisfying inquiries, collection development, and public relations and library promotion (pp. 78–79). Over the years these roles have changed only in the methods and techniques used to meet them. Mardikian and Kesselman (1995) identified five “rationales that have changed reference and information services”:

1. Increasing access to resources beyond the library (networked resources including the Internet),
2. Lack of geographic constraints for users (“users may no longer need to come to the library to obtain information”),
3. The need to differentiate services to different populations of users (i.e., inside an organization and outside an organization) in the face of shrinking budgets,
4. Increases in complexity of information resources and the need for specialized knowledge, and
5. New options (primarily in staffing) for answering reference questions (pp. 22–25).
All of these rationales demonstrate the changes in the role of reference librarians. Sutton (1996) defined a four-part typology of the expansion of reference collections from a paper-based, traditional library to a digital library:

1. **Traditional.** A specific place with a finite collection of tangible information bearing primary entities like books and journals.
2. **Automated.** A mix of paper and digital reference resources and metainformation that point to non-digital media.
3. **Hybrid.** Typified by the use of both print and digital metainformation sources and the coexistence of both digital and paper primary resources. This type of library allows for the first time remote access to “some subset of the library’s digital collection or to digital resources.”
4. **Digital.** The library as a logical entity. The library without walls—it does not collect tangible information bearing entities, but instead provides mediated, geographically unconstrained access to distributed, networked digital information. (p. 132)

Most libraries and information centers are in the third level of the typology, offering a hybrid of digital and traditional print resources in their collections.

The Internet Web-based access to information has decisively influenced and changed almost every area of reference work, including reference interactions and the availability and accessibility of information for the general user. Wilson (2000) noted that “the continuing viability of reference librarians now depends on: (1) how reference librarians and users mutually adapt as librarians affirm a role as providers of assistance on accessing information and (2) how to clarify in users’ minds an awareness of their information needs” (p. 390).

The changes in collections and accessible resources have altered the type and level of information service provided by most institutions. In the past, reference professionals wanted to provide accurate answers to users. With the added networked information resources, that goal has expanded to include facilitating the development of self-reliant customers through a basic level of user instruction. The place of reference is moving and changing from the traditional reference desk to every workstation that now has access to reference tools. Web-based technology allows end users to access information directly. Much of this information, once restricted to use only in the library, is now often available from remote locations twenty-four hours a day. Interactions with information professionals have expanded from traditional face-to-face encounters at the reference desk to electronic mail, information literacy education, and Web-based instruction. The entire reference transaction, from specifying the user’s needs to information delivery from the library collection, can be accomplished via the Internet.

During an evaluation of the core curriculum at the University of North
Texas, the faculty discovered that no course has changed more in response to the professional trends than had the reference and information access course. This course has been affected by cultural and technological changes, including virtual information access, a greater focus on the diversity of users, the unique information needs of users in whatever setting, and the diversity of users’ information behaviors. The Kellogg-ALISE KALIPER (2000) researchers concluded that "Information technology underlies all aspects of the curriculum. The programs bear the responsibility for keeping their students on the cutting edge of existing and new technologies as they become available." The researchers specifically pinpointed the importance of students learning to access knowledge across all formats—print and electronic.

Greater access to the Internet and Web-based resources has also developed the need for more technological knowledge, a better understanding of cognitive skills, and better communication skills. The course of graduate study must include much more than "how to select, evaluate, use the reference tools." The curriculum must develop graduates who demonstrate excellent analytical, organizational, and oral and written communicative skills. Courses must be adapted to educate librarians to use new technology resources.

**Design of Reference and Information Access Courses**

Most courses can be divided into two parts representing the work of the reference librarian: information services and information resources. In response to technological changes in information and the reconceptualizing of the context and role of reference services, courses have changed in graduate programs. Wilson (2000) identified three components of reference services that must be addressed:

1. Training users to access and evaluate information sources. (The ability to access and evaluate the validity of information sources is a key element in developing information literacy.)
2. The "invisible function" of reference librarians grounded in the fact that many users are not clearly aware of their initial information needs.
3. Service that provides users with information about information (metadata) as well as factual information from the ready reference sources. (pp. 389–390)

The course at the University of North Texas addresses the issues conceptualized by Wilson in a course divided into two parts. The first half addresses the information services of reference, focusing on the development, management, and rendering of the variety of information services and assistance to user populations. The curriculum includes an examination of the epistemological foundations of information use. The course discusses principles and techniques of information retrieval and access services, information-
seeking behavior, user interaction and systems of access, search and retrieval, communication and reference interviewing, instruction and intermediary services, personnel and management issues, copyright and licensing, and the development of digital libraries. Because of changes in the culture of reference services, topics such as the philosophy of reference service, reference interviewing and communication, instruction and training, and information sources must be addressed differently in the curriculum.

**Philosophy of Service**

Because of the changing reference culture, it is important for students to examine its philosophy and epistemological bases. This section of the reference curriculum looks at more than just the day-to-day practice of a reference librarian, examining also the underlying assumptions of the procedures librarians use. Radford and Budd (1997) wrote, “library institutions and the people who work within and use them are operating within epistemological frameworks or normative systems that enable people to understand what the library is, what it does, and how one behaves within its systems” (p. 316). As the role of the reference librarian in the information culture continues to evolve, it is crucial for these issues to be discussed in the course.

Service, a fundamental principle of reference work, is becoming more important. Stieg (1990) defines service as a “contribution to the wealth of others, as useful labor that does not necessarily produce a tangible commodity, and as a facility supplying a public demand” (p. 46). Technological advancements have given individual information users greater access to information sources and a higher expectation of information service. The sheer quantity of materials is daunting. New information resources often require librarians or information professionals to stay abreast of database changes in order to offer the optimum service expected by sophisticated and many times autonomous clients.

**The Information Intermediary and Reference Communication**

Greater accessibility to information, made possible by Web-based databases and information resources, virtual databases, and other resources, make it imperative that users have access to experiences and assistance that encourage critical evaluation. Reference professionals are becoming more essential to the information society. As users have become more computer savvy and systems easier to use, some librarians predicted that reference services such as interviewing and instruction would not be needed. On the contrary, the role of “information intermediary” or “information mediary” is more crucial. Wiegand (2000) wrote, “Dewey looked upon librarians as information handlers. Librarians were supposed to function as intermediaries between groups of people and the objects of cultural and intellectual authority to which some members of these groups wished access.”
Reference service still consists of personal assistance to users, but there is much more emphasis on teaching and guiding users in their own pursuit of information. Tenopir (1995) concluded, “Instruction with electronic resources is not so much a problem, but an opportunity to reach more students, faculty, and other users than ever before” (p. 1). Nardi (1999) used the term “information therapy” to describe the reference interview process (p. 80). Communication skills have always been considered essential for good reference and information services. Interpersonal relations are even more essential in an automated environment where some users are afraid of the information tools and other users are remote. Good communication with users in the reference interview, whether done in person, on the telephone, through electronic mail, or via two-way video is more important in today’s library and information environments. Providing these intermediary services without the visual cues or body language indicators available through in-person assistance is more difficult and requires the development of other abilities and skills to gauge the users’ response to questions and ultimately their information need. These new skills are taught in courses so graduates will be able to balance digital environments and meet user expectations for accurate information.

**Instructional and Training Role**

While the kinds of people seeking reference assistance have changed as users have become more sophisticated and independent, there is now a greater need for user instruction. Surprenant and Perry-Holmes (1985), in discussing the future and evolution of reference service, accurately predicted that “education may gain equal status with the provision of information as a prime reference function. Education librarians will assume responsibility for assisting the general public in understanding technologies and procedures to access information” (p. 235). Graduates must know what constitutes information literacy and critical thinking skills. They must understand learning and motivation theories and know about and use different instructional techniques. Reference and information access courses must prepare students to perform an intermediary role in classroom settings, one on one, at the point of use, through published instructional tools, Web sites, or other materials, and through remote instruction. There is also a social responsibility for reference professionals to develop education skills during their graduate programs. Pfaffenberger (1990) wrote of the moral and ethical responsibility of reference professionals to provide training, “The assertion that electronic databases contain information or knowledge is philosophically and linguistically incoherent unless the user of the information is capable of decoding the text that the databases contain. . . . Databases cannot be said to represent a valuable social resource in the absence of skilled decoders” (p. 55).

Because the development of instructional tools to support user-
centered service is crucial, graduates must also learn technical writing skills to create tools that will truly assist all users. Earlier studies testing students' comprehension of terminology used in instructions and guides found that many of the terms routinely used have no meaning to users. Massey-Burzio (1991) correctly predicted that "methods of library instruction will undoubtedly continue to evolve, and will likely place additional demands on our oral communications skills. . . . In addition to verbal skill, writing skills are also needed since a considerable part of a reference librarian's life is spent preparing brochures, pathfinders, flyers, point-of-use instruction guides, articles . . . and other written communication" (p.73).

Another important change is in the role of the reference librarian. As the intermediary role has become more important, it has become more proactive. More reference professionals are taking on work such as information analysis, consolidation, and repackaging.

Teaching the Diverse Formats of Information Resources

The second half of the class looks at information access by addressing the examination, analysis, evaluation, selection, and use of diverse information resources. Reference collections now include print resources as well as subscriptions to databases, indexes, encyclopedias, and other commercial materials accessible on Web-based platforms. In an interview for Library Journal on the changes in reference tools, Kate Wittenberg, Director of the Electronic Publishing Initiative at Columbia University, commented that combinations of "gray literature, journal content, book content, and online-only information—are not 'officially reference.' . . . They are seen that way by a lot of librarians; one librarian recently told me the future of online reference is these aggregations. . . . Depending on how broadly you stretch the definition, I see this as one model of reference" (Bryant, 2000, p. 9). Even as many standard reference tools are moving to the Web and Internet reference materials are being created, certain essential reference sources will not be reconfigured. Hopkins (1991) stated that all professionals "need to have a firm grasp and understanding of a basic corpus of reference materials. . . . A set of routines, involving a knowledge of the reference interview, search strategies, and reference sources, must be stored in the memory in order to allow the reference worker to respond to reference questions in both an effective and an efficient manner" (p. 78). With the digitization of many reference sources, education for reference professionals still must include development of skill using standard print sources.

The Impact of Distance Learning Technology on Reference Education

The widespread use of interactive videoconferencing and the Web have made feasible many new forms of collaborative distance learning activities. In the last decade, distance education has done much to improve the delivery of master's programs to under-served areas. Results of the Library and Information Science Students Attitudes, Demographics, and Aspiration
Survey (LISSADA), research by Heim and Moen, told educators that the majority of students attend programs in their own states. These data confirmed the need for offering graduate programs at other locations and in diverse formats. Distance and electronic courses remove the geographic boundaries of information science education.

According to the ALISE Statistical Report (2000), 76 percent of the responding accredited schools offered one or more courses away from the home campus during the 1997–98 academic year. Forty-four schools reported 489 courses taught as distance education, with an average of 11 courses per school. Saye (2000) observed, in the ALISE Statistical Report, that 43 of the 50 responding schools had off-campus enrollment. Total full-time off-campus enrollment for all schools was 1680.5 students for the Fall 1999 semester, for a mean enrollment of 43.1 full-time students. Responding schools indicated a number of ways in which they offered distance education courses away from the home campuses, including at distant sites, via Internet delivery of Web-based courses, via closed-circuit two-way interactive audio/video conferencing or compressed video, or via television.

Most ALA-accredited programs offer the reference or information access course as both a face-to-face course and using distance-learning technology. In an analysis of the Spring and Fall 2000 course schedules for the accredited graduate programs, 25 schools only offered the reference and information access class on campus, while 22 offered the course either way. Seventeen schools offered both an on-campus and a distance section of the reference course during the same semester. Only one school offered the reference and information access course only through distance learning.

As distance-education technologies have developed, pedagogical approaches are being discussed by educators. Muirhead (2000) described four competencies necessary for success in these classes: computer skills, literacy/discussion skills, time-management skills, and interactive skills. Participating in distance-education courses does include a learning curve related to the student’s ability to master a computer-mediated system. Many educators wonder whether the online format provides adequate opportunities for the dialogue and social interaction that are vital elements in the learning process. Web-based course-management software, such as Blackboard and WebCT, provide the mechanism for individual or group communication between students and faculty. Students interact with their course materials through reading their textbooks and required readings and working on collaborative exercises. Students can communicate with teachers and receive immediate feedback online. This communication can be immediate (via chat sessions or a phone call) or delayed (through a discussion forum or email). Seminars and workshops can also be conducted without the physical limitations of the classroom. With computerized technology, guest speakers can interact with students from different geographical locations, even different nations.
At the University of North Texas, distance-learning courses serve students in urban areas and remote parts of the state through face-to-face off-campus courses, televised, live-interactive videoconference courses, and online Web-based delivery. The School of Library and Information Sciences has been a pioneer in offering distance-learning opportunities. A goal of the School is to aggressively expand graduate educational opportunities for two populations: those in the many remote Texas cities and counties where library staffs are otherwise unable to continue their formal education, and those others across the country who are geographically isolated from access to a site-based library and information science program. The Center for Distributed Learning provides support services for the distance-learning infrastructure and manages the WebCT Internet-based-course management software.

The School of Library and Information Sciences participates in distance learning via three pedagogical methods: face-to-face off-campus courses, live-interactive videoconferencing, and through the Internet. Full-time faculty members traveled to teach students in Houston and Lubbock for a number of years. Since 1998, the School has used distributed interactive videoconferencing to offer courses in other locations, including Dallas (at a second campus), Texarkana, Wichita Falls, Abilene, Edinburgh, Corpus Christi, and Tyler as well as Minneapolis and St. Cloud, Minnesota. This distance-education technique enables the School to offer these courses on campus and at the distance sites simultaneously, with live lectures delivered via interactive videoconferencing to two to five sites.

The SLIS faculty set as a goal the offering of the complete master’s degree program over the Internet by Summer 2001. To achieve that goal, the faculty committed to develop new courses and convert much of the school’s curriculum to Web-based delivery formats. The SLIS curriculum requires nine hours of core courses, including a course addressing reference and information access. SLIS 5600 (Introduction to Information Access and Retrieval) is a four-credit required course. It is also offered as a required course for undergraduate students matriculating through the Information Science and Legal Information Management programs. The first reengineering of the core curriculum for distance learning was funded by a university grant in 1998. Since the successful reconfiguration of the class, it has been distributed to the nine above-mentioned sites in Texas and two cities in Minnesota using learning technology supported by Web-based course material and communications systems.

Currently the course is organized into modules for each topic. The subject content and exercises provide an academic foundation for meaningful dialogue within the class. Instructional materials and resources are published on the Internet through WebCT; the digital classroom Internet site is password protected. The site includes information about the learning objectives, required readings, a glossary of terms, collaborative learn-
ing activities, assignments, projects, lectures, downloadable PowerPoint lecture-note slides, and hypertext links to databases and other reference sites on the Internet. The students in each class are divided into teams to work together throughout the semester on all collaborative assignments. The cooperative work projects provide a framework within which students develop peer relationships. The availability of course materials on the Internet allows students to access learning modules, laboratory exercises, and assignments at their own desktops. Offering the reference course using this technology gives students experience in using distance-education techniques—experience they will be able to utilize in their professional work. One of the most exciting uses of the distributed technology is the ability to present select guest lecturers, industry professionals and representatives of database vendors and publishers, to the class.

The WebCT e-mail communications system is used for collaborative activities such as conferring with professors, working and communicating with other students on team projects, and submitting assignments. The professor, a doctoral-student teaching assistant, and master’s-student teaching assistants are always available to answer questions. Instructional support assists the graduate students who have diverse learning and cognitive styles, educational needs, and varying abilities to perform as self-directed learners. The university libraries at each course site have supported the course by setting up policies for access for enrolled students. Negotiated policies include agreements for interlibrary loan, circulation, availability of reserved resources, and computer laboratory access.

The effort to prepare this course for delivery primarily on the Web required changes in design, distribution of course content, and teaching methodology, including employing interactive and multimedia techniques to support individual student and group participation during the learning process. The conversion included development and digitizing of multimedia lectures and presentations, learning modules, online assignments and information resource Web sites; WebCT programming and testing; and implementation. The course was taught in an institute format during Summer 2001 on the University of North Texas campus in Denton and remotely during the Fall 2001 semester on the University of Minnesota campus in Minneapolis with 80 percent Web-based delivery and 20 percent face-to-face delivery (approximately 40 contact hours). The substantive course content delivered in 14 topical lecture units was distributed into 18 instructional units or learning modules for Web-based delivery. Each instructional unit included digitized assigned core readings; exercises; supporting topical outlines, explanations, and definitions; and student-teacher collaborative conferencing, group discussions, and interactive role-playing exercises. The units also include detailed guides for computer laboratory experiences, information searching, and resource evaluation exercises. The collabora-
tive assignments will be organized according to the topic being studied and discussed during the learning modules.

The success of a course lies in its design and pedagogical model. Two lessons have been learned from teaching this course using the distance learning technologies:

- Collaborative assignments and activities must be an integral part of the course framework. These assignments encourage students to communicate and to work with distant partners in order to complete the course work and to construct new knowledge. These exercises should be developed to construct meaningful learning.
- Group or team composition should be equitably determined with care to ensure interaction between campus-based and distant students.

Graduate Assistantships

In a survey of the reference departments of the libraries of institutions with ALA-accredited programs, Womack and Rupp-Serrano (2000) found that 64 percent employed graduate assistants (p. 121). Of these institutions, 87 percent employed students only from the graduate program in library and information science. Many assistants go on to work in professional positions in reference departments. To support the reference and information access curriculum, the University Libraries of the University of North Texas offer graduate library assistantships for students in the master’s program. These opportunities allow students to acquire valuable training, preprofessional experience, salary, and benefits such as in-state tuition. Graduate assistants provide reference assistance supporting the professional staff and handle routine questions. They also conduct bibliographic instruction sessions and library tours, as well as developing print and digital training materials. The library is able to take advantage of the students’ development of technological skills as they complete courses such as advanced database searching, Web authoring, document digitization, and database building. In addition to staffing the traditional reference desk, the assistants also contribute to other access services of the University, including work on the library’s Web and database maintenance team and on a document digitization project. Graduate library assistants also work as “virtual reference assistants” for students taking distance learning and Web-based classes.

Continuing Education

How competent is the new graduate six months after completion of the master’s program? Five years after? Ten years? The one fact that educators and professionals must accept is that continuing education is essential to maintaining competence and competitiveness. Administrations are pouring millions into library and information technology to better connect users to information resources. Librarians must know how to utilize all infor-
information tools and continue to create innovative information services using these new technologies. Each professional must make a lifelong commitment to continuous development and education, because the goal of competence is a moving target.

Partnerships should be forged between employers, graduate schools, professional associations, and professionals. Employers must demonstrate and provide support for employees through articulated policies and programs for development and job training, released time, and financial support. Graduate school participation in this ongoing professional development is crucial. In addition to providing students with the basic competencies from a core curriculum and specialized knowledge through elective courses, a program must also instill in its graduates an understanding and acceptance of a responsibility for continuous learning. This is done through curricular efforts and through the demonstration of professional behavior, such as encouraging participation in professional associations. Distance learning technology allows professionals to pursue continuing education and to expand their knowledge base by participating in courses, degree programs, conferences, or workshops addressing the latest issues that connect them to colleagues throughout the country and abroad. Through these new multimedia educational offerings, continuing education can be pursued through dialogue with fellow professionals in a low-cost and convenient manner.

**CONCLUSION**

Today's courses must prepare graduates to provide information with a combination of technological competence, traditional knowledge of information resources, and recalibrated (but traditional information) services with a client centered perspective. As Nofsinger (1999) wrote, "In order to cope with rapid technological and societal changes, reference librarians need excellent communication skills, a strong public services orientation, and extensive training and retraining. Knowledge, skills, and attitudes must be constantly updated as users make more complex and sophisticated reference requests than in the past, while demanding a higher level of service, accountability, and competence" (p. 17).

Through the curriculum in graduate schools, reference and information access professionals must be prepared to adjust to the different levels of user experience and sophistication, to adapt to various roles as providers of assistance on accessing information, and to assist users to clarify their information needs in physical or virtual environments. Graduates must be prepared to implement and design services with an understanding of cognitive styles and their effect on the information-seeking behavior of users. Information providers must understand and consider the contextual setting in which people seek, use, and create information. In addition, information professionals must provide information services and products to
increasingly culturally diverse populations. Drucker predicted that the most important profession in the next century would be knowledge workers. White’s (1999) view on Drucker’s prediction specifically addressed the need for reference librarians, stating, “The most competent ones are likely to be reference librarians using sophisticated hardware and software, tools which the end user does not know how to use (p. 277). With distance learning technology, these courses can be reconfigured to meet the educational goals and needs of on-campus and off-campus students.

REFERENCES


Long Live Old Reference Services and New Technologies

BILL KATZ

ABSTRACT
REFERENCE LIBRARIANS MUST TAKE THE LEAD in the new era of information. It is not enough to follow traditional patterns of service. Reference services technology has passed its first stage of insuring more accurate, rapid delivery of information. The second revolution, which is underway, will improve on both acquisition and retrieval of data. It is necessary to fit new technologies into traditional reference service goals. The human should be given first priority. A new approach to many methods of service is required.

LONG LIVE OLD REFERENCE SERVICES AND NEW TECHNOLOGIES

The appropriate advice to offer any reference librarian about time present and time future can be summarized briefly. First, have faith in yourself and the therapy of humor—although, as Dr. Johnson observed, when you reach seventy-seven it is time to be earnest. Second, analyze all the banal oral, twisted print, and rapid digital advice about how to enhance reference services. This will end in irksome boredom, but it is excellent brain exercise. Third, hold tightly to present practices until someone actually demonstrates the new technology works and will make life effortless. Fourth, don’t assume someone over thirty can’t learn anything. And if under thirty, don’t dismiss the elderly librarian as a friend of the original library commander Dewey. Fifth, after a frustrating day, never quit. Take a cold bath.

There is much more to be said, but anyone sick of gratuitous guidance should return to Proust, a bit of madeline and a cup of tea. Others may proceed to a few additional palpable thoughts about the fairest section in the library.

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The reference library of today is a technological utopia, a democratic cultural oasis for idiots and intellectuals. In a land where more citizens know the lyrics of a commercial than those of the national anthem, the reference section is of inestimable value for seeking trivial bits of information. At the same time, the mentally engaged may turn from the frivolous to spend years researching the life of Francis Scott Key.

The democratic nature of reference work is well known, and it is presumptuous to labor the obvious. Not so clear is the character of technology and its prodigious effect on the changing role of reference services. The reference librarian is now an information specialist whose position advances in esteem as gradually as his or her salary. In the private sector online impresarios have cranked up lucrative (if not always useful) reference sites. The intellectual problem is how to balance the best of the new technologies with the daily, human needs of individuals. The primary argument is simple enough: Reference librarians should not follow the parade down the information highway: instead they should be in the lead. They must command the technological innovations to help rather than frustrate and confuse the public.

There are numerous ways of moving from behind to ahead. Most librarians are well aware of the possibilities, few of which are revolutionary. All make practical sense. Some libraries now have taken a commanding position in the community. Others are modifying present services to improve public use. The 2001 budget of the New York Public Library devotes an additional $10 million to books and to extending hours for library services. The Alabama Virtual Library gives all state residents free online reference access to sources from indexes to directories. Users may seek the information in library, home office, or wherever they have computer access. California’s two largest digital libraries—the California Digital Library and the Library of California—are in step with Alabama by offering statewide online reference service 24 hours a day, 7 days a week. And at the State University of New York at Albany, as in most larger academic libraries, computer clericals (rather than librarians) handle the day by day queries about how a computer functions. Even a cursory glance at library literature demonstrates the imaginative pioneering ideas of working reference librarians.

Cheering on the troops is easy enough. Not so easy is simply trying to keep up. Although Watson-Boone (2000) confines her study to academic librarians and their insistent involvement with research, reference librarians in any type of library would agree that, “In an information-driven world, keeping abreast of new information and knowledge, as well as of procedures for handling them, is part of living and working” (p. 86). Fail to move with the times and what happens? Disaster, in the view of some. Campbell (2000) wonders whether it’s too late for reference services to survive: “I honestly do not know. What I do know is that if they are to survive, you will have to transform them for the new age and prove their value” (p. 227).
Reference services will not only survive, they will flourish long after today's technology is obsolete.

Harmon (2000) notes that “dozens of companies have announced plans to flood the world with hand-held devices including various mutations of cell phones, MP3 music players, digital cameras, e-mail pagers, Web browsers and geopositioning systems” (p. WK6). Then along comes ebrary.com, which promises to replace photocopying by printing out online at a modest cost (around 15 cents per page) most periodical articles or parts of books. Will it work? Like scores of other new technologies, it depends on numerous variables, but for the time being it is worth investigation by reference librarians.

The difficulty is to keep up with almost daily technological advances. In the race, the librarian may forget the traditional role of reference services, not to mention previous peaceful days. Carol Tenopir, the articulate reporter of advances of online reference developments, from time to time draws back to thoughtfully examine the role of the new technologies in libraries. Her conviction, as a librarian working day to day with readers, is that “many of the major goals of librarianship and library services are fundamental and change little over time” (2000, p. 30). She has her own list of “fundamentals” including the pledge honored by all reference librarians, “to provide access to the right information at the right time. Given the tremendous increase in the amount of information published, coupled with the increased costs of materials, this goal poses new challenges” (p. 30).

**Time Present**

In the past decade there is no question the new technologies delivered an impressive number of options to provide access to the right information at the right time. A full-text database lashed to a moderately refined online index can cut the time required to find a citation about rabbits or the meaning of life into seconds rather than hours, days, or a lifetime. One can search information from the world around. It’s possible to find in a moment or two a list of books by X or Y author from the Library of Congress; not too many years ago one had to take a train to Washington to find the same data. Library use of technology has an impressive record. What library would willingly give up e-mail, the miracle of the Web, or the increasing number of online reference works?

The promises of online reference services are being fulfilled. Janes, Carter and Memmott (1999) report that, of 150 academic libraries, 97 percent have Web sites and 45 percent offer digital reference services. Despite the cost of the new technology, “News of the Year” (1999) notes that: “nearly 7 out of 10 librarians report not having to cut back in other areas in order to handle increased technology costs. Of the 25 percent who did have to cut back, the majority cut their materials budget” (p. 5). Gullberg (2000) breaks down the way money is spent in academic libraries. Most of the
budget goes for “journals (50%) with only about 32% . . . spent on the good ole book. . . . That makes 82% spent on print. The rest of the money goes to online resources (6%), gateways (5%), CD-ROMs (2%) and other (5%) . . . only 28% of librarians have bought e-books” (p. 24). Similar figures for other types of libraries indicate the percentages are equally impressive, particularly as the number of electronic libraries increases each year.

Too Much Information

Leadership consists in making decisions others are reluctant to consider. Reference librarians can take (and, in fact, have taken) in many libraries the first step by offering various levels of information to users. This is true particularly for those who rely on the Internet and a billion or so pages of information. Given access eventually to every word written, printed or, yes, spoken, how many people are going to tune in to such services, online or not? In his classic story, “The Library of Babel” Jorge Luis Borges (1962) describes the library where all information is stored. The dream turns into a nightmare: the library is so large that people are unable to find answers. The Web is the Babel library in the making. There is one ultimate solution. Critics boast that the worst movie of the century, Battlefield Earth, based on an L. Ron Hubbard potboiler, solves the Babel-Web problem. A machine will beam the wisdom of the ages into the head of any interested person. Blink an eye and the information of the ages is available. Until then, most people will have to rely on reference librarians.

The understandable second thought about the joys of endless streams of information is evident in numerous books. Jeremy Rifkin (2000), from the Wharton School’s Executive Education Program, argues that the computer has turned consumers into ciphers whose very lives are wired. The ultimate losers are the individual and the open society. The winners will be the few corporations that control information and entertainment, as well as people who are adjusted to a wired society where being disconnected is close to death. Groups such as The Turning Point Project (2000) are fighting this kind of progress and logically oppose putting computers ahead of teachers and librarians. Stewart Brand (2000), an early advocate of placing humanism ahead of technology, asks the rhetorical question: “Is technology moving too fast?”

None of this matters. The rapid journey into the future will not be stopped. Some may get off the information highway, but none can prevent it from crisscrossing the globe. The real test is how to harness the new machines to benefit, rather than injure, individuals and society. Reference librarians are doing their bit.

Sometimes less is best, particularly when seeking an answer to the average query. The notion that the reference library should give users undifferentiated access to a vast number of reference works, both on and offline, is an error. Well, at least for about 95 to 99 percent of the people who approach
the reference section. The 1 to 5 percent of researchers delving into a com-
plex business, scientific, or academic problem do require an open highway
to as much data as they possibly may employ in their work. Others, from the
ubiquitous student, social security maven or just plain John or Mary Q. Pub-
lic, are looking for a simple, direct answer to a usually far from intellectually
challenging problem. This means digging about for two or three citations.
Parents, too, often seek articles or a short (very short) book that will get their
child through one grade to another and on to Harvard.

The paradox is evident. Less is best when less is equated with judiciously
selected resources for the ubiquitous average reference-services user. Con-
versely, where needed, the information of the ages should be available in
the same library. It is a matter of matching the basic question with the ba-
sic source.

Like all major vendors and most of the search engines, DIALOG fol-

ows the “less is best” pattern. The DIALOG solution is to divide their 400–
plus databases into discreet subject units (from business and technology to
science) and “select,” which is a simplified method of searching a limited
number of sources. The search for online relevance is a major project.
Hundreds if not thousands of articles have been written on the subject, as
well as books, research reports, etc. Voorhees (2000) and Cosijn & Ing-
wersen (2000) offer only two examples of the technical, usually dense lan-
guage involved in such papers. Be that as it may, little real progress has been
made in the electronic struggle to equal or surpass the librarian’s evalua-
tion of what is relevant.

In the ideal situation, the reference librarian finds the answers for the
user, rather than showing the user how to locate information; thus the in-
formation overload problem is answered immediately. Where this is not
possible (although it must be, if reference services are ever to reach pro-
fessional status) then the reference section should divide online and print
materials into two or three subsections. One would serve for fundamental,
for the most part traditional questions. The second section would offer sim-
ple Web surfing where the user is there more for entertainment than for
information. The third for the advanced researcher. A divided Web page
or other guide or guides can accomplish much of this. The result: faster,
more satisfactory use of services by the vast majority of users.

THE NEXT ADVANCE

Once the librarian has solved the layperson’s information frenzy there
is time to consider a technological advance. The new hope is to refine infor-
mation sources and improve the ability to pinpoint specific data. If this hap-
pens, and the prediction is that it will, then searching will be more accurate,
more reliable, and certainly more satisfactory for librarians. Again, though,
watch for the spider in this Web of good things. In the drive for the perfect
search some believe there will be fewer companies, fewer alternatives for
searching patterns, and certainly less competition. Basch (2000) predicts: “By 2005, two of the current big three professional quality proprietary online services will be toast” (p. 81). She suggests this will eventually assure that “the entire Web—or a significant chunk of it—transforms itself into a single, humongous, seamless, searchable database. Bots routinely fulfill most common online queries, interfacing with users via natural language voice commands as well as keyboard input” (p. 81). Will libraries be in a position of begging access from a monopolistic enterprise when there are only one or two sources of entrance to the Internet and other information carriers?

In the choppy political-technological sea the reference librarian must take a part in assuring free access to the information highway. Leadership presupposes an active involvement with local, national, and international political decisions. Hardly news, but library administrators are advised that reference librarians must have the free time and the funds to take part in vital discussions.

WASTING TIME TEACHING AT THE COMPUTER

Just whom is the reference library serving? Technologically, it is possible to assert that the world is the library’s clientele. Realistically, at least if the less sophisticated searchers are considered (and this is a good proportion), the reference librarian has to pull up what is possible and match it with what is desirable. This takes distinct forms.

The primary role of a professional reference librarian is to help the user find what is needed. Ability to match the question with the probable source of an answer probably goes back 5,000 or so years in Sumerian and Egyptian libraries, such as they were. Technology certainly helps, but nothing comes close to the knowledge and skills of the reference librarian in making information matches. Beyond that, the librarian should be able to assist in evaluating the potential use of a reference work, a specific paragraph, a periodical, a database, etc., for the particular needs of the user. Again, nothing new. This is tradition at its best.

Unfortunately, in the mad rush to keep up, some librarians have shifted their focus from evaluation to technical computer instruction. Laypersons who avoid books, who naively believe all answers can be found quickly at the computer, have come to believe: “librarians are there for technical support” (Greiner, 2000, p. 88). It rarely occurs to a user to ask the librarian for actual answers, much less how to find what is needed west of the computer in the reference and/or general collection.

Should time fussing about the workings of a computer, and the insistent queries of less than sophisticated readers, concern reference librarians? No. Instead of taking the valuable time of librarians, computer use should be taught by probably better trained clerks or specialists hired just for that purpose. Only when the questions become complex and beyond the mechanical should a reference librarian be called.
A brief moment observing and working in a reference section indicates that the experience of one community college library director is not atypical. Grimes (2000) reports, “I helped a student find several biographical references, both print and electronic. . . . I was the first person to teach her that the Internet is not one source (as in ‘You must have more than one source of information for this assignment’). I taught her . . . the Internet is . . . a stream of sources” (p. 281). Furthermore, it probably was a revelation to the innocent student to realize that print reference works are other sources, too.

Mort (2000) observes, “We librarians were chagrined to find that our users often preferred interacting with [the PC] to interacting with us. . . . They seemed to be getting enough without our help” (p. 99). One suspects the problem is a common misunderstanding. Users, particularly the younger ones, who are as familiar with the workings of computers as with how to find MTV, simply don’t need basic help in computer functions. They do desperately need help with what the computer brings forth.

**Evaluation and Selection**

The librarian’s time is much better spent on first and foremost finding answers rather than diddling with instruction. Beyond that, teaching evaluation of resources is truly important.

In an online survey of 41 librarians, Stover (2000) found that “librarians tend to be pessimistic concerning the critical abilities of library end-users” (p. 46). Most reference experts take it for granted that few people are readily able to distinguish true from shades of truth to bias to lies. The hapless user should know he or she can turn to a librarian to evaluate a citation from *National Review* on the joys of business or on the National Rifle Association’s views. The simple differences in editorial policy between *People Magazine, Reader’s Digest, New York Times,* and *New York Review of Books* will give the student a better grasp of what information is about—a quality perhaps more useful than knowledge of how to feed a laser printer.

Passing on media evaluation skills earned through years of experience and education is a noble thing, indeed. Going over the mechanics of the quick march at the keyboard is necessary, but a horrible waste of time for a trained librarian. This is not the place to drag out arguments in opposition to bibliographic instruction and computer literacy, although instruction seem even less logical now that reference librarians have an increasing amount of work.

**Answers Not Instruction**

Do most people—young or elderly, poor or rich, busy educated or couch potato—really want to know how to master information? Tenopir and Read (2000) found that in 57 academic libraries in the United States and Canada, “75 percent provide remote access in addition to in-house
access” (p. 241). At the same time, “students may be in chat rooms or surfing the Net at all hours, but few are likely to be searching research databases” (p. 245).

People who find amusement in the gyrations of million-dollar quiz shows and who pride themselves on labor-saving shortcuts to opening a peanut butter jar, don’t want to take over from the librarian. They simply want answers. Proof? Ask any adult or student whether they would delight in having a librarian teach them the intricacies of finding an answer, or prefer that the librarian come up with the answer. Unfortunately, technology in the reference section has reinforced the Puritan notion that people must sweat to find answers. It may seem morally, ethically, and logically wrong simply to give them the book, the articles, the manuscripts, or whatever without requiring they first master an online catalog or index.

Being able to find it for yourself in a library is not part of a person’s education—unless, of course, you want it. Then all bets are off and bibliographic instruction should move into high gear to help this minority. Librarians should not inflict instruction on those who don’t want it.

The librarian should be a true mediator between the individual and the frightening amount of information out there. In most cases this means coming up with the answer, no matter how simple or complex or time consuming. Pointing the hapless user to a computer or an online catalog, or threatening bibliographic instruction, is simply not professional, and it is no way to earn respect. Those who think they can do as well in a library as the librarian are not likely to support the librarian.

What would be the outcome of the librarian assuming the professional role that common sense dictates? Looking forward 15 years, Basch (2000) points out that there will be easy-to-operate gadgets to find answers about stock quotes to sports scores. Where in-depth searching is needed among billions of pages of online data (in Borges’s mythical library), then a trusted guide will be required: “Professional researchers (i.e., reference librarians) jockey like X-wing Starfighter pilots through massive, three-dimensional visual data structures. . . . These experts in data mining, information architectures, knowledge management, and institutional wisdom-gathering enjoy a social status equivalent to that of neurosurgeons and celebrity chefs and are paid as handsomely for their expertise” (p. 82). Starfighter pilots? Neurosurgeons? Just staying as an average library reference librarian seems enough.

Ask Jeeves, or a Librarian?

Taking advantage of the reluctance of some reference librarians to answer rather than instruct, commercial organizations now offer a poor type of reference service where the emphasis is on locating what is needed for the user. Librarians must meet this challenge, weak as it is, and go on to demonstrate what professionals can offer the public.

As the New York Public and others recognize, libraries should be open
seven days a week during hours when people have free time, not when it is convenient for the library. Beyond that, libraries must offer 24-hour online answering services. Actual answers, not how or where to find the answer, should be given. Patterns are now well established by commercial reference companies from Electric Library (www.elibrary.com) to Ask Jeeves (www.askjeeves.com) to the latecomer Webhelp (www.webhelp.com). Combining fee-based and free response to queries, they are gaining popularity. Drawing on data from the National Center for Education Statistics, Coffman and McGlamery (2000) report that Ask Jeeves had 485 million queries in 12 months—“over 70% more than the 284.96 million reference transactions handled by all public libraries in the United States in 1996” (p. 66). Other information firms report similar results.

Reference librarians have to be better than the growing number of commercial online answering services. This is not difficult. All of the commercial swings at answering questions are little better than search engines, although with the twist that if the user pays an average of $10 a month the service will e-mail responses to specific questions. Results offer the same satisfaction as the several blind men trying to describe an elephant by enumerating its various parts. What may take minutes to hours working with these grapeshot approaches to information usually will require only a few minutes of a reference librarian’s time.

Over 3,000 Web pages put up by libraries do, to a limited extent, meet head on the challenge of Ask Jeeves and company. Sophisticated systems are about to. See, for example, the University of California at Riverside “Infomine” (http://infomine.ucr.edu) which offers links to 8,500 or more valuable resources available mostly for free. See, too, Michigan’s Internet Public Library (http://www.ipl.org/ref) and the Michigan Electronic Library (http://mel.lib.mi.us). Librarians have other favorites. The problem is that these tend to be local and to lack the support which would bring them up and past commercial ventures. The point is to press home this service to the public by offering 24-hour, sophisticated searches as hinted at by the commercial firms. Why not have reference librarians at hand to answer e-mail requests? Better still, why not suggest the telephone? Why bother? Aside from the duty to offer better service to the poor public, this online full reference service once again makes the librarian indispensable to everyday living for millions. With that comes natural leadership.

The 24 hour/7 day replication of commercial services by libraries is under study and summarized by Coffman (2000) as well as elsewhere. The catch is cost. While some suggest that users pay regular fees for the added services, to charge fees is a great error. The strength of library service is that the tax-supported institution offers free service for all. To abandon this traditional role is to abandon support, when it is most needed, from individual taxpayers. Complicated, expensive, and necessary, the 24/7 system must be a part of reference services in the United States and globally. If not, one
might well ask the rhetorical query put by all reference librarians, including Coffman (2000): “But what happens to our patrons if we abandon them to commercial concerns? And what happens to our profession?” (p. 67). The answer need not be given if the librarian is out in front of commercial efforts—if the librarian is a leader, not a follower.

**Reference Reaching Out**

The sophisticated online library presupposes computer availability. Not so, at least for many. Minorities in low-income areas are less likely to have Internet access. Hardly a surprise. William Kennard, chairman of the Federal Communications Commission, points out the deep digital divide between the haves and have-nots. In an interview the first African-American FCC Chairman points out, “If you look across the nation, 94 percent of homes in America have telephones. When you look at people living on tribal lands, the average drops below 50 percent. And in some areas . . . telephone services is down at 20 percent. . . . In an era of wireless technology and satellite technology, that shouldn’t exist” (Labaton, 2000, p. A12).

Several facts will make poverty here and abroad more of a danger to middle-class well being than most appreciate. Ironically the voice of the poor is heard more loudly due to rapid dissemination of information among the poor’s leaders. Where there is a tremendous imbalance of wealth, revolution is right around the corner. A world of great inequality is not only immoral but poses ethnic, religious, and political trouble among those no longer willing to cooperate with duly elected leaders.

Redirecting some of the reference services to the 20 percent or more who are at the bottom of the American economic scale is a practical way of bringing humanism into the library. The reference library is truly an oasis in this land of haves and have nots. In even the poorest district there is or should be free information service, including the horrors and joys of the Internet. The tragedy is that where the information-entertainment qualities of a Web page may be most needed, they are least in evidence. A large urban library in an affluent community will rightfully boast dozens of computer terminals and access to most of the world’s information. Less fortunate neighborhood libraries are begging for funds to tap even minimal resources.

What’s to be done? Answer: more federal and local funding, made possible by insistent library and user demand. The solution is by way of a cliché. Not so evident, though, is that time worrying about new technologies might better be spent plotting ways to serve the poor.

**The E-Book Question**

Confused and often overwhelmed by the new technologies, reference librarians, as well as their fellows, sometimes give up leadership and decisionmaking in favor of following the misguided crowd. Science and technol-
ogy move on regardless of humanistic or social objections to their progress. Sometimes, though, they not only bypass the needy but also take the higher-income classes up a dimly lit technological alley toward a fast approaching train. Grimes (2000) summarizes what most librarians realize: “The Web’s gee-whiz period is over. . . . Does taking [the Web] route make sense for everyone? Not at all. . . . It takes time and effort to figure out what’s worthwhile and what isn’t. The Web is still in its infancy. . . . But if Web sites are to sell the average consumer on their virtues, they have to be as good or better than their alternatives” (p. 19). Few librarians who lead the confused charge into the future want to be considered traditionalists. Tomorrow is all.

An excellent example is the reaction of some to the e-book. Enamored by the lure of advertising and the growing need to stay at least two or three laps ahead of potential demand, some libraries seem intent on forging on with e-books. Rogers (2000) reports a “burgeoning courtship between libraries and electronic books [which] seems to be on the verge of becoming into a full-blown love affair” (p. 23). He supports his opinion by the number of discussions at various library conferences. Rockwood (2000), the editor of Choice, is typical. He exclaims in an editorial that the e-book “will revolutionize the distribution of information” (p. 1566). He adds, “The only question is what this means.” Answer that and the door to fortune swings open. The difficulty is that no one can; that is why librarians should hang back and not, as Rockwood suggests, rush forward. Rockwood is supported in a substantial discussion by Bartlett (2000), who hints that Choice soon will be reviewing e-books.

With Stephen King’s public relations stunt of putting his novella “Riding the Bullet” online for free, librarians bit the bait instead of the skeptical bullet. Schneider (2000) reports that at a Public Library Association meeting shortly after the King triumph, “many of us who’d had a wait and see attitude understood intuitively that e-books have finally arrived” (p. 88). Pushing this mistaken conclusion was the fuel behind the whole e-book library drive: “There are many libraries circulating e-books—but act fast, and you’re guaranteed to be first somewhere” (p. 88). The desire to be “first somewhere” has been the primary e-book motivator. Weisberg (2000) predicts “Despite the fact that hardly anyone uses an e-book yet, the drumbeat of ventures and issuances is breeding alarm . . . that serious reading in the future may no longer require [print]” (p. 23). This Nostradamus just happens to be chief political correspondent for the online magazine Slate. Beating the drum himself, he pushes a technological device that now seems cold before it even became economically warm. Librarians may wish to invest a few dollars in early e-book readers and electronic contents. Some will be curious to use one in a library—and just as fast to leave it there. Beyond that, the e-book is a waste of money. The books are expensive, for both the reading device and the electronic text itself. Paperbacks cost a fraction of the e-book. Paperbacks may be stuffed in a pocket or purse or read com-
fortably in bed. E-books are difficult to read for any length of time and, in fact, take the same concentration as staring at a computer monitor. Readers refuse to be taken in by a still to be tested technology. Let's hope librarians soon follow their wiser readers.

In the title of his novel on English upper-class life, Anthony Powell (1976) explains a basic reason for treasuring the printed volume: *Books Do Furnish a Room*. Fellow author John Updike (2000) picks up the theme: "Shelved rows of books warm and brighten the starkest room." He adds he prefers print over digital because: the book offers sensual pleasure; "one's collection comes to symbolize the contents of one's mind." In comparison "any electronic text-delivery device would lack substance" (p. WK15). Furthermore, the e-book will "be outdated in a year and within 15 years as inoperable as my formerly treasured Wang word processor." Librarian Leonhardt (2000) agrees, "betting on human nature to reject the electronic machine in favor of that original handheld device, the codex" (p. 85). The assumption that genuine run-of-the-library readers are interested in e-books is usually made by nonreaders, or at any rate those whose reading is limited to technological manuals and threats from future gurus.

Even the most optimistic e-book fans, such as Ardito (2000), admit that "e-publishers have a long way to go before they completely satisfy print book lovers. . . . We need sufficient content to make the industry appealing. Pricing has to be attractive. Portability and comfort are necessary. . . . And most important, we must be reassured that our privacy will not be invaded" (p. 39).

Technology has a habit of burying its dead quickly and moving on. Mann (2000) believes the eventual e-book success secret may be "e-ink," a process under study by major corporations from Xerox to 3M, which will simply duplicate wood-pulp paper but in such a way that electronic messages can be stored and transferred to standard size sheets, not of paper, but of a type of plastic. Fascinating, yet hardly new. The Romans and others had bound wax tablets where text could be inscribed, erased, and inscribed over and over. The new way may be more efficient, but Alexandrian librarians knew the basic mechanics.

**The Online Book Triumph**

If the hand-held electronic book is likely to fail, this hardly means online books will meet the same fate. On the contrary. The true question reference librarians should consider, instead of worrying about e-books, is what type of reference book will be replaced by online electronic formats. Eventually all but a few much used reference titles will be available only online. The present CD-ROMs, as well as the traditional print, will disappear. The new format is economical for publishers who don't have to call in Paul Bunyan to supply the paper for more than a few sets of the 25-million-word, 29-volume *New Grove Dictionary of Music and Musicians*. At a price more reasonable than $4,250 for the set, the online reader can search with the
usual sophisticated online tactics. Besides saving paper, the electronic version saves space for, yes, more PCs in the reference section.

The main test of whether to put out print or electronic versions is not fashion or proof one can use the new technologies. It is the number of readers, real and potential. A print reference work may be valuable for a select group of scholars or laypersons. Perhaps the reference librarian consults it once or twice a year to find data on the polar regions or the extent of guerrilla warfare in the First Seminole War. When thousands of little-used, often expensive titles are published electronically, they will spread their influence. They will be available to any library, free or at a modest fee.

There are scores of other justifications for the trek from print to digital for reference titles. Still, when the readership for a reference work moves from two or three people a year to the hundreds of thousands, even millions, then print should be retained. Asked which reference works they turn to the most, the majority of librarians outside large research institutions, inevitably name no more than a dozen print titles. Many of these are found in middle-class homes, e.g., *The World Almanac, Statistical Abstract of the United States, World Book* (or a similar children’s or adult encyclopedia), a dictionary (more often than not *Merriam Webster’s Collegiate Dictionary*), *Bartlett’s Familiar Quotations*. Librarians and readers prefer these standard print titles to most electronic sources because they have used them and know what they can or cannot find. A question is answered faster here than in other electronic reference works. A one-volume encyclopedia can be consulted for all of 20 to 30 seconds to find a name, date, country and the like. Even the most efficient online searcher is likely to take longer.

The serials section so closely tied to reference services will go down the same path. Little-read periodicals (as with reference titles, the vast majority) will be confined to digital. As Judy Luther (2000), points out: “Electronic files may not be fun to read online but they are very efficient at locating previously read articles as users can conveniently scan a large amount of data” (p. 24). Back issues, particularly of more than a few years, can be stored easily and called up quickly. The equation is simple: every reference section should have current issues of serials available online, and the more popular ones in print form as well. Titles which may not be consulted more than once or twice a year hardly need a print backup; here is where the library can recognize real savings. How many titles can be available only online depends on individual library need and experience, but probably no more than 1 to 2 percent over a basic print-digital list of 200 to 400 titles need be in both print and digital forms. Specific data are needed for, as Luther observes, “It is increasingly important for both librarians and publishers to understand the information ‘context’ of users so that additional capabilities can be developed that will deliver new levels of efficiency” (p. 26).

By the end of the decade, given publishers willing to issue new and older
works in electronic form, the average reference section will consist of 100 to 500 much-used print titles and will offer rapid access to 14,000 to 18,000 others online.

While reference titles are best online, this is not true of the majority of works found in the general reading section. The supposition that in the next 10 or 20 years a library will be little more than a holding station for PCs fails to recognize the reluctance of readers to regularly use digital forms of reading matter.

At Purdue University, two departments declared civil war. One wanted to eliminate books in favor of electronic sources. The other thought this was a scholarly disaster. The electronic-enamored groups saw this as addressing a need for space: eliminate print volumes and there is room for more offices and lecture rooms. The books are not to be burned, but stored remotely and retrieved when needed. Kiernan (2000) reports the librarian summed up concerns about access to print by one teacher with “Jesus Christ, we’ll deliver the yearbooks to his office.” She added, “You have to ask yourselves: Do we need the real estate we have [for books]?” The skirmish illustrates the maximum influence of engaging the best in technology without considering its consequences beyond its obvious purpose—in this case, saving space. The much-acclaimed Project Gutenberg provides free e-texts of over 2,500 books. None is in copyright. Most are eclectic at one extreme or widely published classics at the other. The point of the “Project” remains obscure. Between interlibrary loan or a good library, all of these titles are available in traditional, easy to read print form. A bad idea can be turned to gold when what is put online is either unavailable except in one or two libraries or rare bookstores, or is rarely read and therefore not found in many libraries. To date a good deal of this transfer from print to online has involved, as with the Project Gutenberg experiment, out-of-copyright content. What happens when a copyrighted book goes online? Who pays the author, the original publisher, and others who traditionally profit from print titles?

THE DEATH OF COPYRIGHT

While reference librarians may participate in discussions of copyright and related areas, they should do more. Indeed, they must take a leading role in such debates. The American Library Association, to be sure, is actively engaged in the revision of copyright. Beyond that, though, the reference librarian has to consider copyright consequences.

How long will the current copyright laws prevail? Can they hope to charge for what is now free? How long will publishers be able to charge fees to users or to libraries for online reference materials? The answer: copyright is as good as dead. It may take a decade or two of thrashing about in Congress and in other world governing bodies to kill it off officially, but hackers on the Net will do it in the meantime. The real question is not so much
how to save copyright, but what to put in its place to guarantee more than praise for hard-working publishers and authors.

While lawmakers and publishers revise copyright laws to protect online information, others labor equally to defeating the laws through online programs, which will defy copyright enforcement. They firmly believe all information on the Net should be free. These technical idealists have developed programs to defeat passwords, codes, and scrambling devices, which protect online data. The swapping of free music files on the Net (via services like MP3.com and Napster) are early indications of the difficulty of defeating what lawyers, the recording industry, and many musicians call piracy. For a demonstration of cracking the fee codes try freenet, conceived by a University of Edinburgh student, or Gnutella, the invention of a software developer. They are far, far from perfect about distributing information, but they indicate the problems ahead for publishers.

In early spring of 2000 Stephen King published *Riding the Bullet* online. Within 24 hours, about 400,000 people downloaded the free text. The press announced that a revolution was at hand. Everyone was pleased, including King who reaped masses of unneeded publicity, if limited profit.

Although the book was free, duplicate copies could not be made. This upset some who saw a market for neatly printed copies of the online work. Given this incentive, two days after the digital book was available, a code breaker set up a system to allow anyone to make additional copies. The implication is clear. Fortunately, hackers to date have avoided online fee-based reference services such as indexes and dictionaries. The Association of American Publishers, among many interest groups, is working on encoding standards for distributing texts. Their technology will be so sophisticated (they hope) as to be beyond the reaches of other than authorized readers.

The major hurdle for those trying to profit directly from Web content is the well-known fact that people do not expect to pay for information on the Web. Survey after survey makes that point. A study by Princeton Research Associates (Barringer, 2000) found that 89 percent of the 1,232 respondents had never paid for news or information on the Web, and 83 percent were not willing to pay. So far this works to the advantage of libraries. It accounts in no small way for the popularity of online reference titles in the library and at home stations where library access is offered.

No one knows how a world chock full of online rather than print books will find a way to: a) charge the reader; b) protect copyright; or, most likely, c) ignore charges and copyright and find another path to profit.

Unable to protect their fee-based databases from technological advocates of free data, publishers will post most of their reference sources for free on the Net. This will happen not because librarians assert that "scholarly and government information . . . must be available free of marketing bias, commercial motives, and cost to the individual user" (Keystone, 2000,
p. 103) but because they will have discovered another path to profit tied to free information. Consider the fury generated by the use of magnetic tape and photocopiers: both were supposed to derail television and multiple copies of books. Instead they created new technological industries. Free instead of fee-based Net information will likely follow the same, still uncharted road to profit.

READERS: THE REAL LIBRARY PUBLIC

While the technological advances are of concern to librarians, authors, and publishers, few readers either know or care much about the struggle. What does interest the average library user? Most of the 30 percent of Americans who regularly use libraries (and that percentage rarely varies from decade to decade or place to place) go there to find a book, not to discourse on the joys of information and the new technologies. Usually through a novel or biography, they are doing their best to forget. Escape, at all ranges of intellectual satisfaction from gothic to Proust, is often the reader's goal. This is to recognize why the vast number of adults, and not a few nervous students, may be less than enthusiastic about the full text online index or appreciate having a reference section.

How can the reference librarian, particularly in smaller and medium-sized academic, school and public libraries, be a leader? How to be more visible, more useful to individuals who rarely have a question more pressing than "When does the library close?" or "Where is the bathroom?" Reference librarians might give a bit of their time to readers' advisory services; they often did in the past, and a few do to this day. While many reference librarians view readers' advisory services as outdated as yesterday's celebrity, citizens still require help in selecting books.

Book clubs, reader groups, great books, and a half-dozen other descriptors apply to gatherings of 10 to 20 people who meet each week or month to discuss what they have read. In many areas it is becoming the middle-class thing to do, particularly for people with children and over 30 years of age. Why do they show such an interest in what technology supposedly stifles? Kellaway (2000) offers three reasons: "Take the question of time . . . . No one wants to admit to being a former reader and the only way of ensuring that reading gets done . . . is to put it in the diary . . . As an exclusive social event, reading is cool again" (p. 22). Although people feel pressed for time and have many options, reading remains popular. It costs little and impresses those tied only to the mass media. Third, the 45,000 to 50,000 books published in America alone each year raises the question of what to read; book groups make that decision. "Instead of passively flipping through book reviews, bookclub members get the chance to become book reviewers themselves . . . the downside is that you will have to listen to others pretending to be" reviewers, too (Kellaway, p. 22).

With so many readers out there, Ebsco, for instance, promises help on
their Novelist Web-site (http://novelist.epnet.com). Here layperson and librarian will find a battery of aids, including news about beginning authors, new titles, and advice on book talks.

FUN AND GAMES

The reference librarian should lead in helping to decide the place of the PC in the library as a whole, not just in the reference section. Is the Net primarily for serious people with serious questions, or for others as well? The Net is as much for entertainment and casual education as for focused research and the gathering of data for free or for fee. The reference section, charged with PC and Net supervision, may (or may not) wish to take over the really "serious" library business of entertainment that is found at a computer terminal. At any rate, every library should offer free, non-filtered access to entertainment, just as most of its books, periodicals, and other materials are there for the same purpose.

The marvel of the Net is that it can carry content to the growing number who find less and less on television, radio, or in newspapers and movies to satisfy their natural curiosity about people and the world. Two examples: the single best English-language radio station in the world is the BBC's Radio 4 out of London. Here, without the horrors of advertising, articulate intelligent people discuss everything from the latest novel to gardening and diet. They play to what it means to challenge deep-rooted beliefs in, yes, the Internet. The consensus about Radio 4, and its allies Radio 3 and 5, is such that that greatest gift of late 1999 and 2000 was the availability of most of their programs, as clear as the proverbial bell, on the Net. Inevitably, American public radio stations that have not succumbed to pop culture will equally be present on the Net. One example of the latter is NewYork & Co. (http://www.wnyc.org/), which features at least four discussions of books and writers each day.

A cursory glance at what interests people online indicates that learning is at the bottom of their list. Primarily marketed as an entertainment medium, or by the familiar "information can be fun," the Net draws financial support from the same advertisers who effectively disturb television and radio. The commercial virus takes advantage of Net surfers (or more likely waders) who, as Barnett (1999) puts it, are in a "trancelike state that starts with a few clicks and ends hours later without a sense of time's passage" (p. 177).

Yahoo Internet Life, the widely circulated guide to popular use of the Internet, features a monthly summary about what people are looking for online. According to these Click Charts (2000) "the most visited news/info/entertainment sites include MSNBC with 8.6 million visitors, followed by Disney Online (6 million)" (p. 67). The most popular queries on one search engine, Lycos, open with Pokemon and midway feature Tattoos and then at the end Las Vegas. Questions most frequently asked at Ask Jeeves are
about weather and climate, such as "Why do the days get longer in the summer?" On the whole, the page demonstrates how the Net has shoved aside television as a sandier wasteland dotted with numerous oases of amusement.

Brody (2000) reports what almost everyone knows: "Sex is the hottest topic among adult users of the Internet. . . . Fully one-third of all visits [are] directed to sexually oriented sites, chat rooms and news groups." Before Brody cites numerous studies to validate her figures, she quickly adds: "For most people these forays into cybersex are relatively harmless pursuits" (p. F7). Because most public library computers are under the jurisdiction of the reference section, the question of filters, and public debate over who is to watch the kids, can be a tremendous headache for the otherwise peaceful reference section.

Some parents, who may or may not have tracked sex on the Net, are anxious for the librarian to act as an information gatekeeper of a sort not usually associated with reference searches. "Slam the gate on sex" is the battle cry. That should be the parent's decision. It is not the duty of a reference librarian to decide who or who will not get through the gate. Although the American Library Association has supported this view, filters continue to find their way into libraries.¹

Shopping and stock trading are at the heart of the commercial online revolution. Virtual stores, for both consumers and business concerns, are one of the most significant elements of the online age. Expected to grow over $100 billion by 2003, online commerce has taken hold because it offers comparison shopping and speedy delivery of goods. Rarely a month goes by without another advertisement plugging an advanced system of online shopping. Profit aside, the unforeseen social consequences of moving from mall to computer have yet to be understood. In fact, the nightmare for online retailers is that people will not give up the social aspects of shopping: mixing with crowds, talking to clerks, slipping in a lunch date. This same problem faces those who confidently predict that office environments will give way to individuals working at home.

Reference librarians note, too, an important lack of social interaction when users are drawing information from the library at a home computer. Even in the library, and especially in those with multiple PC stations, the normal conversation between the librarian and the student huddled over a monitor screen may be eliminated or severely curtailed. Lack of a two-way information stream shows in the often poor quality of results, particularly for beginners searching online. Distance-learning experts and Webmasters are aware of this unforeseen consequence and do their best to ease the problem via e-mail, links, and telephone calls.

THE FUTURE INDUSTRY

Not only better service for the poor, but also improved services for the middle class might be possible if only a small portion of the funding and
effort devoted to predicting the future were instead directed to daily activities. There is a constant sales pitch to convince librarians that future technology will solve not only the problems of the world in general, but those of the library in particular. Henry Kissinger invites Mikhail Gorbachev to a forum to discuss with other world leaders the role of America in the 21st century. At a more modest level, hardly a week goes by without someone wandering into the library for a self-help book that promises the future will bring consolation. Nervous librarians understandably try to stay one step ahead of the public in the difficult decision to buy this or that technological advance. Stanford University Libraries (Keller, 2000) cite as two of their “strategic principles for technological innovation” the necessity of installing “telecommunications & power for every seat as rehabilitation or new construction proceeds; install video and data connections in classrooms, [and] other group study rooms” (p. 9). Johnson (2000) sums it up: “Hardly a week seems to pass in which we do not wake up to a [radio] program announcing that buffoons in Cambridge—either the one in Massachusetts or the one in Cambridgeshire—have cloned an elephant or whatever. . . . Somewhere in California they are working on . . . a robot which can think just like us, if not better” (p. 10).

No meeting of the American Library Association or any other national, regional, or local organization of librarians goes by without a barrage of discussion groups and committees talking about both the finite and infinite possibilities of the Net. National groups from funeral experts and artists to newspaper reporters and gardeners pay homage to technology. And find a university that does not offer courses and conferences on the subject: “Harvard University proudly presents ‘Changing Our Lives’ . . . to focus on the transforming ability the Internet has on society.”

The bombardment about the future is conducted throughout the media from the New York Times to television to radio and, yes, constantly on the Net. What’s to be learned from this fascination with the future? Kniffel (2000) sums up the situation nicely: “In the quarter-century that I’ve been a librarian, I’ve seen plenty of ‘futuring’ and ‘visioning.’ I’ve concluded that there is absolutely nothing to be learned from the future. . . . Some of us are forecasting doom for anyone unwilling to reinvent libraries, while others are ducking and covering, hoping for the threat to pass” (p. 46). Why bother adding to the countless “think” pieces on the subject? Because as Kniffel puts it “the primary conflict in our profession for the past 50 years has been tradition versus technology.”

Technology and Tradition

The tradition vs. technology struggle must be resolved by the reference librarian. Not even the best leader can come up with ultimate answers; still he or she must try.

Cell phones, robot lawnmowers, gigantic television tubes, palm pilots
and massive movie screens are bound for glory in the years ahead. Genetic engineering will save the lives of countless babies and eventually insure old age for the many. Painless dentistry, a vast increase in availability of healthy foods, and central heating insure an optimistic future for at least those lucky to have been born in this prosperous era and country.

Positive technological contributions are well known, but there are also negative considerations. A flat-screen television with refurbished sound system is an interior decorator's delight. Unfortunately, the technology does nothing to rejuvenate the programs. The irksome cell phone raises the urban noise level and the perception that private conversation is to be shared with the world. Rapid advances in the storage and dissemination of information threaten library budgets and the nerves of librarians. The wonders of a digital camera will drive the photographer to the technological wall. To what ring of hell is consigned the chap who fires humans and substitutes electronic replacements to do everything from solicit magazines subscriptions to, yes, duck frustrating questions about why the computer shut down?

None of the incessant bad manners of the new technology should be forgiven. Much has to be done to civilize the machines. The question is: How did people in and outside of the library establish technology as a church with its advocates as the new oracles and ministers? The response is not easy for, as everyone realizes, technology has several sides. Strom (2000) makes this point about Japan: "The Internet is quietly transforming Japan . . . empowering women, changing the way people apply for jobs and schools and generally chipping away at traditional patterns of behavior" (p. 1). On the other hand, technology too often is expected to do too much. Krugman (2000): "It's a sad story . . . technology is not a magic elixir. The Internet, mobile phone and all that are exciting and important, but those who count on them to solve all their problems are likely to be disappointed" (p. WK15).

NetFuture, a small, influential online newsletter, discussed the new technology. Stephen Talbott, a technical writer and former software programmer, asks people involved with the Internet to consider its consequences:

Our society appears to be following the same strategy with its computer and digital networking policies that it followed earlier with its automobile and asphalt networking policies: First, and at all costs, build the infrastructure and put the new devices in the hands of the consumer; then, a few decades later, check out what this has done to society. If it has hollowed out our institutions—well, that's for historians and sociologists to quibble over; there will always be plenty of new technologies promising a bold and bright future. If today's digital policymakers would read up on the history of the automobile, they could scarcely avoid some grave self-doubts. (Talbott, 2000, p. 5)

Academic leaders (Keystone Principles 2000) agree that "scholarly and government information is created at the expense of the public and/or aca-
There is a public interest in the availability of this information (p. 103). A breath or two later they claim the for-free information publishers are "distorting search results for profit" (p. 103). In a second test complaint they call for publishers to query librarians "in how information is used" (p. 103). And here is the third point, the heart of the argument: "There is fear among the faculty and many administrators that education will be dehumanized by the introduction of the new technologies" (p. 103).

Electronic vehicles are thousands of times faster than their print forefathers. They put data into the hands of an impatient user almost as quickly as a question is posed. It is too early to evaluate what this has done for the individual and society, but questions are in order.

A wealth of opinion-survey studies indicate that money, and what it can buy, does not make people happy. Obviously a given amount of income is needed to survive, but beyond that there seems to be no real relationship between the weekly check and happiness. Brittan (2000) points out that The World Value Survey at the University of Michigan finds that in affluent countries "the ones with highest reported happiness are Iceland and Sweden in that order, even though they also have a high level of reported suicides. The United States, with the highest income level, comes thirteenth" (p. 24).

All of this raises questions about how to measure happiness. An amber light flashes its warning here for reference librarians who put too much faith in the new technologies. Technology that seems good for the library may not be good for society. "For instance," as Brittan observes, "the growth of ever longer antlers may help stags to find mates; but the cumulative effect of the drive to longer antlers is to make the whole species less efficient and less good at survival. The stag finds it increasingly difficult to make his way among the trees" (p. 24). The analogy between stags and technology filled reference sections is appropriate. We all can learn from nature's mistakes.

NOTES
1. One argument for screening Net material in libraries is the factor of accident in searches; as of May 2000 the President may be reached via www.whitehouse.gov, but if one by chance substitutes .com for .gov, the result is a pornographic site. For the family value side of the Net see Raskin, R. (2000). Rituals for New Age. Family PC, 7(4), 60–61. "If you are looking for ways to help family ties, you might start by looking at" the Internet (p. 60).
2. Harvard featured "futurists" as star attractions for the May 31–June 2, 2000, event. These priests of tomorrow include Tim Berners-Lee, Patty Maes, and Esther Dyson.
3. An April 2000 survey by Modern Maturity reported in the New York Times (May 21, 2000, p. 12BU) finds that of the 2,366 people who responded, "earning a lot of money ranked near the bottom when people were asked what made life successful. The top five factors ... were strong family relationships, good friends, helping people in need, a good education and an interesting job." The trained reference librarian should, then, be happy. If not a millionaire, the librarian at a minimum helps "people in need," has a good education and certainly is in an interesting job.

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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-
lenges 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 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. 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). 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.
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/~shirato/isliinks/tutlinks.htm](http://www.emich.edu/~shirato/isliinks/tutlinks.htm).

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