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University of Illinois at Urbana-Champaign Library
Current Trends in Reference Services

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Issue Editor

Library Trends

Winter 1983
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Introduction

BERNARD VAVREK

The goal of this issue was to identify the current and future trends facing reference librarians and reference librarianship. This task was long overdue since it was last attempted in January 1964. To indicate that librarianship has changed since then, of course, would be an immensely obvious thought. While the reader must judge the extent to which this particular publication has been successful in achieving its goal, I will immodestly state the view that it will come to be appreciated as a classic contribution to the library literature. My principal contribution in this circumstance, however, was knowing the authors whose intellectual products may be found in the following pages. My role has been one of a facilitator rather than of an editor.

A few years ago I commented that the golden age of reference librarianship was over. No new circumstances have changed this view. Moreover, concern must now be voiced about the future of librarianship itself as a viable function in a modern society. It is easy to be pessimistic about things these days. Change, technology and socioeconomic conditions provide tentative circumstances for a bright tomorrow.

By contrast to any pessimistic penchant, however, the essays in this issue are intellectually exciting and bullish about the future. It is true that reference librarianship will never be the same, but the individuals whose thoughts are reflected in this volume give us definite hope and incentive for the future.

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The Uncertain Realities of Reference Service

BILL KATZ

Have you ever noticed that Nobel, Pulitzer and other noteworthy prizewinners flaunt a casual appearance? While Alison Lurie would have us believe "looseness and disorder in dress are erotically appealing," one suspects a more practical explanation is that the victors discovered a relaxed way of dressing. Just because Ms. Lurie or an advertising agency confuses loose clothing with steaming sex don't make it so. Just because we are pounded by loose and unobservant conclusions about reference services and librarians don't make it so either.

At least some of those who write or speak about reference services and reference librarians seem to betray a bewildering confusion of ideas. A few are over-inclined toward dependence upon the consecrated social sciences, others to no more than the pagan and authoritative voice. Among their variety of special, vague myths are:

1. The reference librarian violates the pursuit of human origin, and is, in fact, a stereotype created to make a point, to transform an argument into a battle cry.
2. The whitened sepulcher of technology allows librarians to shed tradition rapidly and evolve into profoundly oppressive stereotypes of another variety.
3. No longer haunted by reality, the reference librarian may turn a collective back on the community and bow to the lords of sheer and unmitigated power, e.g., those who have the dollars.

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It is argued here that the reference librarian is an intellectual, peculiarly equipped to have technology work for the librarian rather than the librarian for technology. Furthermore, it is a conviction that all people, not just a celebrated few, must be served by reference librarians.

The text for the discussion of these assumed truths is found in the words of Russell Baker, a fearful and portentous sage: "An educated person is one who has learned that information always turns out to be at best incomplete and very often false." For example, when the founding fathers first wandered into Bismark, North Dakota, they had a special kind of information. Bismark was to be the center of the world. And to celebrate, the lads built a gigantic state capitol. Something went wrong, and today the building is a monument to bad information. It equally is a reminder that certain petrifying notions about reference services have created other oppressive monuments.

The first is the peculiar idea the public is supposed to have about the reference librarian. According to this curious stereotype, the librarian is a "fussy old woman of either sex, myopic and repressed, brandishing or perhaps cowering behind a date stamp and surrounded by an array of notices which forbid virtually every human activity." The professional view is hardly any more winning, or convincing. Here the reference librarian may be a technocrat who "admires innovation and emphasizes quantifiability above all things," or a mandarin "who prefers conventional formats of information to non-traditional ones...[and is] concerned primarily with the preservation and organization of the collective wisdom."

The stereotype varies from writer to writer, year to year, although in general, the end result is a social horror. No matter how this character is created, it is impossible to locate a living person for an actual photograph. Even the public which supposedly takes such a dim view of the librarian knows better. Among high school students the image is seen as "quite favorable" and they have a "fairly positive picture" of the librarian. Most user studies confirm that people don't want to shoot the librarian, and even are relatively confident of the librarian's mental capabilities.

The corrective truth is that your average reference librarian is a human being with mind and sensibilities of an individual. Approach a librarian rather than a statistic and you find a born artist and nonconformist. Emerson reportedly said: "Whosoever would be a man [or woman], must be a nonconformist." To this, historian Perry Miller added: "He never in his own life and conduct showed himself other than exemplary." Much the same is to be said for the average reference librarian whose individuality is apparent.
Equally apparent is the artistic nature of the experienced reference librarian. Reference service is an art form which draws from the raw materials of all subject areas. No set of rules, no matter how carefully considered, will get the reference librarians from question A to answer B unless they understand this quotation from Ben Jonson: “He hath consumed a whole night in lying looking at his great toe, about which he hath seen Tarters and Turks, Romans and Carthaginians, fight in his imagination.” Substantive knowledge is a must, a liberal education a help, a scientific and technological background useful, but imagination is indispensable.

In fact, the corrective of the image might be taken one step further. Why not call the reference librarian an intellectual?

Who or what is an intellectual? Jacques Barzun’s snappy answer is anyone who carries a briefcase. A group of French and American scholars arrive at a somewhat different definition:

In the word’s broadest sense, an intellectual can be defined as anybody who accomplishes an intellectual act, that is who reflects on what he does. The problem with this definition is that it’s a bit fuzzy. But try to make it any sharper and you run into endless difficulties. In the end, one is tempted to agree with Edgar Morin that whatever an intellectual is, his existence is justified because his task is to become “the guardian of general, generic, and generous ideas” in the face of a world of technocrats, scientists, and administrators who no longer manage to see beyond the narrow confines of their specialty.

In his famous study, Richard Hofstadter shows the problems of designation, and concludes there is a gap between the intellectual and the person who is vitally dependent upon ideas. To paraphrase him: “The heart of the matter...is that the professional lives off ideas, not for them. His professional role, his professional skills, do not make him an intellectual. He is a mental worker, a technician.”

The definition is, to say the least, confusing. And it is hardly necessary to switch from “reference librarian” to “intellectual librarian,” yet it seems important that the profession would do well to consider the reference librarian as an intellectual, or if you wish, a “mental worker.” Unfortunately, in a reign of administrators and technocrats “who no longer manage to see beyond the narrow confines of their specialty,” the intellectual aspects of reference often are lost, overlooked, or more likely, frowned upon as less than necessary. Here one is reminded of a leading library periodical which returned a manuscript to an author with the curt note that the journal readers are “not interested in philosophical matters.” Nor, apparently, is Library Literature. The only use of the term in this index is as an adjective, i.e.,
"Intellectual freedom." A cursory examination of the index since its inception in 1921 reveals the same pattern. Conversely, a related H.W. Wilson publication, *Education Index*, is not so shy. Here one finds such descriptors as "Intellectual development," "Intellectual life" and even "Intellectuals." The *Reader's Guide* has several cross references from "Intellectuals and intellectual life," including "United States—Intellectual life" where, significantly enough, one finds see also references to such things as "Books and reading," "Colleges and universities," but never to libraries.

The *Library of Congress Subject Headings* indicates that at least some professions, here and abroad, are familiar with the term. LC provides for such headings as "Intellectual cooperation," "Intellectual life," "Intellectuals" and even "Inefficiency, intellectual."

The automatic assumption that *intellectual* is a synonym for *inefficiency* and, to quote a well-known wowser, a member of the "effete corps of impudent snobs" is to explain its lack of attachment to the reference librarian. In America the intellectual is suspect. If Hofstadter and other social historians are correct, the average American is an egalitarian who evaluates by the numbers. This is "to the despair of American...intellectuals, who always lose to the masses, even when the mass market takes them up." An intellectual is seen as an elitist who has withdrawn to a prepared position of relative insensitivity to the needs of the numbers.

The attitude has influenced reference librarians who are in daily contact with the public. Anxious to be considered democratic, certainly not a zealot elitist, the librarian is likely to conform to the American pattern of suspicion concerning intellectual tags, if not achievements.

Even librarians with a somewhat broader world view than the wowsers are suspect of intellectuals, primarily because they associate the term with dictation of taste. This, to be sure, is another battleground with different players, yet serves to make the point that when you are selecting descriptors, be sure you choose those with the widest support. No one suggests that *intellectual*, then, be substituted for *reference librarian*, but certainly intellectual ideas might be more broadly considered in defining the reference librarian's role. What would be some of the advantages of this type of orientation?

More stress on enthusiastic intellectualism would do much to improve the deplorable amount of misinformation, or no information, given by at least some reference librarians to innocent readers. Lacking self-confidence, time, resources, and, one suspects, a good and continuing education, about 50 percent of the librarians seem to strike out or at
least foul when giving answers. And there are other decided benefits, which will be considered shortly.

Stress on developing intellectual ideas about reference librarians and their services of course won't make it so, but this seems much better than the peculiar method others have of directing the librarian's future. Here the focus is not on content, but on title. The trend is to recreate another stereotype with such winning descriptors as "product line manager," "information broker," or the more common "information manager." While it is sometimes difficult to tell the real Dr. Jekyll from the sometimes Mr. Hyde, the terms are acceptable because they are tied to the jargon of business and technology. A superior who may never have been inside a library feels as comfortable with this place name map as with substitutes for library, such as media or learning center. Pauline Wilson notes the terms are not working well because they are too ambiguous. "Persons using the name...are asking what the term means...and complaining about lack of status."^17

The terms mean nothing because there is nothing behind them but incredibly bad grammar. Apparently neither disturbed by intellect or even common sense (albeit the two terms are not mutually exclusive), the dragons of the literature strong-mouth their way to proud ambiguity and empty form.

Library literature has suffered much neologistic turmoil, e.g., as Swanson observes in his review of one of the essays in The Role of the Library in an Electronic Society (Urbana-Champaign: University of Illinois Graduate School of Library Science, 1980): "the authors fling themselves into a sea of metaphor and thrash about wildly. In the span of their first page alone the library is transformed from an anchor to a beacon to barnacle."^18

It is one thing to believe in the importance of knowledge and its twin, information. It is another to confuse crippled metaphors with realities of budget, lack of job opportunities, and improved services.

It is not unusual to find the same people who use the terrible terminology quoting at length from other members on the damp beach of the future. Call it sentimental, call it a touching faith in the cudgeling of another's brains, but the literature seems filled with the quaking verbiage of such future freaks as Kahn and Toffler. McLuhan apparently is no longer about, and Bell grows old, but there are others with a sherry flask waiting to bring them back to the crystal ball.

One may consider the honest approach to economic difficulties by reading such cogent and sensible advice as found in Betty Sellen's What Else Can You Do With A Library Degree (New York: Neal Schuman, WINTER 1983
1980). Or one can turn to the library educators, from Sam Rothstein and Robert Stueart to Robert Taylor, for some sound advice and a bit of sunshine. It takes this type of reading to appreciate the "fa, la, la" predictions of, say, _The Third Wave_. Here one critic observes it ain't so much the metaphor as it is the lack of content and sensibility:

Does a hint of [the level of content] gleam from the eager anticipation "that instead of merely watching some Archie Bunker or Mary Tyler Moore of the future, we are able to talk to them and influence their behavior in the show"? Realizing such an ambition may indeed delight the mind and spirit of the people surfing on the Third Wave.... Nor does he say how information will fill the needs of a world hungering for effectively integrative ideas. Only thinking produces—and then not always—the synthesizing notions that give an age its basic unity and invest it with meaning.... Tasks may entail high technical competence, but conceptual thought and its risks appear lost in the electronic shuffle.19

Well, the reference librarian is quite lost in that electronic shuffle. True, general ideas and reflection seem to disappear or are devalued, and the result may be a disaster. The librarian is one of the few professionals capable of reconnecting the analytic processes of the mind to imagination: "Both [must be] restored to a place of dignity.... Opinion must be expressed in dialogue."20

The dialogue may be translated into the famous verse which opens with: "The reference librarian is the mediator between the user and the information needed." The moment someone discovers there is a slight difference between masses of citations and actual knowledge, the reference librarian should be there to start the dialogue.

The reference librarian will know a field(s) as well as the subject expert, but will have the added advantage of being familiar with related areas, particularly through a knowledge of reference materials, publishing practices, online databases, and specific sources of information which may help the user to evaluate and synthesize. One may argue convincingly that subject knowledge comes first, yet it is really not a matter of ranking. The peculiar skill of the reference librarian is the ability to link and to interpret, and that comes only with a thorough knowledge of what Messrs. Walford and Sheehy have between their covers.

These days, too, the reference librarian must be able to differentiate between a bus and a computer terminal. One might say it is a fatal error to dismiss technology and the computer, but this is somewhat analogous to trying to replace the light globe with a candle. Like it or not, we are all slaves to technology. As a famous historian put it:
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Man, as he searches for the strength and the means to live a free life, at the same time subjugates himself. In every act of mechanization of the life of the community, a quantity of human freedom is tied fast. As soon as the bow is invented, it is not only the man who uses the bow but also the bow which compels the man to use it....The process of improving civilization is indivisible from the process of mechanization....Every school, every doctrine, every form of government and business, puts man into a harness and limits his activities.21

The assumption is that improving reference services is "indivisible from the process of mechanization." Simple observation, as well as more objective studies, indicates this is hardly the truth. In fact, after all the terminals have been installed, the fee schedules posted and the librarians dutifully trained, the level of service is not necessarily any better (or worse?) than before.

Reasons for this vary, although one suspects two basic explanations:

1. One may quickly pull, say 155 citations from databases, but the problem of relevancy remains. And relevancy requires individualized consideration which, at least at this point, is somewhat beyond the machine.

2. Enamored by machines, both librarians and users tend to forget that originally, an individual had to feed the machine the data it digests and the results are no better than those original data. Computer terminals are marvels at retrieving, but are virtually useless at creating basic information.

As the terminals become more prevalent, easier to use, and within the economic range of the average library, the basic problem of reference service is likely to shift dramatically. Today that problem is finding the fact, the relevant bit of information, the general book or magazine article. A skillfully programmed computer with access to several thousand databases (rather than the mere 100-150 today) will locate the facts almost instantaneously. The reference librarian of the next generation, then, is likely to be more concerned with knowledge than information, more involved with assisting the less-than-expert user with determining what bits of data will solve problems.

Lancaster and others note this possible result of technology which will tend to make the librarian more and more an intellectual. He sees the reference person no longer in a library, but, more radically: "affiliated directly with academic departments, working as equal members of research teams in academia, in health care, in industry, and elsewhere. I also expect to see the appearance of greatly increasing numbers of
freelance librarians.... The librarian of the electronic age could become a valued professional colleague of chemists, physicists, physicians, attorneys, educators, and other professionals.²² Confusion between types of library service has Lancaster convinced the library as such is likely to disappear. One may take strong exception to that notion—after all, over 50 to 75 percent of public library users read novels and avoid much informational help—without detracting from the basic conclusion that librarians must exercise their intellectual capacities more than possibly in the past.

Having taken a rightful place as intellectual and arbiter of knowledge in the information arboretum, the reference librarian must consider the dimensions of services. Who is, or is not, to be served?²³

While over the years there have been and will continue to be countless surveys of who does or does not use the library, who reads or does not read books, and who goes to bed eating peanut-butter sandwiches, little seems to change. The 1949 Public Library Inquiry revealed that about 20 percent of the adult public visit a public library, but only about 10 percent of the same public borrow 98 percent of the books. By 1981 the figure was approximately the same, as was the profile of the library users—essentially an elite group of better-than-average middle-class Americans. Other studies have found that two-thirds of those who don't use the library, when asked what it would take to get them inside, replied "nothing."²⁴

The "nothing" is street talk, which seems to escape some otherwise astute observers, for hopeless resignation. You can say you are not an average American because you don't watch 6.5 hours of television each day, and if asked what would win you over, your reply could be "nothing." You long ago gave up on television improving.

The fact that only 10 or 20 percent of the public uses the library drives librarians to different conclusions. (Incidentally, translate those percentages into numbers and they are somewhat more impressive, e.g., 22 or 44 million people is a respectable audience for even the world's most celebrated television drama.) Still, if tradition shows only a set group coming to the reference desk, why try to change? This seems a particularly good question when budgets are slashed and it is difficult enough to serve those who are accustomed to using reference services.

Swanson suggests the following argument for limiting reference services to the information aware. He makes the valid point that we are not equal, share only the human condition in common. It is an error, he adds, to suppose all can ever have equal opportunity, and it would be dangerous to attempt to equalize the country economically:
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Clearly a leveling of wealth and income would do away with all of the usual incentives to undertake ventures that entail new products and services, or to engage in risky, exploratory behavior in trying to discover the most suitable niche in the economic ecosystem for one's own special abilities and interests. In short, the successful pursuit of equality of economic condition or outcome can bring entrepreneurial evolution to a stop. We can all agree no doubt that it is unfair for someone to cheat in a poker game—and that everyone should be treated equally under the rules of fair play—but there are many nowadays who seem to believe that it is equally unfair if someone wins. If winnings are automatically redistributed it becomes unclear as to who would then be willing to play the game. Evolution breeds both winners and losers; the only certain route to equality of condition is to arrange it so that we are all losers.25

This is a more blatant, some would say honest, justification for limiting reference services to even the smaller number of so-called information literates who are “winners” and make up about 800,000 to slightly over a million of those who do research in technology, business, government and for war and for peace.26 Unfortunately for the librarians who would limit service, there are several million other Americans out there who have an inconvenient: “tendency to want information. THIRST FOR KNOWLEDGE and NEED TO KNOW are both clichés extracted from reality...To the scenario of a knowing-commodity exchange, one really ought to add an image of starving masses pounding at the gate, demanding grain.”27

It is another cliché to say this is a much more complex civilization than a decade or two ago. It is a tragedy to add that millions of people, primarily as much for lack of information as for want of interpretation of that information, simply cannot function in this society. If Swanson and his followers are correct, that’s life and the losers can’t be helped. It is equally correct that losers tend to destroy what the winners hold dearest—and that’s everything from a corner grocery store, to a neighborhood, to a government. But from a daily, “where do we get the money for the library” point of view, consider why libraries are having so much trouble with budgets:

In an ongoing New England study, it has been found that 73 percent of all citizen information needs are personal—solving day-to-day problems, coping with trauma or crisis, news about current events, interest in cultural heritage, religion and family life, and needs for recreation and leisure activities. Libraries are listed ninth in their information seeking patterns, with only a small percentage actually using the library, a clear indication that few actually cast the librarian as a diagnostician of information needs. Libraries in such an environ-
ment are vulnerable to reduced support and, even more seriously, are in danger of being cast in the role of keepers of the book, superseded by other forms of information services in the community. In the past, users have not held librarians responsible for anything more than what has been normally provided because they have not seen themselves in that client relationship.26

The need for librarians to reach out and help those other than the information literates is determined by another startling estimate. A Ford Foundation study found that possibly some 50 percent of adult Americans border on being illiterate, that is have considerable difficulty in reading at a high school level.29 How is this possible when, according to the Labor Department, some 40 percent of the labor force aged 25 to 64 has completed a year or more of college, and by 1981, 22.1 percent of all workers in this age category have an academic degree?30 Statistically, the 50 percent illiterate v. the 40 percent with one year or more of college still adds up, but it is just possible even academic training does not make the user comfortable with reading, or with information.

In what Jacques Barzun terms "the wasteland of American education," it is quite possible to tramp from one end to the other of a college program and remain pretty much unable to read, or its natural companion, to reason. One may, of course, from all of these data, construct a tight argument for serving only those eager and intelligent enough to appreciate education, but this type of catering to the minority may prove extremely dangerous. From the firm position of self-interest and even political safety, it is wise to have a reasonably educated population about to keep democracy in place. Without easy access to information, we will see: "all around us the menace of the untaught—the menace to themselves and to us, which amounts to saying that they are unself-governed and therefore ungovernable....There is no help for it—we must teach and we must learn....That is the condition of living and surviving at least tolerably well."31

A much more formidable threat to democracy is not the elusive intellectual in the library, but the loathsome notion that the tremendous technology available for locating information should be limited to the few who pay. God may have led Americans through fire and water to come out anti-intellectuals, but let's hope they are not trapped by their own calcined profit motive. If only the strolling comrades with money for the computer terminal or for copyrighted interlibrary loan materials are to be served, all others will have to move aside and eventually be forced out the front door. Meanwhile, those who have the cash may have to trade it for more than information. The very ability to find and strike bits of data within a blink of an eye also allows the computer to play, if
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only potentially, a role in Orwell's 1984. The potential loss of privacy may presage a problem even for the information rich. Beyond that, of course, is the final burnt night when the computer-served discover they can do their own work without the librarian. The completely mangled service will collapse, or at best take another form.

It all comes down to the intelligent purpose of libraries, that is, to provide the best information service possible for all of the people who need that information. Perhaps this is another cliché, yet it remains a marvelous truth. There are a multitude of distant and totally unexpected events and ideas which everyone should be free to help decide. It does not seem an unrealistic possibility that the reference librarian may be a primary aid in that decision-making process...not for a few, but for everyone.

References

6. Wilson, T.D. "On User Studies and Information Needs." Journal of Documentation 37(March 1981):3-15. "There is virtually no other area...that has occasioned as much research effort...as user studies" (p. 3). Wilson fortunately, clarifies both research and need for such studies.
11. Education Index, 1979, p. 522; Education Index, 1977, p. 452. As noted, Library Literature for the same period has none of these terms. This, of course, is not a criticism of the index but of the 200-plus periodicals indexed where apparently the term intellectual is simply never employed.
The Making of a Reference Librarian

SAMUEL ROTHSTEIN

Although it is still a matter of dispute whether reference librarians can be "made" at all,¹ in fact a considerable enterprise—almost a small industry—has been devoted for nearly one hundred years to that purpose. In this article both the developments themselves (e.g., library school courses and teaching methods, continuing education, in-service training) and the views promulgated about such developments, actual and desired, from the 1880s through 1981, will be reviewed. The coverage is almost entirely limited to the United States and Canada and the emphasis is on education for reference work in conventional libraries as opposed to education for information services in the information science context. The separation is admittedly illogical but utilitarian; the latter aspect has too large a literature to be adequately treated in the space available and in any case it has already been well covered in a number of reviews.²

Education for Reference Work in Library Schools: The First Ninety Years

The subject is worth pushing back to its very beginnings, if only because a persistent criticism of education for reference work has been that it is slavishly adherent to its past. Thus Andrew Osborn complained that "the pattern for teaching reference work was established in the first library schools and we are still operating on the basis of the methods of those days."³

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Those very beginnings, in the sense of schooling as differentiated from merely learning on the job, go back to the training classes (1884-86) which Melvil Dewey operated at Columbia College Library as a kind of rehearsal for the establishment of the library school itself in 1887. The concept of reference work as a distinctive and appropriate library function had only recently emerged. Dewey, who was one of the leaders in developing this concept and who was probably the first person to employ reference librarians formally titled as such, did not fail to include reference work among the “Subjects of Study” listed in the first Circular of Information (1884) issued by the School of Library Economy, though not under that name. In the curious mélange of some two dozen topics that the School proposed to teach is to be found “Aids to readers,” the common designation of the time for what came to be called reference work. One may also infer that the topic of “Practical bibliography,” listed next to it in the Circular, was closely related to “Aids.”

If reference work had thus succeeded in gaining a seat at the library school table, that seat was, initially at least, far below the salt. Mary Wright Plummer, a student in the first “official” library school class (Columbia, 1887) reported on her experience at the American Library Conference of 1887. Listing the subjects of study in the (diminishing) order of their importance, she indicated that number five was: “Filling up odd moments: cyclostyling, Hammond typewriter, reference work.”

In 1900, when the ALA’s Committee on Library Schools examined all the (by then four) schools, it found that cataloging and classification occupied by far the largest share of time in the programs. Reference work was not specifically mentioned at all but was presumably included in the group of “all other topics.” Nevertheless, that same committee had reported in 1896 that “reference” (admittedly last in order of topics mentioned) was within the nucleus for the programs. At the end of the 19th century, the place of reference work in library education was evidently small but secure.

Over the next two decades the scope and importance of reference work within the library school program steadily increased. The Albany School, the pacesetter and model for the others, had added a course in “advanced reference work” by 1905 and by 1912 had ventured into the field of “subject” or specialized reference work with its course in “law or legislative reference work.” By 1920-21, as reported in Williamson’s authoritative survey, reference work was solidly established as one of the four subjects which Williamson considered the “heart of the curriculum,” (though still ranking well behind cataloging in the amount of time devoted to it). Courses in “subject bibliography” and “trade bibliography” were also being offered.
Williamson also gives us a description of the teaching methods used in the basic reference course, methods which had evidently become pretty well standardized by that time. The course strongly emphasized knowledge of a specified group of reference books, this knowledge being principally conveyed by the instructors' lectures. In addition, "lists of questions made up from practical experience...[were] given, and the method of finding the answers discussed in the class." Some time was given as well—by inference not much—to discussion of "problems in the selection of reference books" and "to methods of handling of books" (meaning the use of indexes, tables of contents and the like).12

Wyer, Singleton and Osborn add some revealing details to Williamson's picture. James Ingersoll Wyer, himself a graduate of the Albany School (1898) and subsequently director there, recalled that the early teaching of reference stressed knowing the contents of dictionaries, encyclopedias and other "reference books," and that reference work itself, as visualized in these courses, was "no more than the effort to answer questions asked at the information desk by consulting these particular books."13 In other words, the course could be equated with what would now be termed "ready reference." Singleton and Osborn go further and identify the published guides to reference books as dominating the reference courses. Alice Kroeger's Guide to the Study and Use of Reference Books (the predecessor of editions by Mudge, Winchell and Sheehy) appeared in 1901 and became in effect the textbook for reference courses. The prestige of Kroeger's Guide and its successors, according to this view, dictated a pattern of reference studies that meant amassing detailed knowledge of the individual titles described in the guides.14

Whatever the limitations of reference course contents and teaching methods, the next forty years brought forth no great challenges to them. Thus the highly influential Williamson Report, while noting the concern of college and university libraries at the "failure of the library schools to provide adequate or appropriate training for special reference and research work of a scholarly character," thought that these needs would have to be take care of in a second year.15 For the first year of basic studies, Williamson accepted "the curriculum as it stands as satisfactorily representing the demands of the profession."16 The core of the curriculum which included, of course, the introductory course in reference work.

Williamson's views on the appropriate core were accepted and implemented by the Board of Education for Librarianship, when it selected reference work (along with cataloging, classification, and book selection) as the only subjects in the suggested curriculum of accredited library schools to be studied in both semesters.17 And with only minor
exceptions, similar acceptance of the essential place and character of reference work in the library school program was evident in the many surveys and reviews of library education that were conducted over the two generations following Williamson. To give only a few examples: Joseph Wheeler, in 1946, considered reference work among "the most essential subjects" and was glad to see it generally included as a required course. He was also pleased to note "a substantial reduction in detail... fewer book titles in...reference courses." Robert Leigh's study, published in 1952, found reference and bibliography's place among the basic "subject matter fields" to be strongly supported by the views of the practitioners and the proportion of time given to it in the library school program to be pretty well right. At the 1953 conference of practitioners and educators on the core of education in librarianship, there was almost unanimous judgment that there should be a core and that reference service should be part of it.

To be sure, the various examiners were not talking about precisely the same subject. Inevitably the reference program had changed somewhat over the years. By Wheeler's time (1946), the required subjects (reference among them) were being increasingly limited to the first half-year, with the second half given over to elective courses. There was also some tendency, notably at Denver, Chicago and Columbia, to "integrate" reference with other subjects into "materials" or "resources" groupings. And of course, as in every field of knowledge, the march of specialization proceeded inexorably. Thus Robert Leigh noted in 1948 that half the schools were offering an elective course in government documents and most of them were giving at least one or two courses in specialized aspects of bibliography such as Catholic bibliography, legal bibliography and bibliographic history. This growth in the number of specialized reference courses was markedly enhanced when, in the late forties and early fifties, all the accredited library schools in the United States made the change over from BLS to MLS programs. The new programs coincided with a period of considerable increase in enrollment and faculty size, and the combination of these factors made for a strong movement toward specialization in course offerings. The MLS programs encouraged depth and variety in course work, and the larger number of students and staff made such courses practicable.

Strangely enough, these specialized reference offerings occasioned very little comment in the writings on education for reference work, perhaps because each new course was likely to be of interest to only a small constituency. What did concern most reference librarians and teachers was the course they had in common—the basic or required or
introductory (it was usually all three) course in reference work. In the
1960s this concern manifested itself in the publication of an extraordi-
narily large number of articles on the subject. Murfin and Wynar's
highly selective (and most useful) bibliography on the teaching of
reference lists no less that thirty-six items\(^24\) and the citations in *Library
Literature* suggest that the total number of publications on the subject
was probably several times as great.

Even more surprising than the sheer volume of the literature was its
intensity: in a field where the blandness of mere description had been the
prevailing mode, one now found the sharp flavors of outright partisanship.
Much of the credit for the new vigor in writing must go to the
example set by Wallace Bonk and Thomas Galvin, two prolific and
articulate teachers who were not afraid to be contentious in espousing
their views.

In a kind of debate sponsored by the *Library Journal* in 1964, Bonk
and Galvin summarized their positions.\(^25\) Bonk stood for the traditional
emphasis on close knowledge of reference materials. "Reference
methods," he maintained "consist of going to the place that has the
information and teaching reference involves pointing out to students
which sources have what kind of information."\(^26\) Galvin did not deny
the importance of learning about reference materials but felt that the
student could gain such knowledge on his own. Teaching time, he
argued, should concentrate on what the student could not get up on his
own: the larger view of reference work as an "encounter" between
patron and librarian and as a service involving numerous problems of
policy and operation. The best way to convey this larger view—the
reality of the reference process seen as a whole—was to simulate that
reality by having the student do "problems" set forth in "case studies"
based upon actual situations.\(^27\) Galvin subsequently called this "the
problem oriented approach in teaching general reference."\(^28\) In 1965 he
published a textbook of case studies (*Problems in Reference Service:
Case Studies in Method and Policy*)\(^29\) and this was successful enough to
call for the appearance of another (*Current Problems in Reference
Service*) in 1971.\(^30\)

In the subsequent flurry of published comment on the two
approaches, neither escaped without criticism, but the title-centered
course undoubtedly came in for the heavier attacks. "Down with the
Lists" was the revealing title of an article by Leontine Carroll, who
recalled with distaste and exasperation having had to learn pointless
and soon forgotten details about long lists of reference books.\(^31\) Paul
Dunkin called reference "chief among the donkey courses" which
required “rote memorization of a batch of titles and contents” and where the instructors imparted “soul-numbing facts and techniques” that in any case had a high degree of “built-in obsolescence.” Andrew Osborn wanted to “eliminate every reading list or syllabus and instead make students seek out their own sources of information.” Maureen Gilluly, a student, “sounded off” (her phrase) against the length of the lists and the requirement for memorization. She also revealed that students circumvented the point of the “question sets” by working together on them.

The case method, being relatively untried, attracted nothing like the above sense of resentment derived from bitter experience, but there were objections enough. Galvin himself has conveniently summarized most of them, but two are worthy of special mention. C.D. Needham, a British librarian, found the contextual detail which Galvin provided for each case quite unconvincing: “the greater the striving for verisimilitude the louder the creakings, until a point comes when the intention is wholly defeated.” Needham thought that cases of the type given in Denis Grogan’s books, which focused closely on the search process used in answering specific reference questions, avoided such hazards of artificiality and inconsequence.

Josefa Sabor, writing for an international audience, pointed out that Galvin’s cases really dealt more with the operation of reference services than with “actual reference work” in the sense of finding information. She concluded that the “case study seems much less usable in the reference than in the administrative course.”

Although they attracted the most attention, the “title-centered” and “case” approaches were by no means the only ways to teach the basic reference course. In an excellent review of the “methodology spectrum,” Laurel Grotzinger identified two more. “Types not titles” was her designation for the teaching that emphasized the properties of whole categories of information sources rather than specific books. (And, as Needham later pointed out, such emphasis on types not titles was likely to extend the range of materials considered in the course—not just “quick reference materials” but also research reports, theses and the like.) The last of Grotzinger’s “finger-posts” to point the way to reference knowledge was what she called the “method of scientific inquiry.” Here own preference, this approach in effect subsumed all the others, combining “reference facts,” knowledge of bibliographic organization, “the experiential values of the case study” and the problem-solving methods derived from information theory. How all this was to be accomplished in a half-year course was not indicated.
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The last and perhaps wisest words on this kind of competition between approaches to reference teaching came from Robert Pierson, himself both a practitioner and instructor. Pierson pointed out that the various approaches were not mutually exclusive; one might well use several of them in combination. What was wanted then was not "the extreme position" represented by addiction to a single viewpoint but rather a judicious blending of components and approaches.¹³

What Pierson, Grotzinger, Galvin, and Bonk had been presenting was, of course, advocacy; the actuality of reference education in the library schools was something else. Toward the end of the 1960s, Kathryn Oller and Sarah Reed, both deriving their findings from an examination of library school catalogs, offered reports on the state of the art in reference instruction.

Oller found that twenty-nine different course titles were used (in the thirty-seven school catalogs) for the first course in reference work. She thought the variation in name reflected different emphases within what was essentially the same course in respect of coverage. That coverage usually included: a description of the nature and kinds of reference service as a library function; study of a core of reference materials arranged according to types; study of reference techniques with emphasis on search strategy and the reference interview; selection and evaluation of reference materials. The greatest divergence was to be found in the reference books studied; Bonk's investigation had shown that only five of 1202 titles listed were agreed upon by all the schools.⁴⁴

Following the basic course there were usually available a group of "literature" courses covering broad areas of knowledge (e.g., the humanities, the social sciences, the sciences); courses in special subject areas (e.g., law, medicine, theology, music and business); courses based on types of publication such as bibliography or indexes; advanced seminars, which concentrated on reference administration and techniques, use studies, bibliographic resources and analyses of reference questions. Oller found that most schools offered at least four reference courses, with some offering several times that number depending on just what one counted as part of the reference curriculum.⁴⁵

Sarah Reed, examining catalogs from fifty of the then fifty-two accredited library schools in 1968-69, found that forty-two of them still required all students to take one or more reference courses. Of the rest, three schools included reference as part of a required "foundations" course. The other five no longer had any required courses, but faculty guidance and course prerequisites achieved much the same result of causing almost every student to take a reference course.⁴⁶
another, reference was still solidly placed at the core of library education.

**The 1970s: A Decade of Innovation**

As will be apparent from the above surveys, the 1960s, for all their earnest soul-searching, seemingly brought no great changes in structure or character to reference education in the library schools. By sharp contrast, the 1970s, insofar as the published articles represented actual practice, saw the advent of a remarkable number of new ideas and new techniques. (All these ideas had antecedents and forerunners, but in the way that they were developed and applied in the 1970s, it is fair to call them "new.")

Some of the techniques warrant only brief note. Without denigrating their value, these articles of limited scope essentially represented the kind of advice on instructional procedure that teachers customarily make to one another. Thus, into this category of “here's what has worked for me,” fall articles reporting (and usually advocating) the use of: “Pathfinders” (as an exercise in bibliographic compilation); student-submitted questions (as being more “real” and fresh than the usual teacher-produced problem set); flow charts (for their graphic quality and as a systematic representation of search strategy); computer-assisted instruction (effective in improving learning, in reviewing information and as a means of cost control); role playing (to inject more “reality”); and video-tapes (to illustrate interviewing and as a means of students’ self-assessment).

Still another instructional technique was of considerably more consequence in that it represented, theoretically at least, an alternative to all the other teaching methods, including the class meeting itself. This was self-instruction, wherein the student was to be enabled by various means to learn reference work on his own. At Texas, Knightly and Sayre reported that the Personalized System of Instruction (PSI) had been used to teach basic reference and that the student response was highly favorable. Later, when some problems arose stemming from lack of student interaction, Bichteler made some modifications in order to achieve a compromise between the traditional method and self-paced instruction. At Arizona, Gothberg experimented with another form of self-instruction which she called the “audio-tutorial approach.” Student performance in and satisfaction with the audio-tutorial method fell off after the highly successful first year, but Gothberg still felt that the method had enough potential to justify further experimentation.
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The most thoroughgoing effort at developing a system of self-instruction was made by Margaret Taylor at Hawaii. Reasoning that the description of information sources in the classroom took up time which could be more profitably used for other purposes, Taylor prepared a programmed instruction book which would permit students to cover such material on their own time and at their own speed. In her two tests of the efficacy of this approach, she found that the experimental group students learned as much as the control group and were enthusiastic about the new method. Taylor's book, *Basic Reference Sources: A Self-Study Manual* has now been published in a second edition (Scarecrow Press, 1981). Rather similar, but not as comprehensive, study guides were used in at least two other library schools.

It might well have been argued that the self-study method was not all that much different than a program of directed reading. In that sense it was hardly a new idea, an attribute it shared with the several attempts to make a practicum part of the basic reference training. The practicum was, of course, a method of teaching that antedated library courses themselves; the novelty of such practical work, as advocated in the 1970s, lay in its power to enhance and enlighten the theoretical instruction given in the classroom and thereby to increase student satisfaction and morale. What was also new was that that power of enhancement was not only claimed but also tested and to some degree proven. At Michigan, Lynch and Whitbeck had their students do "observations" of reference work, work on "projects" in the library, and engage in "reference raps" with the librarians. The "projects" were not much liked but the other two features were most successful. Lynch and Whitbeck concluded: "the student must be brought out of the isolated classroom situation to the real work environment...only in this way can theory be fully assimilated and evaluated." Nancy Bush's dissertation findings demonstrated "the preferability of having reference course students work behind a real reference desk....Active learning was correlated with positive attitude toward a reference course." At UCLA, where Eisenbach had her students "learning by doing," the student evaluations were unanimous about the value of reference desk work. The age-old debate between theory and practice was hardly settled, but the latter side was gaining ammunition and adherents.

One may guess that a principal appeal of practice work lay in the opportunity it gave students to make contact with patrons. Reference work, after all, meant primarily "personal assistance provided to patrons in pursuit of information"; knowing how to deal with patrons could therefore be as important as knowing how and where to secure information. In a decade when libraries, like institutions of many kinds,
were desperately striving to make themselves known as "people places," reference librarians and reference educators "discovered" the need for communication skills.64

In terms of reference education, this new emphasis on communications took several forms which were actually closely interrelated but which, for convenience in identification, may here be separated into three categories. The broadest studies attempted to analyze and describe the "dynamics of communication."65 As applied to reference courses, such studies made for greater awareness of the negotiation of the reference question as being in large part a communications problem. Thus Bernard Vavrek has called the "essence of reference librarianship...the interaction of the patron and librarian in an act of communication."66

Since the reference librarian not only communicates with the patron but helps him, emphasis on the communications function of reference work led some librarians into seeing and teaching reference work as something very near counseling. Thus Holland wanted courses to teach the "concept of facilitative responding," Crickman described the "Helping Aspects of Training the New Information Professional," and Lukenbill explained how he taught "Helping Relationship Concepts in the Reference Process."67 Patrick Penland, at the University of Pittsburgh, probably went furthest in this direction, and actually gave courses and wrote books on "advisory counseling for librarians."68

Most reference teachers were content to stop well short of that point and dealt with the subject of librarian/patron communications in the relatively simple and straightforward form of teaching their students how to conduct an interview. As far back as 1944 Margaret Hutchins's textbook on reference work had devoted a whole chapter to the reference interview,69 but the publications of the 1970s invested the subject with a greater sense of importance, even urgency. They also emphasized the use of videotape and the importance of nonverbal communications, and in some instances they were able to bolster their case with evidence drawn from tests of students' reactions. In the latter light, Peter McNally's "Teaching and Learning the Reference Interview"70 and the Jennewich's "Teaching the Reference Interview"71 may be singled out as among the best of the many articles on this theme. The degree to which the reference interview "caught on" in reference education may be gauged from the fact that as early as 1974 Murphy and Nilon reported that two-thirds of the accredited library schools were offering instruction in interpersonal communication.72

Unfortunately, Murphy and Nilon did not ask which aspects of reference work went out of the basic reference course when reference interviewing came in. The same question might equally well be asked...
in respect of all the other "innovations" previously discussed. The answer, which for want of specific data must be only an educated guess, is probably that these new topics or approaches were usually sufficiently small in scope or importance as to be "squeezed into" the existing course content. But what if a new subject were thought to be too large or complex to be given its full justice within the basic course? Then such subjects tended to leave the main reference tent and to set up as side-shows of their own.

In the 1970s there were three such subjects, all closely associated with the basic idea of reference work as information service, that came increasingly to be taught as separate courses. By far the most important and most numerous of these was computer-based reference service, which later tended to be termed "online services." Whether seen as an issue (e.g., fees for payment), a skill (how to conduct a literature search) or as a portentous "revolution in libraries," the subject occasioned a spate of publications on how it was to be fitted into the librarian's education, of which the article by Bourne and Robinson may be singled out for its comprehensiveness. Though the opacity of course descriptions defies an accurate count, an examination of library school catalogs indicates that by the end of 1981 almost every accredited school had one or more courses on online services.

A second candidate for separate treatment was the subject of "community information services," also known as "urban information services" and as "information and referral services (I&R)." The ruling idea here seemed to be that "community information specialists" were something of a breed apart from other kinds of reference workers and therefore required courses, indeed perhaps a whole sequence of them, specially designed for them. Braverman and Martin gave a broad conspectus of the general problems and approaches involved in the "Education of Information and Referral Librarians" and earlier Martin described in detail the full-fledged "Community Information Specialist Program" at the University of Toledo library school.

The third of the subjects setting up on their own, so to speak, was bibliographic instruction or library use instruction. Although, as Rader has pointed out, the teaching function (i.e., instructing patrons, individually or in groups, in how to use the library), had been a major component of reference service from the beginning, there was a marked increase in such activities from about 1967 on—so much so that Hogan referred to it as "the bibliographic instruction (BI) movement." A growing number of people were coming to identify themselves as "library instruction librarians" and they "voiced a persistent, indeed almost fervent need for specialized education and training." For the
librarians already in practice such training was accomplished by a remarkably dynamic and sustained program of continuing education. Not surprisingly, that same dynamism and fervor soon prompted a campaign to incorporate training for bibliographic instruction into the curricula of library schools.  

The campaign was not wholly successful. A number of library school deans openly opposed the idea, claiming that the subject could be best handled as part of other courses. In 1975 Galloway’s survey found that four accredited library schools in the United States offered courses specifically on library use instruction. In 1977 Dyer reported that four more schools were offering such courses and another sixteen were including units on bibliographic instruction as parts of other courses. Hogan indicated that as of 1979 there was little change, but if her own views were typical of the BI movement, the pressure on the library schools would obviously increase rather than diminish.

Some Current Developments in the Library Schools

No authoritative and comprehensive data are available on the present state of reference education as conducted in the North American library schools. However, Robert Stueart has supplied valuable summation of the state of the art in library education in general, the Association of American Library Schools (AALS) has issued two library education statistical reports, and the library school catalogs and annual reports offer their own pictures, admittedly murky, of trends and directions. Together these sources suggest the following impressions of the most recent developments.

The chief trend continues to be in the direction of greater specialization, with new courses generally reflecting the changes in library practice itself. Thus Stueart reported the field as wanting more training in human communications and information technology, and the library schools were responding with more offerings in information science, management of information services, and information technology. An even greater degree of specificity is seen in the marked trend toward the establishment of joint or double degree programs, wherein the student combined studies in librarianship with those in a subject field. Stueart reported no less that 37 percent of the accredited library schools as offering such programs and the AALS stated twenty-two more were being planned. The most frequent combinations were with history (archives), art, music, education, communications, business administration and law. Other techniques for specialization included independent study, cross-listed courses and "streaming."
A pressing question for the schools is how to accommodate such increase in specialized offerings when enrollments themselves are steadily declining and funding problems are becoming more and more severe. One way is to reduce the number of required courses either by abandoning such requirements altogether or by grouping the required material together into a single large course, variously called "the unified core approach," the "foundations course" or the "integrated core." In either case the effect is to diminish the place of basic reference in the curriculum; some students no longer take the subject at all or, if they still do, they get less time for it. The number of schools offering such integrated core programs is still a minority but it is certainly growing each year.

Another way of making more room for specialization is to expand the length of the program. All Canadian accredited schools have been on a two-year program since the mid-seventies. There are now at least three such in the United States, and there has been enough general interest by others in the possibility of going the same route to have prompted a special conference on extended library education programs. The idea may also receive some support from the recent recommendation in its favor by the Conant Report. The published writings on the two-year program have not indicated what their effect is on reference education specifically. Since, however, all the United States schools have stressed the importance of an internship or fieldwork component, it is likely that the extended program will have the effect of increasing the share of "practice" in the preparation of reference librarians, as of all other types.

Within the reference area itself an examination of the library school catalogs suggests that a basic reference course is still offered by the vast majority of the schools, even though very few indeed still call it that. Most of these basic courses still give a major share of their time to study of reference materials but seemingly the courses are not as "title-centered" as before. Larsen's study of 1979 found that ten of his thirty-one respondent schools did not have "fixed lists of titles"; three more did not discuss reference sources at all, devoting the basic reference course to the communication process and the administrative aspects of reference service. To judge from the latest catalog descriptions, however, such eliminations of the materials component are still rare. What is becoming evident is a trend toward splitting off communications and administrative aspects into separate courses of their own. For example, UCLA offers a course entitled "Colleagues and Clients" and Catholic University one on "Servicing Individual User Needs." Once more then, it appears, the centrifugal forces are at work.
What is not apparent anywhere in the library school catalogs is the mention of organized programs of preparation for reference librarianship. There are many individual courses of reference interest and undoubtedly the students can, if they wish to concentrate their electives into that area, gain a considerable knowledge of reference work in its various aspects. It is also quite possible that counseling by faculty advisors may have a powerful synthesizing effect, by helping the students choose a sequence of electives that “come together” to constitute a coherent whole. However, a good deal of skepticism on these points seems in order. The tendency of most students, in a period where competition for jobs is keen, is to equip themselves for the maximum number of possibilities by taking courses in a large number of “areas.” Faculty members’ “advice” is just that—that is, seldom a strong enough factor to alter the students’ decisions. If there is indeed an invisible “reference stream” in the library school curricula, it seems highly unlikely that many students are taking it.

Reference Education Outside Library Schools: Staff Development and Continuing Education

Anomaly: the overwhelming majority of the writings about reference education in North America deals with reference education as it has been conducted in the accredited library schools. (And the present review therefore reflects that fact.) The overwhelming preponderance of reference education, as it is actually acquired by North American librarians, goes on outside the accredited library schools and very little indeed has been written about it. The real reference education seldom gets to stand up.

A little arithmetic proves the preceding assertion. For one thing, it is likely that most of the people who do at least some reference work in American libraries are not graduates of accredited library schools at all. They are the products of unaccredited library schools, or of school librarianship programs, or of library technician training courses, or they are subject specialists and nonprofessionals who have had no formal library studies. Space limitations prevent dealing with these forms of reference education here. In any case, they are not easily ascertained.

Even in the case of the graduates of accredited library schools, the share of the library school program in their total education for reference work is small. Library school graduates usually have seventeen or eighteen years of formal studies; of this amount, reference-related
courses in the library curriculum would usually take up no more than one-quarter of one year and often as little as one-tenth of one year (i.e., the basic one-semester reference course). After receiving their MLS degrees, the graduates then practice librarianship for something like thirty or forty years. Whether that practice turns out to be of high quality or low, the logic of the arithmetic rules against according the library school reference program much responsibility for the outcome. No surprise then that when Wallace Bonk and Thomas Galvin held their “reference encounter,” the point on which they heartily agreed was that the library school program was “really the introduction to the... [students’] education, which will continue on the job.”

There are many ways by which that further education may be conducted. For convenience one may distinguish four main types (by no means mutually exclusive). The first is the learning that comes simply with the experience of doing reference work. Contact and discussion with other, more experienced reference librarians is an especially important aspect of such “learning on the job.” The new librarians learn from their colleagues invaluable information about the collection, the clientele and searching “shortcuts” that no course could possibly impart.

The second is deliberate self-study—reference librarians initiating and devising their own ways of improving, deepening and refreshing their knowledge and skills. Margaret Stieg has recently made a very good case for this approach, at least in academic libraries, arguing that what reference librarians need most is more substantive knowledge. This is best acquired by reading and taking university courses in nonlibrary subjects.

Undoubtedly many reference librarians do conscientiously pursue programs of self-study but the fact that their labors are private makes for much doubt as to the effectiveness or even of the existence of such efforts. This doubt has prompted a search for a more “demonstrable” means of ensuring further education. That third type of further education is staff development, the term used here to identify the programs, planned and financed and supervised by the employing institutions, which they conduct to achieve intellectual and professional growth in their reference staffs. Margaret Knox (now Goggin) has convincingly pointed up the need for such a development program and made clear the principles and techniques on which it should be based. She also demonstrated, in a comprehensive case study, that excellent results are achievable at reasonable cost. She concluded: “A development program is...a practical plan for every library and for every reference department.... The results of such a program more than repay the time spent.”

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Unfortunately, Knox’s advice seems to have gone almost entirely unheeded, if one may judge from the testimony (or rather the lack of it) in the published literature. Admittedly, many libraries have produced staff manuals for their reference departments, and there are some published examples of training guides prepared primarily to familiarize new reference staff with the local collections and routines. However, Helen Rodney’s account of staff development at the University of Victoria (British Columbia) reference department is the only ascertainable report of a program that comes anywhere near the scope recommended by Knox.

Since 1961, when Knox published her paper, another aspect of staff development has come very much to the fore. It is no secret that a great many libraries are using nonprofessionals to staff their reference desks. For example, Boyer and Theimer’s survey of 141 college and university libraries indicated that two-thirds used nonprofessionals in reference service and that the latter accounted for 33 percent of total reference desk hours.

The suitability of such utilization has produced a lively dispute, and it is not yet clear whether the employment of nonprofessionals in reference work will increase or decrease. It is clear, however, that there will continue to be substantial numbers of such people. Two corollaries follow from that fact: one is that if nonprofessionals are to work at the reference desks, they should be adequately trained for those duties. The second is that the education of professionals should reflect the fact that some of the tasks at the reference desk (notably “ready reference”) may be handled by nonprofessionals.

Thus far, it would appear, neither of these corollaries has had much effect on reference education. Although a number of articles have reported on in-service training programs at individual libraries, the Boyd and Theimer survey found that 80 percent of the libraries employing nonprofessionals in reference work had given them no formal preparation for such duties. And if professionals at a given library are to turn over the easier questions to such untrained nonprofessionals, then presumably their employers should be preparing the professionals to master such skills as administration, supervision of reference assistants, and answering more difficult questions. However, there seem to be few if any professional development programs specifically keyed to these requirements.

The last of the four main types of further education, to which reference was made above, is continuing education. The term has many meanings but as used here it is to be understood to connote the activities conducted by agencies other than one’s employing library.
associations, library schools, commercial firms (such as IBM), bibliographic networks (such as OCLC) and individual libraries which have regional, state or national constituencies—all these and probably other types of agencies as well sponsor conferences and seminars. The Continuing Library Education Network (CLENE) publishes a substantial directory of such offerings.

Some of these have been of considerable importance to reference librarianship. The success of continuing education efforts in the field of bibliographic instruction has already been mentioned. Training in the use of online services was originated and largely developed by the commercial firms; the library school courses came later and even now do not pretend to be as specific in terms of hands-on training, or as up-to-date. Reference interviewing, community information services, reference networking, interlibrary lending (via networks and bibliographic centers) are other examples of subjects of reference interest that have been initially or largely conveyed through continuing education.

The achievement is thus substantial but ultimately it has been unsatisfactory. In part the deficiencies are simply those of continuing library education generally: lack of coordination, lack of sequence, lack of a recognition system. In short, the librarian has too little incentive or opportunity to pursue a thorough, systematic and convenient program of relevant professional studies over the long run of his or her career.

More specifically, the reference librarian seems particularly ill-served by the present spectrum of continuing education offerings. Most continuing education workshops, short courses and institutes cannot be put on unless the participants are willing to pay fairly high fees for them. The subjects chosen are therefore those which are calculated to attract attention—the new development, the controversial issue. The field of reference service has relatively few such “attractions” to offer.

A second problem is that reference librarians are perhaps the least homogeneous of the “type of work” library groupings. The subject field (e.g., humanities, medicine) or the type of clientele (e.g., undergraduates) or the type of activity (e.g., library use instruction, interlibrary lending), seems to take precedence over the reference function itself in the reference practitioners’ view of themselves. It is no accident that the regular features of RQ (the official journal of the ALA’s Reference and Adult Services Division) deal respectively with “online services,” “library literacy” and “government documents.” Only the “reference books” section seems designed to address the entire readership.

Finally, as Margaret Stieg has perceptively pointed out, it may well be that the general education component in the reference librarian’s preparation is really more important than the professional education
component. "Reference sources," she claims, "are only a bridge to the world of knowledge and the effective librarian must operate in that world." The present form of continuing library education offers very little help in the pursuit of that kind of knowledge.

Some Conclusions and Personal Views

Both rightly and wrongly, the centerpiece of reference education has always been the basic reference course in the accredited library schools. Whether as themselves providing the bulk of the reference service (as in the larger libraries) or as supervisors of nonprofessional reference workers, it is the "qualified" librarians who dominate the practice of reference work. And what those qualified librarians have in common, insofar as preparation for reference work is concerned, is that first reference course. In that sense, the attention given to it for a hundred years has been reasonable enough.

It is an open question as to how much that course has changed over the hundred years. I do not mean that remark to sound disparaging or to suggest that reference teaching has been rigidly traditional, though (as indicated above) some others have indeed made that very accusation. I simply want to make the point that most writings on matters curricular are unreliable. They tend to be derived from or focus upon course descriptions, and these may bear little relationship to the ultimate character or effect of a course. I hold with Robert Pierson that the teacher is a good deal more important in the outcome of a course than its formal contents or "methodology"—and so are the students. There is little point to arguing about just which topics are to be included in a given course if you cannot tell what actually gets through to the students. A case in point is the intriguing recent article by Margaret Stieg. She demonstrates that Isadore Mudge, whose name has usually been associated with "title-centered" courses, was actually emphasizing the "problem method" (i.e., search strategy) in her teaching at Columbia fifty years ago.

Proper caution having been duly paid, I still venture the judgment that the basic course has changed considerably in two main respects. One is internal—the welcome shift in scope and emphasis from a narrow concentration on the "tools" of reference work to a concern with other important matters such as bibliographic structure, search strategy and, especially, knowing how to deal with the patron.

The other major change is external. The basic reference course now occupies a steadily diminishing place both in the curriculum as a whole
and in the reference area in particular. In some schools the basic refer-
ence course is no longer required. In a growing number of other schools,
基本 reference has become part of a larger "foundations" or "integrated
core" course. There are as yet no firm facts on the results thereof but my
guess is that basic reference tends to lose much of its "identity" in such
an approach. Most important of all, as ever more numerous and narrow
aspects of reference work have come to be presented as separate courses,
the unifying power of the basic reference course has weakened. The
center does not now hold as it once did.

The increasing weakness of the generalist position in reference
education may well be seen by many as no problem at all. In this view,
specialization in reference education is only an accurate and desirable
reflection of what is happening in the field itself. Perhaps the truth is
indeed that there is no such thing as "reference librarianship" but just a
congeries of loosely-connected reference specialties. But personally I
contend that librarianship is too small a profession to countenance the
splintering effects of unchecked specialization, with the attendant losses
of mobility and flexibility. In any case, even the specialist cause is not
well served by the present structure of reference education. With a few
exceptions (notably the new double degree programs), the library
schools are not providing carefully plotted and clearly delineated pro-
grams of reference specialization. The typical curricular menu features
many à la carte choices and few complete dinners.

I attach very little blame to the library schools for this situation.
Given their very small size, acute financial problems and the pressure of
students for freedom of choice, I doubt that the library schools can
feasibly be expected to do very much about improving the preparation
for specialized reference work. Nor, if one looks at the example of most
other professions, should they. Education for specialization and for
other forms of further education are usually not the responsibility of the
professional school; they are rather the responsibility of the professional
associations and of the employing institutions. So too is the responsibil-
ity for determining the appropriate training of support staff and for
coordination of such training with that of the professionals.

These tasks are certainly not easily accomplished, but it is also
certain that they have received too little understanding from the field. It
is my contention that the employing libraries and the reference practi-
tioners ("the field") have committed a double error. Most seriously, they
have seen themselves as only consumers, not producers, in the process of
reference education. They are ready to voice reactions and wishes but
essentially expect the library schools to shoulder almost all the
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burden.\textsuperscript{116} Now, consumers' views are indeed most useful, but—and this is the second error—even here they have missed the mark. The literature of reference work clearly indicates that practitioners have concentrated almost all their discussion on the teaching methods used in the basic reference course. This is the most visible and obvious aspect of reference education, but hardly the most important. The field has misunderstood its role and misplaced its attention.

In 1890 Andrew Carnegie was asked by Melvil Dewey for money to support his new library school. Carnegie refused, on the grounds that a school was not needed at all: “I have taken occasion to inquire of several parties about the supply of proper persons for libraries and find, that there is no difficulty in getting persons naturally adapted for this work.”\textsuperscript{117} I assume that Carnegie was wrong, at least about reference work, and that we shall have to do something more than simply rely on finding proper “persons naturally adapted for this work.” But if good reference librarians are to be provided, it will take a concerted effort from many parties to do so. I have purposely refrained from titling this article “education for reference librarianship” because the term connotes for too many people simply the task and activities of the library schools. The library schools do indeed have a large responsibility, but so do the library associations, the employing libraries and the practicing reference workers. All four groups must participate in the making of a reference librarian.

References

1. Harris, Katherine. “Reference Service Today and Tomorrow: Objectives, Practices Needs and Trends.” \textit{Journal of Education for Librarianship} 3(Winter 1963):185. Harris, then head of the Detroit Public Library reference department, averred in 1963: “Perhaps the real truth is that good reference librarians are born not made—either by the library school or the library.” As recently as 1979, Denis Grogan, the eminent British librarian, echoed this sentiment: “It has been known for many years that reference work cannot be taught...” (Grogan, Denis. \textit{Practical Reference Work}. London: Clive Bingley, 1979, p. 7.)

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crow Press, 1976; Saracevic, Tefko. "Information Science: Education and Development." 


8. Ibid., p. 94.

9. Ibid., p. 69.


17. Ibid.


26. Ibid., p. 1818.

27. Ibid., pp. 1818, 1823-24.


38. Ibid., p. 135.


41. Needham, "Bibliography as a Core Subject," p. 118.

42. Grotzinger, "One Road through the Wood." pp. 27-34.


45. Ibid., pp. 65-66.


57. Cf. Marco, Guy, and Murlin, Marjorie. *Basic Reference 400: A Self Study Guide*, rev. ed. Kent, Ohio: Kent State University School of Library Science, 1973. (At the University of Toronto Faculty of Library Science, Edith Jarvi and her colleagues have developed "Independent Study Units" for use in their course on Information Resources and Library Collections.)


65. See, for example the five volumes by Penland, Patrick, and McCordle, E.S. *Communication Science and Technology Series*. New York: Marcel Dekker, 1974.


79. Ibid.

80. Ibid.


87. Stueart, "Library Education," pp. 11-13. It is also worth noting that the Association of American Library Schools announced that it would cosponsor a conference on Education for Information Management in May 1982.

88. Ibid., p. 13.


90. Robert Stueart states that, "since 1970 the number of graduates has been reduced from around 9000 per year to the current figure of around 5000 per year." ("Library Education: State-of-the-Art," p. 9.)

91. This statement is not meant to suggest that the movement toward "integration" of the core subjects is dictated primarily by the desire to make more room/time for electives (specialization). But certainly one effect of "integration" is that the ratio between required and elective subjects is changing in favour of the latter.


93. The U.S. two-year programs are at the University of California at Los Angeles; University of Washington; and University of North Carolina—Chapel Hill.


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96. Larsen, John C. "Information Sources Currently Studied in General Reference Courses." RQ 18(Summer 1979):341.

97. Margaret Stieg recently made a search of the literature on continuing education and found that it "conspicuously fails to address the concerns of practicing reference librarians (p. 2548)." Her article, "Continuing Education and the Reference Librarian in the Academic and Research Library," Library Journal 105(15 Dec. 1980):2547-51, is in fact one of the very few substantial contributions to the subject.

102. "For Every Reference Librarian," p. 130.
111. It should be pointed out that the employing libraries, even while not actually conducting continuing education activities, may be contributing a great deal to such programs through their financial support, provision of staff as instructors, use of facilities, and the like.
116. According to a recent report by Margot McBurney, the directors of the ARL libraries would like their institutions "to do less of the work [of staff training] while library schools do more." (McBurney, Margot B. "Library Education: The Director's Point of View." In Education for the Research Library Professional, p. 30.)
117. Quoted in Vann, Training for Librarianship Before 1923, p. 58.
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In 1967 Guy Garrison asked whether it was even possible to conduct research on library reference/information service. He answered his own question in the affirmative but went on to stipulate conditions for that response. Garrison's speech provides a conceptual base for this article rather than the earlier issues of Library Trends which only partially covered the territory I hope to explore.

The title includes the clumsy compound "Reference/Information Service" because the two terms have never been carefully distinguished in the past and certainly are not clearly separated in current parlance. Instead of attempting to choose one and explain away the other, this article will simply accept the compound and modify Rothstein's classic definition of traditional reference service. I will use the phrase "reference service" when the author of a particular article uses it and will speak of "reference/information service" when an author uses the phrase or when making general comments.

For this article, then, library reference/information service is the personal assistance given by a librarian either in the form of referral to likely sources of information or in the form of information itself. This review will focus on the provision of information in response to questions, and will not cover research on other activities traditionally associated with library reference departments such as bibliographic instruction or interlibrary loan. Although some may object to this restriction, I do it in the interest of expansion in another direction.

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In his perceptive speech on "Research in Reference: Is It Possible?" Guy Garrison began with the Rothstein definition and followed it with a necessary caveat:

Satisfactory as this may be in discussing the organization and administration of reference work in libraries, it is too narrow to take in all the current research that is pertinent to reference work in libraries. In order to see library reference work in a broader setting, I would define it as all the information-gathering activities of people, the roles which libraries play in these activities, and the impact of these activities on libraries.

Garrison's point is well taken. I agree with him and assume that the body of research relevant to library reference/information service includes much more than studies conducted in or about libraries.

Research is, perhaps, a more difficult term to define since the word is very widely used and means many different things to different people. Here again, Garrison's speech is helpful. He cites Jesse Shera, whose classic definition, based on Francis Bacon and Charles Darwin, describes research as: "An answering of questions by the accumulation and assimilation of facts which lead to the formulation of generalizations or universals that extend, correct, or verify knowledge." Although Garrison accepts this definition and believes that "much of what passes for research, such as the endless surveys of reference resources and reference needs, is not research and should not be so considered," he does consider some such studies in his speech as well as those which are based on a broader concept of reference/information service and a more scientific definition of research. Like Garrison, I will take a broad view of what research is relevant to library reference/information service; I will favor a scientific understanding of research without completely rejecting the fact-finding activities related to it, in that they are disciplined inquiries which yield useful information. I will describe work which, in my judgment, is either important in itself, valuable for its contribution to a group of related studies, or useful as a base for future investigations. My focus will be on the last ten years, although I may occasionally go back further in order to call attention to influential material. With the exception of a few items from England or Australia, the work selected for comment here was done in the United States.

Domain

Garrison began his speech by describing what Marcia Bates would call the "domain" of his review, i.e., "the bibliographic territory searched." My search has been less direct than Garrison's but it can be
Research described for the benefit of those who wish to go beyond what can be covered in this article. I began by scanning the chapter on "Research in Reference" in Murfin and Wynar's bibliography and examining the titles of dissertations listed under the heading "Reference service" in the Davis bibliography of completed dissertations and the Lundeen list of dissertations in progress. If I was not already familiar with work cited in these dissertation bibliographies I searched for articles by the authors or tried to contact them directly. Next I reread several review articles which had come to my attention and skimmed several bibliographies on the reference interview. At one point, I requested online searches of the ERIC and LISA databases but this effort proved unproductive. There is no simple term or combination of terms that will retrieve articles describing research in this area and other sources were already providing a sufficient number of items. Next, I checked the last ten years of RQ, the official journal of ALA's Reference and Adult Services Division, paying particular attention to Charles Bunge's columns on "Research in Reference" which appeared irregularly from 1968 to 1972. I also checked the contents of College & Research Libraries from 1972 to date, the contents of the Journal of Academic Librarianship which began in 1975, and the complete file of Library Research which began in 1979. Finally I searched my personal files of material and discussed the topic with colleagues.

Framework

In 1967 Garrison suggested that, because reference work is only one small piece of the information flow process, "we need two definitions of reference—one for administrative purposes inside libraries and another for research purposes." In 1982 it seems that there are at least four perspectives from which to examine library reference/information service—all of them receiving attention from persons who do research. Some have focused on the description of reference/information service as it exists in libraries today. Others have studied the raison d'etre of library reference/information service—the needs of people for information. Coming closer to what happens when people use library reference/information service, some have studied the process of asking and answering questions in libraries. Others have examined the same process in a broader context. Many of the latter have not been particularly interested in library reference/information service, but their work is still of great value to librarians, and needs to be considered in a comprehensive view of research on reference.
The Description of Library Reference/Information Service

Until the mid-1960s, descriptive studies of reference service usually focused on measuring it either in terms of what sources were being used, by whom, and how often or by recording data on the types of people asking questions, the topics of the questions, or the time it took to answer them. The nature of the service was stable and quality was not being investigated. Recent years, however, have seen the emergence of several different kinds of studies. Measurement is still a concern but the focus has changed, and there is a new interest in examining how potential users perceive reference/information service. Evaluation has become more realistic and new forms of reference/information service have been carefully examined.

Measurement

Rothstein in 1964 and Weech in 1974 described many studies measuring reference service in various ways, but these efforts were largely local and/or occasional rather than national and periodic. Currently, there is interest in establishing definitions and procedures which would make national periodic surveys possible.

Because librarians have not agreed on definitions for the activities that constitute reference service nor on how to count those activities, data are not available to indicate how much library reference service is provided in this country and how the amount varies from year to year or from library to library. Scholars from outside the library community who wish to analyze library service levels usually employ circulation statistics. They do this not because reference/information service is necessarily considered unimportant but because reliable statistics on this service are just not available.

During the 1970s reference librarians working through the Committee on Reference Statistics of the ALA Library Administration Division's Library Organization and Management Section, established basic definitions that could be used nationally to count “information contacts” and persuaded the National Center for Education Statistics (NCES) to use those definitions in its periodic surveys of various types of libraries. The effort to establish definitions was one which involved years of committee work and considerable discussion in the library community.

It is unclear at this writing whether enough libraries will use the definitions correctly in gathering data for subsequent reporting to NCES to make the results a valid indicator of reference service in any one...
stratum of the library community. The tools have been prepared, however, and there have been programs at every recent ALA Annual Conference to help reference librarians gather valid statistics.

Several attempts have been made recently to relate the volume of reference service to other measurements of library activity. The most impressive of these is an analysis of the volume of reference transactions in the twenty-three departmental libraries of Ohio State University by Marjorie Murfin and Fred Ruland. The investigators began the study wondering, "Is there any useful purpose served by collection of reference statistics on any but a local level?" After working out a logical explanation of factors that might influence the volume of reference transactions and using data collected for NCES in statistical tests which revealed correlations between that volume and other library service variables, Murfin and Ruland conclude that national measurement is useful, especially if several relatively simple changes are made in the way data is collected and presented by NCES.

Murfin has completed an analysis of data on reference activity in the recent NCES report of college and university library statistics. In order to perform analysis similar to what was done at Ohio State she had to supplement NCES data with additional data gathered through her own questionnaire. An article reporting Murfin's findings has been accepted for publication in College & Research Libraries.

Paul Kantor, who developed several measures of reference service as part of the LORCOST (Levels of Output Related to Cost of Operation in Scientific and Technical Libraries) Project funded by NSF, has suggested that these measures might be used by NCES to accumulate national data on the availability of reference service. The LORCOST study was done in cooperation with a national sample of seventy-three scientific and technical libraries, sixteen of which were involved in the study of reference services. Kantor used observational data to measure the availability of reference services (e.g., hours reference service is offered per week, time patrons spend waiting, probability someone is ready to serve, time spent assisting patrons) and self-reported data to measure "behavioral outcomes" of the reference encounter ("patron satisfied," "patron quits," "refer elsewhere," "give up," and "try again"). In cases where patron was not satisfied, "causal factors" are analyzed (e.g., "question not made clear," "could not think of source," "we don't have source," "source does not have information"). Kantor is using this technique in other studies and makes both forms and analysis available commercially.
Two studies measured the degree to which potential users are aware of reference service. In both cases, the investigator explored awareness of many services of a reference department besides question answering, though the latter was an element in both studies. Jerold Nelson sent a questionnaire to a sample of faculty members at six very similar colleges in California. Of the eleven references service listed, “answer to a factual question” was a service known to just 61 percent of the 694 respondents; five other services were better known. Mollie Sandock interviewed a small sample of students at one large urban university. Although the sample was very small, the study was carefully done and revealed that only 42 percent of the students knew the reference department would answer a factual question, while 26 percent were sure it would not.

Two other studies explored a query which often puzzles eager reference librarians—“Why don’t they ask questions?” Mary Jane Swope and Jeffrey Katzer interviewed a sample of library users at Syracuse University to determine what proportion of them had questions and what proportion of those who did have questions would ask a librarian for assistance. Of the 119 persons interviewed 41 percent had questions but 65 percent of them would not ask a librarian. The sample was small but in ten years the findings have not been seriously challenged. Linda Lederman explored the possibility that people do not ask questions because of “Communication Apprehension,” a phrase communication theorists use to identify a “fear of talking.” Although findings did not support her hypothesis, the study is a useful example of the possible value of communication research to the understanding of library reference/information service.

Evaluation

In 1974 Weech described the innovative technique called “unobtrusive testing” which Terence Crowley and Thomas Childers used in their doctoral dissertations to evaluate the accuracy of answers given by public libraries. The technique was used widely during the 1970s but not in any study large enough to have generalizable results until late in the decade when the Suffolk Cooperative Library System asked Childers “to perform a massive study of reference performance.” As in his dissertation, Childers found that the client’s chance of getting a correct answer is about fifty-fifty. He also concluded that because both correct answers and incorrect answers occurred in libraries with various characteristics, it is difficult for a client to predict the quality of response he will receive from a particular library on a particular question.
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Robert Haro's review of the dissertations by Crowley and Childers suggested that the findings had serious implications for academic libraries. Marcia Myers investigated those implications in a study of telephone reference service in academic libraries. Using unobtrusive measures, Myers found that academic libraries in the Southeast gave correct responses 49 percent of the time. Her study also used various statistical tests to establish the relationship between percent of accurate answers and such variables as size of library collection, size of reference collection, number of hours the library is open and number of hours reference service is offered.

Ronald Powell investigated similar relationships in his recent doctoral study. Powell used a set of test questions administered obtrusively to investigate the relationship between reference performance in public libraries and several quantifiable reference variables. Like Myers, he found a strong relationship between size of reference collection and the ability of librarians to answer questions accurately. Other variables investigated were the number of reference and bibliography courses completed by participating librarians, experience of participants, and number of questions participants answer per week.

In their unobtrusive tests of reference service Crowley, Childers and Myers used questions seeking specific facts. A recent study of three college libraries in Australia used questions seeking general information. Janine Schmidt's research was viewed by the investigator as "a pilot study to test a methodology." It is still interesting to note that findings—the user has at best an equal chance of receiving a completely correct answer—are similar to those of Childers and Myers.

In the full report of his Long Island study, Childers raises several questions about unobtrusive testing including the following methodological question:

Would library staff perform differently on the same test of reference/information performance administered (a) unobtrusively and (b) obtrusively, as an overt test. To date no systematic exploration of this rather basic question has taken place. There are a number of obtrusive and unobtrusive tests of reference/information performance; yet they have all employed different test questions, thereby precluding close comparison of the two techniques. A systematic study of the differences would begin to indicate whether the higher cost of the unobtrusive method is worth it.

The complexities of trying to answer this question are many but Weech and Goldhor have completed a pilot study that deals with some of them and concludes that results are different with the two methods. Whether
the difference is truly worth the cost is a question that cannot be answered with the evidence available at this time.

Innovation

Perhaps the most revolutionary development in library reference/information service in the past ten years has been the introduction of what was once called "computer-based reference service" but is now more likely to be called "online search service." Originally, computers were used to search bibliographic databases in the batch mode, but now both bibliographic and nonbibliographic databases are usually searched interactively, i.e., online. The introduction of this innovation to libraries and other information centers has inspired a number of studies. Two of the most useful were done by corporations that were and are vendors of the services—SDC and Lockheed.

The SDC study was a survey of users of online services as of 1974-75. All organizations subscribing to any one of ten major search services were asked to be involved in the study which was funded by the National Science Foundation. Questionnaires were returned by 472 managers and 801 searchers; onsite interviews were conducted with twenty-five organizations and fifty individuals. More than 80 percent of those who returned questionnaires were "working in libraries and traditional information service units." The questionnaire and interviews asked about such matters as: how the services were introduced; selection and training of staff; selection, access and use of online systems and online databases; costs of using online services; problems and challenges involved; areas of impact. The SDC survey provided essential information at an early point in the dissemination of this innovation and has already proved to be useful as a source of baseline data.

The Lockheed study was very different. In the mid-1970s Lockheed conducted an experiment called DIALIB which investigated the use of the public library as a linking agent between the general public and the databases available through the Lockheed DIALOG system. Four public libraries in California participated in the three year experiment which was carefully monitored by Lockheed and by researchers under contract to the vendor. Numerous reports on DIALIB have appeared in the library literature. In sum, DIALIB found that people will use a public library to gain access to a search service, that libraries can offer the service without major difficulty, and that people are willing to pay fees for searches in public libraries.

This last matter, fees for searches in libraries supported by public funds, was one of the most hotly-debated issues of the 1970s and inspired
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a number of data-gathering efforts. They will not be described here because most are covered in the bibliographic essay appended to Financing Online Search Services in Publicly Supported Libraries, the report of an ALA survey.42 Describing the practices of 985 such libraries, this publication reports that 72 percent charge a fee of some kind but most charge only for certain cost categories—those that are directly related to a specific search. The ALA report, which presents financial data for several different types of libraries, also contains data on other aspects of the online services such as the number of searches per year and the length of time a library has been offering the services.

The British Library Research and Development Department (BLR&DD) also funded a number of projects concerned with the use of online bibliographic services. Those involving public libraries are described in a report edited by Nick Moore.43 The first of these, the BIROS (Bibliographic Information Retrieval Online Service) Project, involved cooperation between the Lancashire Library, the library school at Manchester, and BLR&DD. It "took the form of action research that is introducing the service and investigating the consequences"44 and used such methods as studying online search logs, and interviews with staff and users. BIROS was complemented by experiments with online search services in different parts of Great Britain all under the umbrella title of "The Guidelines Project." One result was a set of guidelines developed by Stella Keenan to "suggest a sequence of actions and decisions that must be made if an authority is considering the establishment of an on-line information-retrieval service."45

A less technology-intensive innovation, Information and Referral service or I&R, has been documented by Thomas Childers. His federally financed study, beginning in 1977, was designed to have two phases:

In its first phase, the project will describe the extent and nature of I&R in enough public libraries to provide a reasonably accurate national picture. In the second phase, I&R will be described in seven libraries in enough detail to share those libraries' I&R experiences with the field.46

Childers has reported on both phases in a book on Information and Referral Services: Public Libraries, scheduled for publication by Ablex in 1983.47

I&R services in British libraries are usually called community information services. Two recent projects, both supported by the British Library (BLR&DD), have attempted to collect, organize and disseminate community information through public libraries by using Prestel, the viewdata system created and maintained by the British Post Office.
The Aslib Research and Consultancy Division directed and monitored the first attempt which involved six central reference libraries in the London area. Results are "characterized by the lessons learnt and difficulties outlined more than the hard data obtained." A second BLR&DD sponsored study of community information on Prestel was conducted by the London and South Eastern Library Region (LASER).

In both projects, the role of the library as information provider was only part of what was studied. Equally or more important in both cases was investigation of the public library as a site where the public can gain access to information from over 500 sources available on Prestel. The second project (LASER) was built on the first and the two together present an invaluable body of information about the potential of videotext for library reference/information service. Although entrepreneurs in the United States are experimenting with viewdata and teletext services, there have been no comparable published studies of collaboration with libraries. It seems likely, however, that these information services will soon be available in this country and the British results could be very useful to reference librarians.

The most recent descriptive work on library reference/information service covers territory quite different from the studies just mentioned. Supported by funds from the H.W. Wilson Foundation, Bernard Vavrek and others at the Center for the Study of Rural Librarianship at Clarion State University have surveyed libraries serving populations of less than 25,000 to discover the characteristics of reference service in that setting. A report was published as this article went to press.

Information Needs and Uses

The library reference/information service described in the studies noted above exists because individuals need to use information in various ways. It seems logical, therefore, that research on those needs and uses be considered an important component of research on library reference/information service. Until the 1950s, little research was done on information needs and uses. During that decade, however, people designing retrieval systems for scientific and technical information began analyzing the needs and characteristics of those who used their systems. Results were summarized in bibliographical essays which appeared in the Annual Review of Information Science and Technology (ARIST) from 1966 to 1972 and again in 1974 and 1978. The studies were not as useful to system designers as was hoped, partly because they revealed such a wide range of information needs and uses. Generaliza-
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tion based on the studies is not easy, although a Rutgers dissertation has
done so with interesting results.52

When John Martyn wrote the 1974 review article in ARIST, he
reported that studies of information needs and uses were beginning to
occur in areas outside science and technology. Susan Crawford con-
irmed that trend in her 1978 review article with a succinct summary of
the whole field:

Thirty years later, and after some 1000 papers on information needs
and uses, what can we conclude about the state of the art? First, the
scope of use studies has been extended to include users in a wide
variety of disciplines, among them, psychology, education, policy
making, and law. It appears that almost everyone's needs are now
being surveyed—senior citizens, urban populations, minority
groups, as well as scientists and technicians.53

In 1975 Lois Bebout, Donald Davis and Donald Oehlerts proposed
a study of humanists' information needs54 but none was ever done.
Recent interest has focused on studies of the average citizen rather than
on the specialist. The U.S. Office of Education's unit dealing with
libraries (called, at various times, Bureau of Libraries and Learning
Resources, Division of Library Programs, Office of Libraries and
Learning Resources) has sponsored several studies dealing with infor-
mation needs.

In 1972 Childers received a federal grant for a digest of the literature
and a bibliography on the knowledge/information needs of the disad-
vantaged which would form a base for future research.55 Later the same
agency funded a study of the information needs of urban residents
conducted by Westat, Inc. and the Regional Planning Council of Balti-
more.56 Brenda Dervin's chapter in the report of that project presents a
content-analytic scheme of the information needs of the average citizen
and reviews research on various aspects of the citizen's information
"system." This material was revised and expanded for publication in
Kochen and Donahue's Information for the Community.57

Dervin and others have moved beyond identification of need in a
study of "The Development of Strategies for Dealing with the Informa-
tion Needs of Urban Residents." This study, also funded by the Office of
Education, has resulted in several massive reports. These are docu-
mented and partially summarized in a conceptual article which argues
that this area needs a change of focus.58 Instead of asking, "What do
people want to know?" we should ask, "How can the librarian inter-
vene? What questions can he ask? How can he enter the user's informing
processes? What can he deliver that will be 'informing' to that unique
individual?"59
In a very different study sponsored by the Office of Education, Chen and her associates at Simmons College gathered information for the White House Conference on Library and Information Services. They conducted telephone interviews with individuals in 2400 households to determine the everyday information needs of New England residents and the sources used to satisfy those needs. Libraries were one of the sources but not the most important one. A similar finding was the result of a study to investigate the “Information Needs of Californians.”

This study was sponsored by the State Library of California and also was intended for delegates to the White House Conference.

A very different perspective on information can be gained from the research of Fritz Machlup, Kenneth Leeson and associates, who examined the economics of how scholarly information is disseminated through the printed word and reported results in four volumes. Machlup is now working on another multivolume work which will have the collective title Knowledge: Its Creation, Distribution and Economic Significance. Both of these sets provide essential philosophical and scholarly background for the context within which library reference/information service is offered.

The Process of Asking and Answering Questions

In 1966, at the Columbia University conference on the Present Status and Future Prospects of Reference/Information Service, Alan Rees asked two challenging questions: “Is the reference librarian really necessary? Is it possible for a user with an information need to exploit library resources without the interposition of a mediator?” Then he mentioned several designs for future information systems which assume the absence of the reference librarians, and added:

It is my belief that our limited understanding of the nature of the reference librarian/user dialogue makes it most difficult to formalize and program this process at the present time. It has yet to be proved that an effective programmed dialogue can be maintained at the man-system interface. Would this necessarily be more effective than that achieved by the reference librarian? Is it justified to engineer expensive time-sharing systems on the assumption that an effective dialogue can be achieved? Do we really understand the problem?

A great need for research is apparent, and unless this is undertaken, little more knowledge concerning the reference process will exist in ten years’ time than is available at present. It is depressing to consider that insight into the factors involved in providing reference has remained relatively static for more than thirty years. It is becoming increasingly apparent that the behavioral sciences have much to offer
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to librarianship by way of insight and research methodology, and since many of the problems underlying reference work are psychological, some fruitful research might be undertaken. If such research is not conducted within the library profession, it is likely that systems analysts and behavioral scientists will engineer information/reference systems independently, with the reference librarian perhaps eliminated or downgraded to the task of delivering documents or of handling routine factual-type questions.63

Other comments in this article make it clear that the reference librarian/user dialogue Rees refers to is the same process librarians recognize as the reference interview, the dialogue with a questioner through which a librarian finds out what he or she really wants to know. Although the interview, sometimes called question negotiation, cannot really be separated from the search which follows, it is useful to consider the interview separately because it has generated so much comment in recent years.

Two annotated bibliographies on the reference interview were published in 1979. O. Gene Norman's selected list, which emphasizes the ten years previous to 1979, includes forty-four items.64 A comprehensive bibliography by Wayne Crouch entitled The Information Interview covers literature since 1960 and includes seventy-six items.65 Only 25 percent involved some type of systematic research.

Two of the research items in the Crouch list report on a National Science Foundation sponsored study to "model the user interface for a multi-disciplinary bibliographic information network."66 The Office of Computing Activities at the University of Georgia and the Campus Computing Network at UCLA "investigated the interactions occurring between users of computer-based bibliographic data bases and the intermediaries (librarians and profile analysts) who prepare search profiles and analyze the search results."67 James Carmon reported that the investigators recognized in traditional library reference service and interface with users similar to what they were studying and looked for literature which analyzed how reference librarians did their work. They found nothing useful and concluded that "the complexity of the problem has been vastly underestimated."68 After gathering data from questionnaires, tape recorded interviews, search profiles, profile revisions, and search results they created a model which emphasizes the "non-deterministic" nature of the interview process. Although the project investigated question negotiation with the hope of discovering how it could be programmed for automated systems, the investigators found that "the intermediary is an integral component of the interface and is essential to the adaptive capability of the interface."69
That conclusion has not stopped other researchers from trying to automate question negotiation. In fact, this topic has received increasing attention in recent years. The Carmon report is very important however, as the first empirical analysis of what happens in the reference interview. The investigators used several different sources of data to analyze the interview and their conclusions provide useful insights into this phenomenon.

Wayne Crouch and Pauline Atherton recently completed a study for the National Library of Medicine that examined the reference interview as an interpersonal communication phenomenon and sought to identify behaviors that facilitate or impede information exchange. Pre-search interviews were videotaped and analyzed in intensive “debriefing” sessions with both clients and intermediaries.

Since reference librarians have always recognized the importance of the reference interview, one might well ask why it was not analyzed earlier. Examination of the doctoral study by Mary Jo Lynch and reflection on the difference between the interviews she examined and the interviews studied by Carmon and his associates may provide an answer. Interviews preceding data base searches are usually of some length, conducted by appointment and conducted in private. Interviews Lynch examined in a traditional reference setting are usually brief, impromptu, and conducted in public. When the Lynch study was designed, only Robert Taylor and Bernard Vavrek had done research on the content of the traditional reference interview and both relied on the reports of librarians.

Marjorie Murfin and Egill Halldorsson had used a slightly more empirical method but its objectivity may still be questioned. The method Lynch designed is not easy to use and the study probably will not be replicated. Recent work on the content of the reference interview has been done in the online situation and it seems likely that this will continue to be the best research environment. For one thing several paper records can be generated automatically before and during an online search whereas the traditional reference interview disappears without a trace. Also, since clients make appointments for the interview which is expected to take some length of time, it is relatively easy to get their permission to record the event in some way.

Although the substantive content of the traditional reference interview has not been studied often, there have been several studies of the quantity and quality of other forms of communication during the interview. Michael Roloff has summarized this literature in a review article for Library Research and made some useful suggestions about
what work needs to be done in the future. Thomas Eichman has shown how findings from linguistics research can illuminate problematic aspects of this topic.  

No discussion of research on the reference interview would be complete without mentioning Gerald Jahoda, who spent several years working with various associates to analyze the whole reference process and develop materials to help students understand it. Jahoda began by analyzing models of the reference process suggested by Rees, Saracevic, Shera, Crum and Bunge and then developing his own. Supported by a grant from the Office of Education, Jahoda tested this model by collecting over 400 questions from reference librarians in twenty-three science and technology libraries and then asking other librarians to indicate the steps they would follow in developing and following a search strategy. Analysis of these responses enabled Jahoda to revise his model of the reference process and develop instructional modules for each step. Question negotiation was one of the six steps in Jahoda's model and the related module contains a "Checklist for Identification of Queries to be Negotiated" and a "Checklist for Evaluating Negotiation."

Jahoda's work covered much more than question negotiation and included several modules for teaching how to search for information once it is determined what information is needed. This topic has received a great deal of attention in recent research and commentary. The 1981 volume of ARIST contains a wide-ranging and perceptive chapter by Marcia Bates covering search techniques from a psychological point of view, i.e., studies which focus on "the subjective experience of the human being who is doing the searching." Carol Fenichel contributed an excellent review of research on online searching to a recent issue of Library Research.

As with the reference interview, it seems likely that future research on searching will be done in the online environment. Records can easily be produced for analysis as was mentioned earlier and the environment is free of the stereotypical notions which have come to be associated with libraries. Traditional reference service will continue to occur, however, and it would seem important that the librarians who do it keep in touch with the findings of research in the online environment. Shera promised years ago that automation would be a boon to the reference librarian primarily because of "the opportunity it affords to analyze the reference process," and suggested that "machine simulation of that process cannot be accomplished without an understanding of the process itself." That understanding will be useful whether or not machines are used.
MARY JO LYNCH

Artificial Intelligence

Although Shera did not speak of Artificial Intelligence (AI), he seemed to understand what was coming. Recent years have seen the rapid development of this interdisciplinary field. Linda Smith reviewed “Artificial Intelligence in Information Systems” for the 1981 volume of ARIST and defined AI as “research efforts aimed at studying and mechanizing information processing tasks that normally require human intelligence.” Smith points out that much AI work is still experimental. She also notes, echoing Shera, that “building systems to perform tasks requiring intelligence may provide insights into how humans perform these same tasks.” It is partly for those insights that reference librarians need to be aware of progress in AI.

Conclusion

The last decade has witnessed considerable research activity in the field of library reference/information service. The future promises a similar level of activity, especially if we can accept as evidence the fact that approximately eight of the twenty topics selected as priorities in A Library and Information Science Agenda for the 1980s are related to topics discussed in this review. Since it began, the purpose of reference/information service has been to connect an information system with the human beings who need what that system contains. Information systems have changed as have information needs, but research has only begun to study the many dimensions of the connection.

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Standards for Reference Services

ROBERT KLASSEN

Reference standards and measurements have been extensively written about since the development of a much more active information service program by libraries. There are significant reference studies by Bernard Berelson, Margaret Hutchins, Louis Shores, and Joseph Wheeler and Herbert Goldhor that brighten the library literature. But these studies do little in the way of focusing attention on the qualitative or quantitative factors in providing information services. Others such as Leon Carnovsky, Arnold Miles and Lowell Martin, and Samuel Rothstein wrote about the compelling need for quantitatively-based appraisals and offered some guidelines for measuring reference services. During the last decade the debate continued. Some of that discussion is described in this article and, it is hoped, the issues have sharpened the focus on basic standards of reference service on which these reference pioneers labored.

The efforts to develop practical methods of self-evaluation and to define reference services have been led by library administrators who have felt the budgetary importance of measuring the effectiveness of a library’s services. But the task of evaluating public services has always been a difficult one for researchers. When compared with other library activities such as circulation, acquisitions, and technical services, reference services were always considered too difficult to quantify. In addition, there was little agreement as to what constituted reference services. Were they the same as the information services performed by information and referral centers or information brokers? Were interlibrary loan

activities part of the library's reference department? Was formal instruction concerning reference tools part of reference work? If, after having finally decided what the reference librarian did, the question remained—how could anyone readily measure the impact or the effectiveness of such a service? It is apparent that there is some disagreement as to what reference services are in the context of present-day library operations. Nevertheless, there will be an attempt here to see if past experiences provide a legacy from which to set standards.

The library literature has many references to the importance of establishing quantitative and qualitative standards of service. A review of the various library standards reveals that they usually say little or nothing about standards for library reference services other than that there “should be such services available!” Someone has said that the evaluation of reference service can best be described as a “closed circle of futility.” But in failing to act on the basis of some standard in performing their services, reference librarians run the risk of not having some accountable work measurements on which administrative decisions are increasingly made in the public sector today.

An Analysis of the Cautious Professional Response

In 1960 the American Library Association formed a new Committee on Standards in what was then named the Reference Services Division. Louis Shores, the Committee's chair, was given the charge to reexamine the nature of reference work and to use this as a base for developing reference service standards. All types of libraries were to be considered and examined. As a first step, the committee prepared a statement concerning the nature, scope and type of reference activity performed by libraries. It outlined components of reference service and gave a conceptual framework for such services in all types of libraries.

It was not until 1968 when the committee was reactivated that another attempt was made to look at this issue. The reconstituted Committee on Standards conducted a study to identify efforts to measure and evaluate reference services by libraries in one service area—the Atlanta metropolitan region.

The study noted the use made of reference statistics, the levels of user satisfaction with the reference services available and attempted to determine the library interest in standards for reference services. Only one-third of those entering a library felt the need to ask the reference librarian for information. Two-thirds of those using reference services were doing so in connection with some organized study activity. Of the
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users studied, 81 percent were twenty-five years of age or younger. The users were rather pleased with the established information services, but the academic library users were much more critical of the service patterns than were the public library users. The study was conducted in 108 libraries, half of which were open forty hours a week or less. Paraprofessional personnel were staffing the reference desk on weekends and during the late afternoon and evening hours in most of these libraries.

Reference statistics were kept by slightly more than 50 percent of the libraries, with most of these keeping simple counts, similar to circulation statistics. Interestingly, nearly 50 percent of the libraries participated in some cooperative program which provided a backup library resource for information services. On the other hand, only 18 percent of the libraries had ever completed any kind of user analysis of what materials or information was needed. Of these, only 10 percent of the libraries gathered specific information on user satisfaction.

The most clearly defined trend observed in most of the libraries was that there was no written institutional policy for reference service. Most institutions seemed to provide library information service without identifying or establishing what their institutional goals or objectives were.

On the basis of these findings, the committee appeared to endorse, somewhat hesitantly, further efforts to establish standards for reference service. The unvalidated observations were that:

1. Libraries needed to define and publish their service objectives so that the user would know the types of available service.
2. Most reference collections were developed with no selection policy to govern expenditures or, more basically, to reflect the user's needs.
3. Key to user satisfaction was the staffing existing at any one hour; weekend patterns of professional staffing were weak and correlated with higher user dissatisfaction.
4. User reaction to the library's reference service was very helpful, and indicated where alterations in existing patterns of service were desirable.
5. Based on user comments, the closer the reference desk was to the main flow of user traffic, the more effective the information service appeared to be.
6. Formal and informal instruction was clearly effective in increasing user satisfaction in the use of library materials and indexes.

The study does not give any prediction of the changes in reference service patterns, such as the availability of computer-based information retrieval systems, which might expand the parochial focus of a tradi-
tional reference department. In addition, hierarchical levels of reference services are now available to users through networks of cooperating libraries. Reference networks broaden the issue of the access to materials beyond the discussion of the best location for the reference desk! Also, very little was said about the combination of intuition and knowledge that a good reference librarian must have to negotiate the reference question answering process successfully. These issues could have sharpened the focus of subsequent efforts made by the Reference and Adult Services Division’s Standards Committee.

"One Small Step for Standards"—
The Analysis of the RASD Guidelines

As a result of the Atlanta study, a commitment was made by the American Library Association to develop standards emphasizing the need for libraries to develop a statement of a philosophy of service. The ALA Reference and Adult Services Division adopted guidelines in 1976 which outlined the general purposes of reference service. They were not standards since they gave little by the way of quantitative or qualitative measures by which libraries might evaluate their services.

The entire process of formulating these guidelines, required a decade of discussion and debate on reference standards. The guidelines sought to focus on the delivery of information services to all types of users. They addressed the performance of everyone involved in providing reference and information services, including the subject specialists, administrators, and trustees, along with the rank-and-file reference librarian. They required that there be a policy manual, or service code, so that librarians and users alike could be made aware of the services offered by the library.

By emphasizing personal assistance, library orientation and instruction, and the importance of library networks to a comprehensive reference service, the guidelines emphasized areas of reference service that were well established in practice. Moreover, the guidelines recommended user surveys to determine what spectrum of users was being served.

It was significant that the guidelines focused on the importance of selecting reference librarians who could communicate easily and promote the use of library services. This had been a continuing concern of the RASD throughout their deliberations in the 1960s and 1970s.

Two of the guidelines drew attention to the professional nature of the guidance given at the reference desk. They recommended that a
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reference librarian should be available whenever the library is open and that continuing education for the librarian should be required by the library to assure the maintenance of high standards of reference services.

Another issue addressed by the guidelines was the lack of adequate evaluations. No longer content with proclaiming the centrality of reference in the library's operation, the guidelines specified that some evaluation of the reference services must be made, even though little guidance was given on conducting such an evaluation.

Descriptively, the guidelines defined what reference librarians and information specialists actually do. Words such as "intermediary or the negotiator for unlocking resources" and "facilitator" who is "impartial and nonjudgmental" were used.

The guidelines describing the nature of reference and information services were taken from the earlier work of the ALA Committee on Reference Standards of the 1960s. In addition, statements in support of library instruction, the development of library guides or aids, the use of databases, and the importance of access to the interlibrary network of resources were added to the original committee statement on reference services.

Clearly, there was nothing in the guidelines that would make the "giant leap" to quantitative standards such as the size of the staff, books, or budget, but the guidelines did reflect the wide range of information services provided by American libraries. Yet, they appeared to be only "one small step" toward the goal of quantitative and qualitative reference standards discussed so often in the literature.

Some Other Efforts by Type of Library

At another institutional level, many state libraries have developed reference and information service statements for public libraries under the requirements of the Federal Library Services and Construction Act. These statements are expressed in terms of providing public library users access to the state's library collections and become a service philosophy for libraries in the entire state.

At the 1982 Midwinter meeting of the American Library Association, the Public Library Association (PLA) gave its approval for the release of the long-awaited Output Measures for Public Libraries: A Manual of Standardized Procedures. Designed to supplement the PLA's A Planning Process for Public Libraries, or stand alone, the manual outlines procedures for collecting performance data, including reference transactions per capita and reference fill data. It is understood that
PLA hopes that these, as well as their other measures, will become a national standard.

The quantitative standards draft for two-year college libraries were completed in 1979 by the Junior College Section of the Association of College and Research Libraries. These guidelines are used for evaluating the activities of the learning resource centers. The appendix to the Standards consists of nearly seventy users’ services for which statistics might be collected.

In contrast to the Standards for College Libraries, the ARL-ACRL Standards for University Libraries offer the argument that a university library should be judged not by its size in collections or expenditures or staffing, but how well it serves students, faculty, and other academic staff. Indeed, whether a student can find the information when it’s needed is clearly the focus of this effort.

There have also been some recent efforts by an RASD committee to explore the feasibility and desirability of drafting standards and/or guidelines for online search services. Such an effort might cover the assessment of training, performance, and job descriptions for searchers; levels of service and access for different user groups; administrative and financial issues; hardware configuration and software database availability; document delivery, support services, and public relations; planning processes; and any ongoing evaluative methods used.

In a departure from the traditional view of standards, Charles Robinson, Baltimore County Public Librarian, notes that there may be some new ways of looking at public library “output” measurements: title fill rate; browsing fill rate; subject information fill rate; response time; reference/information service; circulation per capita and per registration; turnover; registration percentage of population; program attendance overall and attendance by program; phone and mail use; and circulation per staff member. The stress is on the importance of how the library uses its resources and how well the public library user is served.

Where Are We Going From Here?

In the final analysis, there may be little that can be done in standardizing the dynamics of the communications encounter which is so crucial to the reference dialogue. One could ask: How do standards measure this exchange?

It seems the most recent efforts by ALA’s Reference and Adult Services Division have resulted in the profession’s review of the quality of reference services provided and in the recommendation that there be a
service policy in written form. In effect, those who are involved in reference would be guided by the service policy much as the profession now accepts the written book selection policy for the library.

Described here are the attempts to put reference standards in writing after many decades of talk. One could argue that these efforts have put the cart before the horse because of the lack of adequate measurement and evaluation techniques for reference services. But one needs only to look at a century of professional debate about such standards to realize that it has not brought the profession very far in its quest for standards. The present guidelines, albeit quite imperfect, do provide the central focus for a philosophy of service that encompasses libraries at all levels of activities.

Bernard Vavrek, who worked on the RASD standards' efforts, has stated "that the evaluation of reference/information services can be accomplished without the availability of nationally produced standards." There has been a tendency by the profession to wait for the development of reference evaluation techniques before working out the policy framework under which reference librarians should work. On the other hand, Vavrek is correct in his assessment that "we have not utilized some basic notions...because of the felt attitude that leadership in evaluation techniques is the function and prime responsibility of a national organization rather than an individualized professional responsibility." Those techniques for evaluation of reference services, however, are described elsewhere in this issue of Library Trends. With these prescriptive techniques, the standards' efforts described here can only be strengthened.

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9. For the record, the first draft of the present “Guidelines” appeared in *RQ* 14(Fall 1974):24-26. The final version appeared in *RQ* 15(Summer 1976):327-30. Guidelines were reprinted with the addition of the “Ethics of Service” section in *RQ* 18(Spring 1979):275-78.


14. Ibid.
Current Trends in School Library Media Centers

JACK R. LUSKAY

During the past twenty years, the school library has emerged as the school library media center. The school library of the past functioned as a central place for depositing books, periodicals, and pamphlets for use by students and teachers as needed. Reference materials did not circulate. Few, if any, nonbook resources were found in the library. Instruction in the use of resources was minimal and not related to the curriculum. The collection was well-organized, silence was the basic rule, and the librarian worked in isolation from teachers. The school library, which mainly existed at the secondary level, was viewed, at best, as an educational support service.

Federal funds granted through the Elementary and Secondary Education Act of 1965 and of 1975 along with technological advancements had a tremendous impact on education. In many schools, the traditional classroom became the open classroom. The textbook was replaced by a multi-media approach to teaching and learning. Team teaching became common, as did individualized instruction and independent study. Teaching and learning moved from rote memorization to an emphasis on discovery, inquiry, problem solving, comprehension, and utilization.

The educational changes of the 1960s and 1970s have shaped the development of the school library of the 1980s. The school library media center has become the “laboratory and workshop” envisioned as early as 1913 by Lucille F. Fargo.¹ Print and nonprint media are available

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equally to students and teachers. Activity has replaced the traditional silence. Instruction in the use of resources became related to the curriculum and the library media specialist has become a partner in the teaching/learning process. During the 1960s and 1970s, the number of centralized elementary school library media centers increased from 34.1 percent during the 1958-59 school year to 81.1 percent in 1974.2

Reference service underwent many changes during the 1960s. The school library media specialist was no longer interested in simply responding to requests for information. The Standards for School Library Programs, published in 1960 by the American Association of School Librarians (AASL) defined the principles that still guide the development of reference service in schools. The document stated that:

1. Students use the school library as a laboratory for reference and research in which they locate specific information and expand their knowledge by using a wide variety of printed and audio-visual materials.

2. Research or reference work, whether done individually by students or in groups under the guidance of teacher and librarian, forms an important element in that part of the instructional program that is concerned with teaching students to analyze, evaluate, and interpret.

3. An integrated program of library instruction taught throughout their school career enables children and young people to acquire independence and competency in their search for information and their use of materials....Nevertheless, the mere processes of locating materials or of finding information are not always profitable uses of a student's time, and thus, whenever appropriate, the library staff performs services of this nature for the student.3

Reference service in the schools of the 1980s and beyond is linked to an understanding of student uses of resources and facilities, to the increased involvement of school library media programs in networks, to the further development of bibliographic instruction at all levels, to the increased use of computer technology in school library media centers, and to the availability of funds from federal, state and local sources.

The National Center for Education Statistics conducted a survey of public school library media centers in 1978 covering the 1977-78 school year. The survey, Statistics of Public School Library/Media Centers 1978, reported that of the 85,063 public schools surveyed, 84 percent had a library media center. Public school library media centers held 541 million volumes. Secondary school library media centers averaged 1119 uses per week as compared to 629 for elementary schools. School library
School Library Media Centers

media centers held 3.8 million periodical subscriptions. The survey reported that there were 19.2 million reference transactions. The average number of weekly transactions per library media center was 271.4

The Information Function of the School Library Media Center

The current national standards for school library media programs are a joint endeavor of AASL and the Association for Educational Communications and Technology (AECT). Published in 1975, Media Programs: District and School defines the concept of the library media program and treats reference service as a part of the information function. According to Media Programs: District and School: "Programs of media services are designed to assist learners to grow in their ability to find, generate, evaluate, and apply information that helps them function effectively as individuals and to participate fully in society." The document details four interrelated functions of the library media program that are derived from the behavior of the library media specialist. These functions—design, consultation, information, and administration—are interwoven into all parts of the library media program.

In analyzing the information function, the national guidelines state: "The information function relates especially to providing sources and services appropriate to user needs and devising delivery systems of materials, tools, and human resources to provide for maximum access to information in all its forms." Elements of the media program essential to the information function include:

1. identifying users' needs for information;
2. providing reference service to users;
3. providing bibliographic service to users;
4. promoting functional knowledge of the variety of resources and approaches for obtaining information;
5. providing access to information available from outside agencies, including networks; and
6. providing resources and guidance in their use in response to the individual user's needs, interests, and learning styles.

Media Programs: District and School calls for a program that is structured and sequential and yet flexible. The standards clearly recognize that, "In all curriculum areas teachers and students seek information on appropriate levels and in suitable formats." The document further notes that "media [print and/or nonprint resources] help to identify the problem and supply information and method to solve it."
Reference service is an integral part of the information function. It does not stand alone, easily separated from the other activities occurring in the library media center. Instruction in library media center use, assistance in the identification and utilization of appropriate media, and provision of ready-reference services are all a part of the library media program.

*Media Programs: District and School* deals with programs, hence reference service, at four levels—school, district, regional, and state. In addition, it discusses the importance of networks to school library media programs. The guidelines stress the importance of teachers and students having access to information and information sources.

**The Library Media Program**

The library media program is an integral part of a school district’s educational program. It is a unified program that incorporates reference and other information management skills into the curriculum. According to Davies, the district library program is: “[A] plan, both developmental and operational, designed and structured to achieve the fullest realization of district educational goals and objectives through the integration of library media service and the instructional process.” She defines the building-level library media program as: “A developmental and operational plan wherein the building library media center functions as a learning laboratory where the use of all media, print and nonprint, is purposeful, planned, and integrated with the educational program and instructional processes....” Such a philosophy allows for the design and development of a library media skills program that is planned and sequential, that enables students to meet their educational and personal information needs, and that prepares them to become life-long library users. Information management skills are requisite to success in an information age and must be taught to students beginning at the elementary level.

Library media skills include the traditional reference skills such as the use of the encyclopedias and indexes as well as newer skills related to audiovisual and computer technologies. These skills are not taught in isolation from the curriculum, and therefore, the design of a library media skills program requires, first of all, an identification of the skills that need to be taught and then an analysis of the skills in terms of their relationship to the curriculum and to a grade level. The library media program, which needs to be developed cooperatively by teachers, administrators, students, and library media specialists, provides for the
systematic introduction, reinforcement, and extension of reference and other library media skills.

In The School Library Media Program: Instructional Force for Excellence, Davies includes the "Thinking-Learning-Communicating Skills Continuum, K-12" as a tool for use in developing a library media skills program integrated with the curriculum. Table one provides examples of learning skills related to locating information. The skills continuum developed by Davies includes all skills and not only those directly related to the library media program.

The National Council for the Social Studies developed "Social Studies Skills: A Guide to Analysis and Grade Placement" that was published in Skill Development in Social Studies. It related library resources and skills to the social studies curriculum. The yearbook also identified principles that teacher and library media specialists should apply in designing programs to teach reference and other skills. These stress that:

1. The skill be taught as an integrated part of a unit of study and as needed by the learner.
2. The learner be motivated to acquire and to develop the skill.
3. The learner be supervised in his/her initial attempts to apply the skill.
4. The learner be given repeated opportunities to apply the skill based upon his/her performance.
5. The learner be given individual assistance based upon testing and follow-up activities.
6. Skill instruction be provided at increasing levels of complexity.
7. Skills be applied through various learning situations so that a transfer of learning can take place.
8. Skills be developed concurrently.

As previously noted the library media program is a cooperative effort of the school community. The skills that relate to information use need to be incorporated into the syllabus of each course. It is not enough for the library media specialist to identify the skills and to relate them to the curriculum. Teachers need to understand the importance of information skills and their relationship to the curriculum. The teacher and the library media specialist must plan together to make students competent in their search for information and in their use of it.
Table 1

THINKING - LEARNING - COMMUNICATING SKILLS
CONTINUUM, K-12

Part Two: Learning Skills

I. Locating Information

D. Make effective use of encyclopedias

1. Using encyclopedias as data sources for information about
   a. Persons
   b. Places
   c. Things
   d. Events
   e. Processes

2. Recognizing the distinguishing characteristics of
   a. General encyclopedias
   b. Special encyclopedias

3. Gaining facility in using
   a. Key words
   b. Guide words
   c. Cross references
   d. Indexes
   e. Reference outlines and study guides
   f. Illustrations

4. Updating encyclopedias by checking annuals and yearbooks for
   a. Art
   b. Business
   c. Chronologies
   d. Drama
   e. Education
   f. Fashion
   g. International affairs
   h. Legislation
   i. Literature
   j. Medicine
   k. Motion pictures
   l. Necrologies
   m. Politics
   n. Radio and television
   o. Science
   p. Special reports on major issues
   q. Sports
   r. Transportation
   s. Urban problems and development
   t. Year in review

5. Recognizing limitations of encyclopedic information
   a. Serves as an introduction; provides an overview of skeletal facts
   b. Serves as an outline identifying main topics to be researched further in other sources
H. Make effective use of U.S. Government documents, publications and indexes

1. Recognizing the distinguishing characteristics and informational value of federal documents
   a. Congressional documents
      - The Congressional Record
      - House and Senate Reports and Documents
      - Bills, resolutions, acts, statutes, laws
      - Hearings and Committee Prints
   b. Judicial documents
   c. Executive documents
      - Federal regulations
      - Department documents
      - Presidential documents

2. Recognizing the distinguishing characteristics and informational value of indexes to U.S. government publications
   a. Monthly Catalog is the only comprehensive, current listing
   b. Selected U.S. Government Publications is issued biweekly
   c. Price Lists are issued by 80 departments and agencies


I. Make effective use of pamphlets

1. Recognizing the distinguishing characteristics and informational value of pamphlets
   a. Unbound publication
   b. Fewer than 100 pages
   c. Complete in itself
   d. Excellent sources on current topics not available in book form

2. Recognizing that unbound pamphlets are usually not filed with books
   a. Usually filed in filing cabinets (vertical files); arranged alphabetically by topic or subject
   b. Most important pamphlets are usually listed in the card catalog

3. Recognizing that the following are prolific sources of pamphlet material
   a. Local, state, and national governments
   b. The United Nations
   c. Associations
   d. Business and industry

Instruction

Teaching library media skills is the shared responsibility of the classroom teacher and library media specialist. A systematic planning process must be established between teachers and library media professionals. During a planning session, the teacher and library media specialist need to assess the role of the library media center in the development of the instructional unit and in meeting class and individual needs. Together they must identify:

1. specific instructional objectives;
2. specific content;
3. specific library media skills to be introduced, reinforced, and/or extended;
4. specific resources;
5. specific teaching-learning strategies;
6. specific means for future application of library media and other skills learned; and
7. specific evaluation procedures.

Techniques of providing library media instruction are as diverse as the schools in which the methods are employed. Some library media specialists are traditional in their use of instructional modes and rely heavily upon the lecture supplemented with sound filmstrips, transparencies, and worksheets. Others are innovative and utilize self-paced, mediated instructional packages; videotaped demonstrations on the use of specific reference sources; and programs developed for use on a microcomputer. As school library media centers go online for access to bibliographic databases, the library/media specialist will need to rethink instructional priorities and methods.

School districts have developed and packaged their library media program in varying degrees and in different formats. The Upper Merion (Pennsylvania) Area School District designed a library media program for kindergarten through grade twelve entitled Action and Interaction.16 The two-part guide, for elementary and secondary levels, identifies goals and specific objectives for each goal and the grade levels for each skill. A chart at the beginning of the guide indicates whether a skill is to be introduced, reinforced, or extended.

The guide, under each of the five goals for students, suggests action for which the library media specialist is responsible and interaction between the teacher and library media specialist to achieve each goal. Action and Interaction identifies library media skills but allows individual teachers and library media specialists to determine curriculum
School Library Media Centers

relationships and specific teaching-learning strategies. Tables 2 and 3 provide examples of library media skill development.

Table 2

<table>
<thead>
<tr>
<th>ELEMENTARY LIBRARY MEDIA PROGRAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOAL THREE - SEARCHING MATERIALS</td>
</tr>
</tbody>
</table>

OBJECTIVE 3 - REFERENCE COLLECTION

A) The student will be able to locate information in an encyclopedia

<table>
<thead>
<tr>
<th>ACTION</th>
<th>K-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will come to library for enrichment; librarian will assist individually.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INTERACTION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers may wish to ask librarian for pre-encyclopedias for classroom use.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACTION</th>
<th>3-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will discuss role of encyclopedias as first source of general information. (FILMSTRIP)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INTERACTION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers may wish to send students to library for enrichment. Staff will assist individual and small groups as much as possible.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACTION</th>
<th>5-6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will review encyclopedia for charts, graphs, maps; students will discuss need for updating information.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INTERACTION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers may wish to send students for enrichment at any time. If questions cannot be answered, librarian will send them on to Wolfson and/or Montgomery County network.</td>
<td></td>
</tr>
</tbody>
</table>

Students will answer reference questions by using encyclopedias, and will note aids such as guide words, index, and key words.

<table>
<thead>
<tr>
<th>REVIEW 3-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will discuss arrangement of encyclopedias: alphabetical, topical, and chronological.</td>
</tr>
</tbody>
</table>

Students will review various types of encyclopedias: general, historical, scientific, and other.

Another approach is used by the School District of Lancaster, Pennsylvania. The library media skills have been identified in a general way at the elementary and secondary levels. Flexibility is emphasized, as is continuous planning and evaluation at two levels—among curriculum coordinators and among building-level teachers and library
TABLE 3  SECONDARY LIBRARY MEDIA PROGRAM

GOAL THREE - RESEARCH MATERIALS

OBJECTIVE - REINFORCE AND EXPAND

C - Reference Tools
Grades 7-12

ACTION
Students will identify and use the various kinds of reference tools.

INTERACTION
Teachers may wish to reinforce the use of the various reference tools by making specific assignments.

Encyclopedias
General Examples:
- Encyclopaedia Britannica
- Encyclopedia Americana
- The World Book Encyclopedia

Special Examples:
- Encyclopedia of World Art
- Grzimek's Animal Life Encyclopedia
- McGraw Hill Encyclopedia of Science and Technology

Indexes (Indices)
Examples:
- Education Index
- Reader's Guide to Periodical Literature
- Social Sciences and Humanities Index

Special Subject Area Tools
Examples:
- Book Review Digest
- College Blue Book
- Granger's Index to Poetry
- International Library of Negro Life and History
- New Oxford History of Music
- Short Story Index


media specialists. After instruction has been given, students and teachers are provided with formal and informal methods of evaluating the instruction. An example of an evaluation form is found in table 4. A variety of instructional modes are used. Table 5 is an example of a pathfinder used with a senior high school composition class. Students are encouraged to identify community sources of information and to use public and college libraries and special libraries such as those found at the historical society and newspaper. Table 6 identifies senior high school skills, and their curriculum relationships.
Table 4

INTRODUCTION TO LIBRARY RESEARCH -- EVALUATION

Recently you were given an introduction to library use and resources before starting to locate information for a general research paper. It would be helpful to the librarians if you would indicate as honestly as you can how useful various parts of this introduction were in helping you to understand library organization and to locate the information you needed.

Please circle the number representing the value to you of each part of this presentation:

<table>
<thead>
<tr>
<th></th>
<th>Not Useful</th>
<th>Moderately Useful</th>
<th>Very Useful</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Pretest and discussion on general library knowledge</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Outline of search procedure</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Handout listing selected reference materials as well as periodical and other indexes</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) Pathfinder activity</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In addition, please answer the following questions:

e) Was the time allowed for items a) to d) above too long ___, too short ___, about right ___?

f) Do you have any suggestions as to changes that would make this introduction more useful to you? (Use back of sheet if more space is needed.)

g) Did you use libraries other than McCassey's in obtaining materials for your paper?
   If yes, what other libraries did you use?

h) Additional comments?

Prepared by: Library/Media Department, School District of Lancaster, Lancaster, PA 17602.

WINTER 1983
In recent years, many books have been published to provide library media specialists with principles of library media instruction and with examples of activities that could be used in developing library media skills. Among them is Teaching Media Skills: An Instructional Program for Elementary and Middle School Students by H. Thomas Walker and Paula Kay Montgomery. The authors cover all aspects of
Table 6  SENIOR HIGH SCHOOL SKILLS PROGRAM

School District of Lancaster
Senior High School Library Media Skills
August, 1981

<table>
<thead>
<tr>
<th>Skill</th>
<th>Content</th>
<th>Curriculum Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 10-11-12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Locate resources in the IMC.</td>
<td>2. Orientation.</td>
<td>2. Comprehensive English.</td>
</tr>
<tr>
<td>b. Follow a standardized process for researching information for oral and written reports.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Prepared by: Library/Media Department, School District of Lancaster, Lancaster, PA 17602.

Library media skills instruction including such areas as writing behavioral objectives, planning units, evaluating student performance, and implementing a program; and they give examples of lessons related to a subject area in a general way that may be adapted to actual situations. Table 7 illustrates an activity related to the reading and language arts program using Webster's Biographical Dictionary.
TABLE 7

REFERENCE SKILL

Reading and Language Arts - Biography

Media Skills Objective: Use subject-oriented resources to find specific information.
Level: 6-8
Learning strategy: Practice; game-puzzle
Performance Objective: Given eight last names of famous people and Webster's Biographical Dictionary, the student will find the complete names in order to finish the puzzle.
Resources: Puzzle, Webster's Biographical Dictionary, and a pencil.
Activity: Biographic Triplets

Directions:
The first names of these famous men are made up of triplets—groups of three letters—which may be taken from anywhere in the letter box illustrated below, reading from left to right. An example of G E O and R G E which spells George. Cross out the triplets in the box as you use them. Use Webster's Biographical Dictionary to identify the names. A few triplets will remain in the box. When properly arranged, they will form another name.

L O U Q U I A R D
U E L R O B G E O
N C Y S A M G O R
R G E E E R E E R T
G R E C A L E D W
V I N U T H E L E

Names:

Bruce - July 11, 1274
Colt - July 19, 1814
Eastman - July 12, 1854
Gehrig - July 19, 1903
Adams - July 11, 1767
Coolidge - July 4, 1872
Dupont - June 24, 1771
Greig - June 15, 1843

Name left over: ___________________________ Mendel

Assessment Criteria: The student will correctly complete the puzzle.


The use of games to teach library media skills has become very popular among elementary and junior high school library media specialists. Workshops on library media games are popular at conferences.
and common at library schools that have a school library media emphasis. Two examples of books available on gaming are *Games for Information Skills* by Margaret R. Tassia and *Gaming in the Library Media Center* by Irene Wood Bell and Robert B. Brown.

In *Games for Information Skills*, Tassia provides complete instructions for the construction and playing of games on the use of the dictionary, card catalog, indexes, and reference books and on library citizenship and literature. Her introduction discusses the theory of games and its application to those games used in library media instruction. The games, developed by Tassia and her library science students, are related to a particular skill and can be easily adapted for use with a subject area. Bell and Brown in *Gaming in the Media Center Made Easy* provide ninety-eight games for all types of students. The games encompass all of the basic library media skills including the use of audiovisual software and hardware. These games, too, are adaptable to many curriculum situations.

The concern of library media specialists for library media program development and for actual instruction is reflected in the demands for workshops at national and state conferences. During the 1982 ALA Philadelphia Conference, AASL sponsored a two-day preconference on “Meaningful Library Skills, K-12: How Many? How Communicated?” The preconference emphasized the teaching and integration of library media skills with the whole school curriculum. AASL also provided several sessions on library media skills development at the 1982 meeting in Houston and 1980 Louisville conference. In Houston, library media specialists attended such sessions as “Assessing Mastery of Library Media Skills,” “Information Online: High School Students and Databases,” “Role of the Librarian in Basic Skills and Literacy Improvement Efforts,” and “School Librarians as Educators.”

**Use of Resources**

The development of a reference collection in the school library media center involves a thorough analysis of the curriculum and a thorough knowledge of the students and teachers. The collection needs to keep pace with the availability of new sources of information appropriate for the school and with curriculum revision. Evaluation of the reference collection should involve not only the library media specialist but also students and teachers. Evaluation should be continuous and systematic.
M. Carl Drott and Jacqueline C. Mancall conducted a study of materials and facilities used by metropolitan high school students enrolled in advanced placement courses. The findings are reported in *A Quantitative Inventory of Resource Development and Utilization for Metropolitan High School Students.* Drott and Mancall examined 1178 papers prepared by students to meet assignments requirements in English, history, social studies, debate, political science, economics, science, and health education. The combined bibliographies of the papers contained 8279 references. The study revealed that 62 percent of the references were to monographs; 19 percent to journals; 7 percent to encyclopedias; 4 percent to newspapers; 3 percent to government documents or pamphlets; 1 percent to nonprint materials; and 4 percent to miscellaneous resources. Drott and Mancall learned that the materials used were not especially current. This was particularly apparent with journals where 30 percent of the students used no articles from the last five years and 21 percent used none from the last ten years. The study raises questions for library media specialists and teachers regarding the impact of bibliographic instruction upon the actual use of resources by students. The study also revealed the necessity for library media specialists and teachers to make students conscious of the need to use the most current information.

Lucy Anne Wozny conducted a study of fifty-three honor students enrolled in a ninth-grade science class in an upper-middle-class suburban high school. The study "Online Bibliographic Searching and Student Use of Information: An Innovative Teaching Approach" discovered that cooperative training efforts by the teacher and librarian affect the pattern of materials referenced by students. The students all had chosen energy-related topics, used a variety of materials, and made 46 percent of their term paper references to magazine articles. Unlike the Drott and Mancall study, which showed that science students used outdated materials, 80 percent of the students in the Wozny study used materials published during the past two years. Emphasis was placed on the use of current materials.

The students involved in this study received instruction in the use of print indexes and other reference tools. Online searching instruction was given to classes, to small groups and to individuals. Only 19 percent of the students used materials identified through online searching. One of the considerations that students encountered in their online search was the difficulty of securing government documents, conference proceedings, technical reports, and specialized journals. Popular magazines identified through an online search were also identified through standard print research tools.
School Library Media Centers

Both studies revealed that students use more than one type of library to secure information. Wozny discovered that a typical student searched for information in two or three libraries. The school library media center was used by 92 percent of the students; 87 percent used public libraries; 74 percent used home libraries. Drott and Mancall found that 14 percent of the students in their study used only one library.

Online bibliographic access has been available to senior high school students in the Montgomery County (Maryland) Public Schools since 1976. Students in search of information have access to DIALOG and the New York Times Information Bank. After printed sources have been exhausted, requests for information are sent from the library media center to the district's Professional Library where the search is conducted. Once the resources have been identified, they may be borrowed from other libraries in the state through interlibrary loan.

School Library Media specialists are becoming increasingly aware of the potential of computer technology in meeting the information needs of students and teachers. The 1980s will bring instruction related to the use of databases just as the 1970s brought instruction in the use of audiovisual technology. Budget cutbacks at all levels will necessitate resource sharing and other forms of cooperation among libraries.

The Role of the School Library Media Program in Networking has identified the potential of schools in a national network. Students and teachers need to have access to the latest information that only is available through networks. Networks and the accompanying computer technology will open vast quantities of sources to schools.

References

6. Ibid., pp. 6-9.
7. Ibid., p. 8.
8. Ibid.
9. Ibid., p. 6.
10. Ibid., p. 10.
11. Ibid.
12. Ibid.
13. Ibid., pp. 478-534.
15. Ibid., pp. 311-12.
16. *Action and Interaction* is in two parts—elementary and secondary. The guides are available from Leon F. Novak, Director of Library/AV Services, Upper Merion Area School District, King of Prussia, Pa., 19406. The guides were copyrighted in 1977.
17. Information on the library media instructional program is available from Sue A. Walker, coordinator of the Department of Library/Media, School District of Lancaster, McCaskey High School, 445 North Reservoir Street, Lancaster, Pa. 17602.
24. Information regarding online bibliographic services to high school students may be obtained from Karen Dowling, Curriculum Librarian, Montgomery County Public Schools, 850 Hungerford Road, Rockville, Md. 20850.
Current Trends in Reference Service in Public Libraries

GERALDINE B. KING

Public library reference services are in the midst of the most revolutionary change in their history. The new technologies have arrived. Even as recently as five years ago, the only "machines" reference librarians commonly housed in their reference departments and used on a day-to-day basis were 35mm microfilm readers for back files of newspapers and magazines. Today terminals and fiche readers, printers and CRTs, COM catalogs and database searching, on-line catalogs and on-line access to bibliographic utilities are seen in most of the public library reference departments in the country. Integration and use of the equipment and the vast resources it makes available have significant implications for staffing, training, budgets, public relations, indeed for all aspects of public library reference service.

Other current trends in public library reference service of importance are budget constraints in the public sector; adapting to a greater percentage of growth than circulation services are experiencing; use, training, and supervision of paraprofessionals; centralized v. dispersed organization of reference service, including adult and children's, subject specialties, physical locations, networks; participation in management of reference service (the "professional bureaucracy"); and more realistic attempts at measurement and evaluation of reference service.

Perhaps the most basic change has been in the "card catalog," the bibliographic record of the holdings of the library itself. Printed book catalogs, computer-output-microform (COM) catalogs in roll film or...

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fiche, and on-line catalogs are some of the format options currently seen in public libraries, in lieu of, or in addition to, card catalogs. Each form or combination of forms has its advantages and disadvantages which must be learned and adapted to, and, subsequently, explained to library users.

A second basic change in the library's catalog has resulted from access to on-line bibliographic utilities in cataloging departments. This has achieved a degree of standardization and sophistication in local catalog records which more than fifty years of Library of Congress printed cards were not able to produce. While LC subject headings in an off-line catalog may not be the easiest subject approach for the lay person, standardization of bibliographic entry makes any catalog far more rational and easy to use for the professional.

If we consider all forms of catalog produced from machine-readable databases as interim formats between the manually-produced card catalog and the on-line catalog, their shortcomings may be easier to cope with. But explaining to patrons—as you must with a book or COM catalog—that they must look in two or more places and may still not have an up-to-date list of the library's holdings is a difficult public relations job. It often requires a theoretical discussion of the necessity of a machine-readable file before an on-line catalog can be had, and the cost of maintaining a manually-produced card catalog v. other formats.

While on-line catalogs may be the most cost-effective form, currently available "user-cordial" systems are less efficient for sophisticated and frequent users (among whom we must count reference librarians). Being able to enter the system immediately at the specific point you want (always, of course, providing that the system provides the needed specificity for an individual search) is a time-saving feature of card catalogs which the on-line vendors would do well to incorporate in their touch-screen terminals. However, reference librarians in public libraries are in the forefront of encouraging the installation of on-line catalogs because of the advantages of Boolean searching, continuous or overnight updating, and potential links to other resources.

**Database Searching**

Next to the mechanization of the library's catalog, the mechanization of reference sources generally—e.g., on-line databases—is the most significant trend in public library reference work. Many public libraries are just beginning database searching and still treat it as a "special service," often a fee-based service. Frequently only one or two librarians
on a large reference staff will actually do the searching and only "in-depth," or more extensive searches are done by this method. However, some public libraries have as their goal, fully-integrated database searching. In these libraries, all reference librarians are expected to be proficient searchers and to use the most cost-effective way to find information regardless of format. The decision to use an on-line search must be the reference librarian's, not the patron's; therefore, fees cannot be directly passed on to the user. Librarians do brief searches when appropriate as part of their regular reference duty "while the user waits." Longer or more specialized searches may be done as time permits or by reference librarians with greater knowledge and experience of particular databases.

A major impact on public library reference service is the retraining of the entire reference staff in the many new and complicated reference sources which integrated database searching requires. It is a staggering load on an ordinary reference training schedule. In addition, providing opportunities for continuous practice of the new skills to reinforce the learning and hone the skills requires a major marketing effort with the patrons. Potential future savings from discontinuing printed index subscriptions are not available to offset the training and marketing costs when the library begins offering machine-readable reference service. Furthermore, transition periods from no database searching to a commonly-used, fully-integrated service are often much longer than anticipated.

Budget Restraints, Increased Service, and Use of Nonprofessionals

This on-line revolution in public library reference service has, therefore, significant budget implications at a time when public library budgets have not kept pace with inflation. And, at the same time, public library reference service has continued to increase dramatically. While circulation statistics for public libraries across the country have stabilized, annual increases of 5, 10, or 15 percent in reference transactions have been reported by many public libraries. The results are heavier workloads with fewer human and materials resources. While public administrators talk about "increased productivity," public services professionals have workshops on "stress" and "burn-out." Services which patrons and reference librarians took for granted may now be fee-based—such as charging for reserving books which are out, charges for interlibrary loan, loan of audio-visual materials, information searches—or may even no longer be available. Explaining all this to
patrons in a way which will make them library advocates rather than library dropouts isn’t what many reference librarians had in mind when they chose their librarian specialty. Coping with reduced materials budgets means more reserves and interlibrary loans for document requests and more referrals to higher levels in systems and networks for subject or fact requests. All this makes for a heavier work load and less even-tempered reference librarians.

But because reference service is so labor intensive, the only way to make significant cost savings is through reduction of personnel costs. This had led to some very creative management of resources by careful analysis of the work of reference librarians and the attempt to use highly-paid, experienced professionals as judiciously as possible. Another trend in public library reference work is increased use of para-professionals in reference service. What was an unconscionable lowering of standards to the majority of reference librarians ten years ago has become an economic necessity of today.

In some ways, training programs in public library reference departments today seem more like the kind of in-service training of librarians more common in the last years of the nineteenth century. A combination of some library school training, formal internships, much on-the-job training and coaching and in-house workshops are turning out beginning professionals or para-professionals much more capable on the job than the typical masters-degreed library school product with no practical experience. This trend also seems to fit in with the “life-long” learning concept of the adult educators. Librarians may be spreading their professional training and even their general education over many more years, interspersed with increasingly responsible job experiences. The practice of active participation in the education and training of their own reference librarians has made the jobs of senior public library reference librarians considerably different from a few years ago. Designing and presenting courses and workshops, formal training, one-to-one coaching, and supervision, as well as back-up, in-depth reference service, are the primary components of their jobs. Organization of the work of a reference department along vertical rather than horizontal (professional) lines creates career development opportunities not only for the increasingly educated para-professionals, but also for the professionals who are learning supervisory and management skills.

**Organization of Reference Services**

Another trend in public library reference service which may be receiving increased impetus from budget cuts is greater centralization of
Public Libraries

reference services. Libraries which can be kept open with one professional generalist who gives service to all ages in all subject areas have a very different minimum budget level than libraries which need four subject specialists and a children's specialist in residence before they can open the door.

Larger libraries may hire children's literature, business information, science, or other subject specialists for their reference staffs, but those specialists may also be expected to be good all-around generalists, too. Public library architecture is a very critical factor in the decision to have centralized v. decentralized reference organization. Some new libraries built only a few years ago may demand a degree of decentralization; some built many years ago do not in any way lend themselves to a centralized reference service.

One of the most exciting developments is that libraries which may have discontinued a separate children's reference service for reasons of economy of staffing are finding that many reference librarians are becoming enthusiastic proponents of one reference service for people of all ages. These librarians state that separate reference service for children discriminates against them giving them inferior access to information.

The trend to greater centralization has its parallel outside the individual building or system in greater development of reference networks. Economies in collection development as well as in staff resources put a greater burden on headquarters reference departments v. branch reference service. And they also mean greater reliance on state and regional reference back-up networks.

Another trend related to economic constraints is some evidence of new and extended cooperation with schools in library instruction programs. Again, programs which may have gotten started because of economies are starting to be seen as valuable in their own right. Commencing library instruction for elementary school children at both the school and public library begins life-long learning and encourages use of multiple information agencies. Choices among library and information centers may be based on the nature of the questions asked and full resources library networks may be called into play.

Governance of Reference Service

The idea of the reference generalist is compatible with another trend in public library reference work: the dispersal of management functions throughout the professional staff. Every reference librarian is not only a professional generalist but also a manager. For organization
of reference service, this appears to be the next step leading to participa-
tory management. Once all librarians are equally involved in working out group decisions, they logically become equally involved in seeing that those decisions are carried out. In a tight job market, where librarians may stay in the same job for a longer time, this is a good staff development technique: learning organization, planning, and/or supervision by managing one aspect of reference service. Some discrete units of reference management which can be decentralized are coordina-
tion of reference materials selection; scheduling the public service desk; budgeting and training for database searching; serving as training coordinator; making liaisons with various departments and working on committees both within and outside the library system.

**Measurement of Reference Service**

A final significant trend in public library reference service is the increased standardization in the measurement and evaluation of refer-
ence service. Agreement on definitions of measureable units through the work of the ANSI (American National Standards Institute) Z-39 committee and the Reference Statistics Committee of LAMA-ALA (Library Management Association of ALA) has been an important basic step for all reference librarians. The Reference Services Guidelines developed by the Reference Standards Committee of RASD (Reference and Adult Services Division) are another important base for current work in measurement and evaluation of reference services. Public library performance measures development has given a special impetus to measuring reference service in public libraries. Some promising new research has been reported in the last few years—particularly with nonverbal behavior and with queueing—which may lead to more sophisticated evaluation in the future. In the meantime public libraries can begin to compare some of their own reference measures to those of other public libraries.

A forerunner of current reference services measurement and part of the effort to develop standard definitions was the 1971 study of reference service in all types of libraries in Atlanta by Ruth White. This study was undertaken at the behest of the Reference Standards Committee of RASD as background for the development of the reference service guidelines. The public library part of the research consisted of ninety-four interviews with public library users. The kind of information obtained from them concerned use and evaluation of reference service and demo-
graphic information. These users were 54 percent male, 46 percent female; 21 percent were under eighteen; 38 percent were eighteen to
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twenty-five; and 41 percent over twenty-five. Twenty-eight percent were college graduates, another 27 percent had had some college or were current students; 9 percent were high school graduates and 20 percent had not graduated from high school (presumably approximately the same 21 percent under eighteen). Of those surveyed, nineteen people indicated needed improvements in reference service and fourteen of those singled out materials as the specific area needing improvement. Two-thirds of the respondents had used the reference department only in person and twenty-five had used telephone reference. Fifty-five of the sixty-six who had used the reference service indicated they got the information they wanted.

Another source of information about reference service in public libraries was the study done for the Public Library Association as a preliminary to the development of the public library performance measures. This data was gathered in 1971 and published in 1973 from a nationwide sample of public libraries, collected by stratified sampling of small, medium and large libraries. (Category was determined by total annual budget.) A particularly interesting statistic gathered in this study was that 3.4 reference questions (as opposed to directional questions) were answered per hour per reference staff person for all three sizes of libraries combined. Other findings reveal that for small- and medium-sized public libraries, approximately 45 percent of the reference users were students and 52 percent nonstudents; for large libraries, 23 percent were students and 76 percent nonstudents. For small and medium libraries, approximately 80 percent of questioners were in the library building, and 17 to 18 percent were by telephone. For larger libraries, the percentages were 54 in person, 47 by telephone. In all cases, 98 to 100 percent of questions were classified as "answered."

The libraries tabulated reference activity by each hour of the day from 9 A.M. to 9 P.M. The busiest hour was from 4 to 5 P.M. for all sizes of libraries. Other busy times included 11 A.M. to 4 P.M. for the large libraries (business was fairly evenly distributed over the daytime hours); 2 to 4 P.M. and 7 to 9 P.M. for the medium-sized libraries; and noon to 2 P.M., 3 to 4 P.M., and 6 to 8 P.M. for the small libraries. Since many large libraries are downtown central libraries, many medium-sized libraries are suburban libraries, and many small libraries are small-town libraries, location may partially explain some of the differences in busiest times of the day.

Most "public service personnel," spend about half of their time at the reference desk and half of it in other duties. Scheduling by hour somewhat imperfectly mirrored peak business periods. Medium-sized
libraries in particular needed to shift some of their morning staff to evening hours.

A study of reference service in eighteen public libraries in Connecticut was conducted by the Southern Connecticut Library Council in 1972. While some categories of data differed from the Public Library Association study, the results are comparable. For example, reference activity during the day was collected in larger units than one hour. However, the busiest time period for this study was from 2 to 5 p.m. This study also compared reference activity levels by days of the week and found that there was more reference business on Monday followed by the other days of the week in strict chronological order. In this study, 76 percent of the reference questions were asked in person and 23 percent by phone. History and biography were the most frequently asked subject areas and the library catalog and nonfiction circulating collection the most frequently used sources. Data on duration of reference questions was kept in this survey. More than two-thirds of the questions were completed in less than five minutes, with the biggest number in the three- to five-minute range (34.5 percent) followed by one to two minutes (29.1 percent).

As part of a cost-use study for sharing the costs of interlibrary use gathered in the metropolitan St. Paul-Minneapolis area, statistics were gathered on reference use in 1975. In this study, 76 percent of the questions were asked in person, 24.5 percent by telephone. Questions were also categorized as author-title (document) or fact-subject with 28 percent in the author-title category and 72.5 percent in the fact-subject. In all categories average answering time fell between 1.25 and 2 minutes. The overall average cost of a reference question in this study was $1.28.

Harter and Fields used statistics from 1972, 1973, and 1974 to develop a formula for the ratio of reference questions to circulation in public libraries. Their formula says that reference activity equals .22 times circulation minus 20,000. It would be interesting to see their study replicated today.

The Future

The future of public library reference service seems bright; current trends appear to be leading toward more professional service with higher standards of performance, more technological developments to back up better service, and an increasing public need for the service. Despite gloomy predictions by librarians in other types of libraries, public library reference librarians know there will always be a job for them: they deal with far too many people on a day-to-day basis who need
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help in getting their own information and who lack the resources to pay for it directly.

Perhaps the area which needs greatest emphasis in the future is informing the nonuser of the potential of free public library information service. There still exists a majority of the population who do not use the services of their local reference librarian primarily because they don't see the relevance of that service to their everyday needs. It is our job as public librarians to ensure that the public has the information to make informed decisions—including the one about whether to use our service.

References


Current Trends in Academic Libraries

THELMA FREIDES

In the last issue of Library Trends devoted to reference services (Winter 1964), Everett Moore identified the chief concerns of academic reference librarians as specialization or nonspecialization, centralization or decentralization. He referred specifically to the organization of reference services in a general reference room or subject-specialized divisions, separate government documents departments or integration of documents into the library's general collections, and establishment of separate undergraduate libraries. He also considered the possibility that growing specialization would induce changes in academic library service patterns, from general reader guidance to direct provision of information.¹

Nearly twenty years later there is a faintly archaic ring to some of this, but a little pondering suggests that key elements of the choices facing libraries then are still before us. Questions of subject specialization tend now to center on personnel rather than administrative structure, but delineation of the roles of the reference generalist and subject specialist is still an issue. The once spirited debate over separation or integration of documents collections seems to have languished, but it is worth noting that automation makes integration of catalog access at least, if not collections, a more feasible course than it was when the argument began. Even more interesting is the reappearance, in the new context of online searching, of many of the questions about the separation or integration of specialized services that once characterized the documents controversy.

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The undergraduate library apparently came and went as an issue with the 1960s explosion of college enrollment and institutional expansion, followed by the shrinkage of more recent times. Little enthusiasm for undergraduate libraries is visible now, and some have concluded that they did not achieve what was hoped for them. The underlying issue of service to undergraduates, however, far from fading, has burgeoned into the most active area of the academic reference scene—bibliographic instruction.

Information versus instruction endures as a seemingly permanent dilemma. There is no sign that we are closer to resolution of the question now than in 1964 (or, for that matter, 1930, when publication of James Ingersoll Wyer's *Reference Work* more or less opened the debate) but the dimensions of the question and the arguments brought to both sides are deeply affected by all the organizational, technological and ideological currents of the past two decades.

In an effort to identify more systematically the leading issues in academic reference service, I surveyed the literature published since Moore's article, with emphasis on the seventies and eighties. I attempted to identify all writings specifically addressing some aspect of reference service in academic libraries. Articles on general reference subjects such as online searching or question negotiation were included only when there was an overt academic library context. The search yielded 232 items, categorized (with each item assigned to only one category) as follows:

- Bibliographic instruction: 79
- Computer-based reference and bibliographic services: 34
- Personnel-related topics: specialists and generalists, professional development, use of nonprofessionals in reference service: 31
- Measurement and evaluation, including statistics, user surveys, analyses of questions asked in reference departments: 24
- Scope and character of reference service, including information v. instruction, the place of reference in the academic library and academic program: 18
- Administration of reference departments: budgeting equipment, hours of service, promotion: 10
Reference collection development, selection policies, special types of reference materials (documents, archives) 9
Miscellaneous services: current awareness, cooperative reference services, interlibrary loan 8
Question negotiation, interviewing techniques 7
Catalog-related questions: reference use of catalogs impact of cataloging developments on reference service 6
Reference service to special user groups: undergraduates, community colleges, disadvantaged, etc. 6

Interesting questions arise in each of the categories, but the limited length of this paper, and the writer's endurance, impose limits on the scope that may be attempted. Attention in what follows centers on the first two categories and selected aspects of the following three, in part because they apparently comprise the topics of greatest interest, but mainly (perhaps it is the same thing) because it is in those areas, more than the others, that fundamental questions of reference service to academic users seem to arise.

Bibliographic Instruction

Although a substantial body of professional opinion has long held that bibliographic instruction has no place in reference service, which ought to concern itself with supplying information rather than self-help advice, there is little doubt that in academic libraries, at least, the partisans of instruction are way ahead. The Library Instruction Round Table is the second largest in ALA, and a brief trip through the profession's personnel advertising will establish that participation in instructional programs is a standard duty of academic reference librarians. The seventy-nine bibliographic instruction articles identified in the preparation of this paper do not compose anything approaching the total literature of the subject (Hannelore Rader's annual bibliography of instruction literature lists over sixty academic library items for 1980 alone) but mainly consist of reviews of the literature, and contributions indexed under "Academic Libraries—Reference Services" and similar headings.

Surveying this literature from the point of view of the relation between bibliographic instruction and the larger reference picture opens interesting questions about the purpose of instructional activity.
There is no clear professional consensus, but rather a range of spoken and implicit assumptions.

One approach regards bibliographic instruction as a practical means of coping with floods of students and a way to rescue reference librarians from endless wasteful and mind-deadening repetition of basic search procedures at the reference desk. At more advanced levels, instruction is seen as a way to improve the quality of students' work by introducing the specialized information resources of the scholarly disciplines as superior alternatives to the card catalog-Reader's Guide syndrome. This is probably the most widespread general picture of instructional activity, clearly reflected in many published descriptions of institutional programs and in the ACRL Bibliographic Instruction Task Force's Model instructional objectives, which focus on student familiarity with library organization and the principal reference tools.

Supporting this approach is a sizable output of courses, workbooks and syllabi, and many evaluative studies confirming the success of instructional activities. However, through the generally enthusiastic literature runs a slim but continuous thread of complaint about the low-level, mechanistic, and boring quality of much of the material presented, and the questionable usefulness of evaluations that can show only absorption of what was taught, rather than its application.

Another rationale for bibliographic instruction posits knowledge of libraries and how to use them as an essential attribute of the educated person, useful throughout life irrespective of college course requirements and therefore worthy of inclusion in the curriculum in its own right. This is a plausible proposition to most librarians, but the trouble with it is that no one has yet articulated the substance of library knowledge in terms that could supply the needed conceptual foundation for instructional programs. Describing the outstandingly successful instructional enterprise at Earlham College, Evan Farber expressed the hope that general ideas were conveyed along with information about reference sources, but acknowledged that "it is only a hope, because we are depending on students' abilities to draw inferences." A "think tank" of accomplished bibliographic instruction librarians, assembled in 1981 under ACRL auspices to generate ideas for further progress in the field, recommended that librarians undertake research on information processes in order to produce the needed underpinnings for intellectually solid programs.

Some librarians have attempted to anchor the description of bibliographic resources in the communication and epistemological patterns of the scholarly disciplines, so that bibliographic study becomes an.
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aspect, more or less, of the philosophy and sociology of science.\textsuperscript{11} While attractive intellectually, the idea presents some sizable difficulties in practice. For one thing, bibliographic instruction in this framework requires a much larger investment of students' time and attention than the typical one-time presentation of major source materials, and therefore more interest and support than is apt to be forthcoming from the unfortunately typical professor "who casually assumes that anything worth teaching about the library can surely be accomplished in an hour's time."\textsuperscript{12} Moreover, a bibliographic model built on patterns of scholarly communication is really only applicable to the work of graduate students and advanced undergraduates and has little to offer at freshman and sophomore levels of instruction. The concept of social epistemology, as sketched some thirty years ago by Margaret Egan and Jesse Shera,\textsuperscript{13} is powerfully suggestive as a potential theoretical base for bibliographic instruction, but has never been worked out with enough specificity for practical use.

As matters stand now, therefore, the most solid rationale for bibliographic instruction is its efficiency as a means for imparting standard information about standard library procedures to large numbers of students. Commitment to this as a practical necessity is strong and growing, but the parallel growth of librarian-mediated online searching suggests that the old information/instruction battle may reopen on new ground as online searching becomes increasingly available to academic library users. The question will be further considered following discussion of some major issues in online services.

Online Services

The arrival of the computer as a reference tool confronts academic libraries with several intriguing problems concerning the place of the new resource in the existing spectrum. Should online searching be set up as a new organizational unit, or added to the activities of the existing reference department? If the latter, should all the reference librarians be expected to master the new techniques and utilize the new resources? Should users be charged? How does online searching executed by librarians affect traditional assumptions concerning user education and self-help?

A separate department for online searching promises efficiency and economy in the use of the automated systems, since librarians who are full-time searchers can be expected to become more adept at the terminals than those for whom searching is only one of a range of reference
duties. A corollary advantage is that reference librarians who shrink from contact with the new machines and associated new thought processes can continue undisturbed in their accustomed ways. Similar advantages of processing economy and specialized staff expertise were stressed in the choice, some decades back, of separate overintegrated government documents departments, and the drawbacks of separation are likewise rather similar in both cases.

With both documents and computers it was probably too readily assumed that the librarians of the general and specialized information units would be able to make balanced judgments of the resources available in both locations and refer readers from one to the other as needed. The more natural outcome is for each group to focus primarily on its own service and send the reader elsewhere only as a secondary alternative or last resort. This means that the choice between one set of information resources and the other is effectively taken out of the hands of librarians, the presumed experts, and left to the reader, since his query will probably be accepted by whichever unit he chooses to approach. In the case of online versus manual searching this is apt to mean overemphasis on comprehensive searches of the journal literature in the database department, even in situations common in academic libraries, where a student’s problem is more appropriately approached via a limited selection of key monographs and evaluative summaries, and, conversely, needlessly labored searching of comprehensive printed tools with less than optimal results in the “regular” reference department. It is also noteworthy that while separation may promote the development of specialized expertise in certain materials or techniques, it dilutes the advantages of subject specialization of the reference staff, since a given range of subject abilities will be divided between the automated and conventional services.

The matter of fees, on which so much argument has been heard, will not be considered here, on the assumption (or optimistic hope) that the issue may be disappearing. The ALA Research Office’s recent survey of the financing of online services produced the interesting finding that charges are most characteristic of the longest established services, while libraries entering the online field more recently tend more to offer the service free. This may be read as a sign that online searching is fairly well along in the transition from exotic “extra” to standard library activity. If so, that is all to the good as it reduces by one the number of problems to be grappled with in finding the computer’s proper place on the reference landscape.

Perhaps the strongest argument for locating online searching within the established reference service, without fees or a separate
organizational structure, is the changed relationship between the librar-
ian and the user in the online situation and the superior educational
opportunities this offers. In the traditional academic reference situation
the librarian’s assistance to the literature searcher may range from
suggesting several possibilities, to making specific, evaluative recom-
mendations, to examining several sources with the reader and pointing
out the differences and the approach that appears most promising.
Although the extent of the librarian’s participation will vary from case
to case, depending on such factors as the complexity of the problem, the
librarian’s familiarity with the subject, and the reader’s apparent ability
and preference, at some point the operation is turned over to the reader,
who may or may not follow the librarian’s advice, and the librarian
generally does not see the result of the search or have any other way of
judging the ultimate value of his recommendations. The computerized
reference situation, on the other hand, mandates the librarian’s involve-
ment at every stage, from formulating the question to evaluating the
result. The student is obliged to define the problem with sufficient
precision to yield a usable search strategy, and what is probably the most
common, and most misguided, undergraduate “research” procedure—
the stringing together of tenuously related items found under a common
index heading—is effectively ruled out. If additional background read-
ing would help to clarify the question, the librarian’s urging of this on
the student is likely to be more meaningful, and more readily acted on,
than in the traditional reference relationship. If the search strategy fails,
the librarian has both opportunity and motivation to correct it and to
persist until a satisfactory outcome is achieved. The entire process
shows the students what competent literature searching means, some-
thing which many students never learn through their own efforts.
Libraries may feel that provision of online searching as a routine
reference service is, despite everything, beyond their resources, but it
should be recognized that online literature searching provides not just a
measure of user convenience but an educational tool whose importance
can scarcely be exaggerated.

The Online Challenge to Traditional Bibliographic Instruction

The educational benefits of online searching described in the
preceding paragraphs derive from the tutorial relationship inherent in
the librarian-mediated search, a situation that runs counter to tradi-
tional bibliographic instruction concepts stressing user self-help and
independence. This observation raises the possibility that the two
strongest developments in academic reference service in recent years
may actually be working at cross purposes. While a ceaseless flow of courses and instructional aids issues from the bibliographic instruction sector, expanding online services increasingly habituate readers to having their searches done for them by a librarian. Which way are we headed? Bibliographic instruction activists appear to skirt the dilemma by regarding it as merely the transfer to a new setting of prior arguments and positions on the information/instruction issue.\textsuperscript{16} That is an illusion, however. The radically new conditions created by the computer warrant thorough reexamination of the instructional rationale.

For one thing, the computer's virtual elimination of searching tedium removes one of the major props of the instructional enterprise. Among the murkier elements of the venerable instruction/information debate is the true meaning of the word "service," as in reference service. Does it designate a service akin to car washing or shoe shining—i.e., a task which most people can do for themselves though they may prefer not to—or something more like medical or legal service—i.e., tasks employing skills that only professionals possess? The key point is the substitutability of the user's labor for the librarian's. It is generally accepted that librarians will place their professional skills at the user's disposal by advising in the choice of bibliographic resources and index terms, but the burdensome task of examining and recording the listings involves a lot of brute labor to which the librarian's professional skills contribute little or nothing. If special librarians have accepted the whole job in the name of "maximum service," an important consideration is that a librarian's time normally costs the company less than an executive's or engineer's. In academic libraries it has seemed more economically rational to teach readers to do the job for themselves.

The computer turns all this around. Under present conditions, at least, each online search must be performed by a librarian and there is no possibility of substituting the user's labor for the librarian's to any appreciable degree. The drudgery is largely relegated to the machine in any case, and, far from feeling demeaned by unskilled labor, many librarians regard performance at the terminal as a welcome enhancement of professional prestige.\textsuperscript{17} There is thus no economic incentive for the library to educate the user. On the contrary, the most economical course for the library is to deliver the search to the reader as expeditiously as possible. The librarian must discuss the problem with the user sufficiently to understand what is required, but anything done for the sake of user education per se simply runs up the cost without providing compensating savings elsewhere in the process.
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Thus online searching brings into particularly sharp focus the question of the real purpose and educational value of bibliographic instruction. If the librarian is obliged to do the searching anyway, and the quality of the search product, therefore, does not depend upon the user's comprehension of the information system, what is gained from the added expense of user education? If reference librarians left over from precomputer days bristle at the idea that a student can simply ask for a list of citations and receive it, is that simply emotional resistance to change or, as has been suggested, misplaced schoolmarm moralizing, or is something really wrong?

Something is indeed wrong if one considers that a bibliographic search is an intrinsic part of the research investigation it starts off, and therefore cannot be sliced away and contracted out. Advocates of the information-not-instruction position perennially point out that the lawyer does not expect you to research your own precedents, the dentist to fill your own teeth, etc., but academic librarians might find more enlightenment in analogies closer to home. A researcher does not arrive at a statistical lab with a request that some tests of significance be run on his data. He is expected to know the available tests and their characteristics, to make his own choices with or without expert advice, and to be ready to defend his procedures against methodological criticism. Similarly, a scholar whose work is criticized on the ground that he failed to consider some important contribution to the literature can hardly defend himself by blaming the librarian who failed to turn up the missing item in his bibliographic search, nor can the student who receives the same criticism from his teacher. Every bibliographic search entails choice of the universe of materials to be screened and the criteria to be used in selection, and no matter who pushes the buttons on the terminal, the choices and the responsibility for their consequences belong to the user. Therefore it is not only proper but essential for students to be instructed in databases, search logic, access points, controlled vocabularies and so forth. Granted it all costs money, but it is as legitimate an educational expense as anything else that occurs in classroom or laboratory.

A major difficulty with this viewpoint is that it is not widely appreciated in the academic world outside the library. Many teachers are simply indifferent to the quality of the bibliographies their students produce, and many others take care to steer students to outstanding works and authors out of personal knowledge, but are unfamiliar with, and indifferent to, the systematic methods advocated by librarians. Both groups are apt to applaud the librarian's performance at the terminal as
a new high in professional accomplishment, but that is really a small tribute and we should resist being seduced by it. To use our professional skills to grind out bibliographies that will impress students and satisfy teachers is easy—too easy. To use those same skills to bring students to an understanding of the bibliographic record and its meaning for scholarship is uphill all the way, as it has always been, but a more worthy undertaking.

This argument in support of bibliographic instruction rests on the value of bibliographic knowledge to the student, and not on the library's need to equip students to perform basic searching operations without assistance. As noted earlier, the latter is the firmest and most widespread rationale for existing instructional programs, while the former is in many respects a general conviction that has yet to be worked out in programmatic detail. The future of bibliographic instruction in the context of online reference services, then, may depend on the extent to which librarians succeed in replacing mechanistic, procedural routines as the focus of instruction with an intellectually coherent conception of information seeking that can explain what the process means. An alternative, more pessimistic prospect looks to the development (which is certainly coming) of "user-friendly," user-operated systems. At that point, the need for instruction in search mechanics will be exactly what it is now with regard to printed resources, and bibliographic instruction may thus continue to find its focus and raison d'être in "the typical 'bag of tricks' so prevalent in many instructional programs."19

Meanwhile, Back at the Reference Desk...

The surge of interest in the new areas of bibliographic instruction and online searching, as well as the earlier trend toward subject specialization, has given rise to concern that energy and attention may be drawn away from the mundane activity of answering questions at the reference desk, thus weakening reference service at the core while strengthening its offshoots.20 This in turn opens some puzzling questions about priorities in reference work and the efficacy of traditional practices.

Despite complaints on the matter heard regularly through the years, academic reference librarians have never defined their goals or the scope of their work beyond a general intention to assist readers with whatever they might need to facilitate their use of the library. Equally unarticulated and unexamined is the assumption that the hub of this assistance is the reference desk, where a reference librarian, or surrogate,
is available to the reader at all times. The arrangement conveys an implicit promise never to let the reader go unserved, but it also pegs the service at a low level.

The reference desk works best for directional questions and requests for specific factual information. It is not well designed for dealing with questions requiring interpretation or exploration, including what is probably the most common, and most important, type of reference inquiry in academic libraries, the open-ended, “information about” request for assistance with term papers and other classroom assignments. Librarians suggest a professional style of interaction by placing a chair beside the desk, but the situation is otherwise un conducive to consultation. Discussion aimed at clarifying the reader’s question is discouraged by other inquirers waiting in line or hovering around the desk, and the attention given one questioner, irrespective of his actual requirements, is almost inevitably curtailed when others are waiting. The librarians on the staff may have various subject specialties, but the person at the desk at a given time will generally attempt to deal with whatever is presented, especially if another librarian to whom the reader might be referred is not at that moment available. A reader may seek out the librarian who first helped him for repeated consultation as the search progresses, but the traditional pattern of staff rotation at the desk suggests that single encounters are the norm and anything else the exception.

Studies of user behavior indicate that users indeed perceive the reference service as intended for simple questions and quick replies. Seemingly low-status (young or female) employees are approached in preference to those (older or male) of presumed higher status; a staff member who is standing will be approached more readily than one who is seated; users will wait their turn at a counter rather than approach a librarian seated and unengaged at a desk. The common practice of presenting substantive inquiries in the guise of simple requests for directions (“Where are the psychology books?”) is another bit of evidence along this line.

These problems are, to be sure, met and overcome by reference librarians every day, but that does not alter the conclusion that in relation to high quality assistance extending beyond simple library routines the reference desk is more an impediment than a facilitator. By establishing the desk as the focal point of reader assistance, libraries not only expend professional time on trivial tasks, but also encourage the assumption that the low-level, undemanding type of question handled most easily and naturally at the desk is the service norm.
Many of the studies categorized as "measurement and evaluation" and "personnel issues" in the literature examined while preparing this paper are statistical counts of reference desk activity, and discuss the proportion of time at the desk occupied by professional-level tasks. The reported figures, which estimate the professional component of desk work at anywhere between 10 and 40 percent, are difficult to interpret because the time between questions was generally, though not always, clocked in the nonprofessional category irrespective of how it was actually used, and because questions were generally, though not always, categorized in terms of what was initially asked, irrespective of where the inquiry may later have led. Nonetheless it is abundantly clear that a substantial portion of reference desk traffic could be handled by nonprofessionals, and that staffing the desk with support personnel, with provision for referring the difficult questions to a librarian, could release substantial amounts of professional time for truly professional work.

A great many academic libraries staff their reference desks with nonprofessionals, though more commonly as a stop-gap for evenings and weekends than as a consciously affirmed full-time policy. The weakness of the arrangement is that while relieving the librarians' burdens, it almost certainly depresses the quality of the library's response to whatever proportion of questions it is that really needs professional attention. Such evidence as is available confirms what would be expected intuitively: nonprofessionals do not make as many referrals as they should, in part because of failure to recognize a question's underlying complexity, and in part because of a feeling, conscious or unconscious, that referral reflects unfavorably on their competence. The latter problem is apt to be intensified if the nonprofessional works alone, as during evenings and weekends.

Many librarians see this deterioration of service quality as too high a price to pay for time gained away from the desk, and object to reliance on nonprofessionals for information assistance. But dissipation of professional time and energy on trivial and routine tasks is a high price, too, which suggests that seeking ways to improve the performance of nonprofessionals, especially in the matter of referrals, might offer the best prospects for overall service improvement.

Some, though by no means all, of the libraries using support personnel at reference desks provide some sort of formal training for the job, but there is a striking lack of attention in the published reports to delimiting the kinds of questions the nonprofessionals may attempt, or confining them to the kinds of information covered in their training. Specifying in advance the questions to be answered and the questions to
be referred is not easy and can never anticipate every contingency. The goal, however, is not perfection, but only a greater exercise of professional concern and control over the reader's fate in the library, and on that basis there are possibilities worth considering.

One obvious move is to declare all "information about" questions off limits to the nonprofessional, on the ground that unlike factual questions whose answers are usually readily recognizable and the same no matter from which source derived, a question of how or where to find information on a subject has many "answers," and the choice among them should have the benefit of professional knowledge and judgment. This would mean, of course, that readers asking such questions at a time when no librarian was available would not be answered, but librarians who are disturbed by that must ask themselves whether they are willing, as the responsible officers of the library, to stand behind the assistance rendered by nonprofessional staff in those circumstances.

Another possibility might be to limit the nonprofessionals' search for answers to factual questions to the works specifically covered by their training, with any question whose answer is not found therein referred to a librarian. This would help to assure that the reader's time will not be wasted in pursuit of unlikely prospects, and that answers that approximate but do not hit their mark will not be proffered, and accepted, as the best the library can provide.

More effort might be made to reduce the reader's dependence on personal assistance by better provision of directional signs, library handbooks, printed or audiovisual point-of-use aids for catalogs and indexes, bibliographic guides to research fields, and the like. A few libraries have reported successful ventures in this vein, most notably MIT's Project Intrex, and it is regrettable that possibilities along this line have received so much less attention in the literature than the pros and cons of nonprofessional staffing.

Simply for the purpose of presenting a welcoming and encouraging face to its users, and not appearing to be hoarding its mysteries to be doled out as favors from the reference desk, the academic library has strong motives for making its contents as self-evident and self-guiding as possible. Beyond that, well-designed user aids can enhance the effectiveness of nonprofessional reference staff. Printed aids can serve, in the first instance, as training materials. Many questions about library policies, procedures and holdings can be answered by referring readers to handbooks and user guides, and the reference assistants can be taught to explain and interpret the guides for readers who have difficulty proceeding on their own. Bibliographic guides to research resources, both library-produced handouts and more extensive publications in the

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Library’s collection, can be offered to readers who ask for bibliographic guidance when a librarian is not available. This may disconcert readers who expect direct answers to “simple” questions rather than texts to study, but librarians should be more influenced by their own understanding of what the situation requires than by readers’ expectations. Much of what readers expect is, after all, what they have learned to expect from what librarians have done.

It should be noted that professional time released from routine question-answering at the reference desk does not necessarily become available for nondesk pursuits such as collection development or bibliographic instruction. A substantial portion must be turned back to the desk in the form of training, supervising and backstopping the nonprofessional desk assistants and creating the inanimate user aids that are their props. This suggests changes in the reference librarian’s job structure. Supervision, for example, hitherto virtually unknown in reference desk work on the premise (some would say rationalization) that a basic competence level is assured by the professional degree, would become an important concern requiring development of methods and standards that do not yet exist. Design of user aids would become a major, rather than ancillary, “as time permits” activity. In this framework, “general” reference becomes a specialty in its own right, involving more staff work and less direct public contact than is now customary.

Referrals from the nonprofessionals to librarians might more logically be directed to specific individuals in terms of their competencies and specializations than to an undifferentiated roster of librarians rotating coverage in the reference room. This would gain the advantage of dealing with each question at the highest level of competence available. Discussions of the reference activities of subject specialists tend to assume that their work is chiefly valuable to advanced students and faculty, but if it is seen as educationally desirable for senior professors to teach beginning as well as advanced courses, the same philosophy would suggest that bibliographic experts deal with novices as well as more experienced researchers.

Another possibility would be to make basic term paper advice, particularly for students in freshman writing classes, the province of the librarians presenting library instruction to those classes. In this way, assisting students with individual research problems becomes an occasion for reinforcement and amplification of ideas presented in class, as contrasted with rote guidance through rudimentary library procedures. All of the librarians on the reference staff might establish schedules of office hours when they are regularly available for consultation, and all would make use of both online and printed resources, as required.
Goals and Standards

The specific flaws and merits of these proposals are of less concern than the idea they are intended to illustrate. That is, reference service is not a reactive, global response to unspecified and unlimited users' needs, but an array of planned activities, each designed to serve some distinct purpose. The array of services offered by a library is the result of its choices among competing possibilities and its ranking of priorities, and it is not necessary to assume that the whole adds up to all the assistance users may require. More help is offered to some readers under some circumstances than others, and the particular form of assistance a reader needs may not be available at the time it is requested. The argument advanced here is that clear formulation of service dimensions, and frank acknowledgment of limits, permits a library to focus its energies where it considers they will do the most good, whereas papering over the lacunae with the unconsidered assumption that doing the best one can is always preferable to doing nothing impedes assessment of what is actually accomplished and recognition of possibilities for improvement.

Commentators and critics have repeatedly noted the reference profession's resistance to articulation of the goals and scope of reference service, and the deleterious consequences thereof. Mary Jo Lynch observed that the common lack of written service policies protects the myth that the library's policy is "to do as much for as many people as staff and time...permit" and obscures such awkward issues as inconsistencies in the attitudes and actions of different staff members, and the determination of priorities by happenstance rather than design. Florence Blakely learned from her study of twelve major academic libraries that even where written service policies exist they do not in fact describe or determine the extent of service actually rendered, which again suggests that reference librarians are reluctant to say what they mean and commit themselves to conscious choices. Vern Pings characterized as socially irresponsible the offering of a professional service with near-total unconcern for quality standards and performance monitoring. Venable Lawson observed in two university libraries that fragmentation of reference work into a mélange of tasks from elementary to esoteric produces a downward drift to the level of the least common denominator, resulting in underutilization of reference capabilities and waste of staff expertise. Several writers have asserted that introduction of meaningful standards would demand, first of all, clarification of service goals.
It is noteworthy, and perhaps ironic, that the new reference activities sometimes viewed as threats to the vigor of traditional service may provide an impetus in the needed direction: that is, away from hazy intentions to do whatever is needed and toward planning and a semblance of quality control. Online searching introduces the idea of service by prearrangement, thus offering an alternative to the inconsistency and accidents of timing characteristic of traditional walk-in patterns. Bibliographic instruction has been observed to raise the level of students' reference requests, and one result may be to induce more recognition of the need to distinguish between rudimentary and advanced levels of service. Changes in service patterns will surely occur during the coming years, whether deliberately engineered or brought on fortuitously by circumstance. Reference librarians should choose the course they wish to follow, unimpeded by ingrained tradition or attachment to unrealistic service goals.

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Reference and Information Services in Special Libraries

SIGNE E. LARSON

Characteristics of the Special Library

The latest edition of the Directory of Special Libraries and Information Centers lists over 16,000 libraries and centers, an increase in their numbers of over 700 from the sixth edition and 7000 over the inventory conducted by Kruzas in 1963. "Growth," as Christianson has observed, "has been one of the outstanding characteristics of the special library movement throughout its 70 year history. New special libraries continue to come into existence with a vigor undiminished by another, less pleasant characteristic of special libraries, their mortality rate." The numbers of libraries will vary from inventory to inventory depending upon the compiler's definition of a "special library," for while there have been many attempts through the years to define it, there is as yet no clear or universally accepted definition for the special library.

Special libraries can vary so widely in their organizational structure, purpose, function, level of support and size that it is difficult to generalize about them. Special libraries may include those with collections devoted to materials on a single subject or related group of subjects (art libraries, business libraries, law and medical libraries); others may be described by the form of material collected (map libraries and picture libraries). Many can be described in terms of their parent organizations (museum libraries and government libraries). Furthermore, special libraries may be either publicly or privately supported.

The most significant characteristic which distinguishes the special library from other types of libraries, however, is that it is, as Ashworth has clarified, "one which is established to obtain and exploit specialised information for the private advantage of the organisation which provides its financial support," whether the parent organization is a government agency, business or industrial company or group of companies, a nonprofit organization, private society or institution, a research association, or a hospital.

There are other important differences which distinguish the special library from the academic or public library. Typically, the special library tends to be comparatively small—in the size of its collection, in the space occupied and in the size of staff. At the same time, its clientele forms a more clearly-defined community in terms of its objectives, in relation to the parent organization and its products and services. Many special libraries provide services exclusively to their own organizations and are not open to the public except through special arrangement. There may be, in fact, situations in which information or a certain part of the collection is regarded as proprietary or confidential and accessible only to designated individuals on a need-to-know basis. Above all, it is the users who are the raison d'être for the existence of the special library—all their information needs related to the organization's mission and development must be met. In servicing their needs, the special librarian may, in a sense, become an elitist, both as to the services provided and, particularly, to whom, when and how these services are furnished.

In most types of special library—especially those of commercial, profit-making organisations—the principal function of the library staff is to provide a depth of personal service to users which will save their time and energies for their real working functions as, say, engineers, marketing executives, salesmen or scientists. Instruction in library use in the sense of providing users with the wherewithal to help themselves in the library without calling upon the services of the library staff will not be a prime function of this type of library. It could be argued to be a complete negation of the functions of such a library in fact. That is not to say that some user education will not be given, but the initiative for it will almost certainly tend to come from the individual user who wishes to be shown how to use some particular service or reference book for himself—using an abstracting service for unfamiliar or complicated periodicals, for example.

It is not unusual for the special librarian to provide certain services for clientele which have been considered, traditionally, outside the scope of librarianship. There are instances where the skills of a records manager, an archivist, word processing expert, editor or public affairs
assistant have been expected and thus developed by the special librarian in order to provide that extra dimension of service to the overall organization. "This trend toward taking on nontraditional services is one of the major reasons for the gradual metamorphosis of many special libraries into bona fide information centers. It is also part of the reason why some special libraries no longer use the title 'library' over the door." More and more the term information center is replacing the term library or is being used with library to describe more accurately the dual purposes of the organization. Indeed, the distinctions between "special library" or "information center" or "technical information center" are becoming more blurred as improvements in technology increasingly permit the economical addition of new and sophisticated products and services to the repertoire of those traditionally provided by the library.

The foregoing, brief description outlining the diversity that exists among special libraries has been provided in order to place in perspective the descriptions that follow of the various reference and information services that some or many special libraries may provide in the course of serving their clientele. These services are categorized under the following topical headings: Information Services, Bibliographic Services, Online Search Services, Document Delivery Services, Indexing Services, Abstracting Services, Publishing and Alerting Services, Translation Services, Clipping Services, and Records Management and Archival Functions.

**Information Services**

Information inquiries received by the special library vary greatly in the type of expertise and amount of time and effort needed to answer them satisfactorily. The requests received may be for the specified documents for which the author or title are known, or for subject requests ranging from general to particular; for example, ready-reference inquiries for simple data readily found in a matter of minutes in handbooks and directories to those involving extensive retrospective literature searches and the comparison and assessment of the information found for which hours or even days are required to provide the results. Industrial libraries and those serving the professions often have need for highly technical, detailed and current information. The overall pattern of requests received in any given library, however, tends to remain fairly constant; thus, the searching procedures for locating the needed information can become well established over a period of time. Typically,
users have specific questions that must be answered within short deadlines and all the tools of the librarian's command—the catalog, the reference collection, the in-house indexes and directories, outside sources, as well as the online search services are employed in finding and documenting the answer. Finding information for the user of a special library entails more than the mere presentation of the documents in which the information may be contained; it includes the identification, authentication and presentation of the information itself. The goal as Aspnes so succinctly stated is to provide, "the right information to the right person at the right time in the right form."

Approximately one-quarter to one-half of the inquiries received by special libraries can be answered satisfactorily within half an hour. Many small libraries are not staffed to handle inquiries taking much longer than this and may be limited to quick-reference telephone services and guidance in research methods for those able to come to the library. The small library with limited resources may be compared and contrasted with the services provided by special libraries having larger staffs and with methods they have developed and equipment they have employed to deal with the volume of inquiries received.

Most of the inquiries directed to the U.S. Senate Library are received by telephone. In fiscal year 1981, four legislative reference assistants using telephone headsets and operating at individual terminal stations, responded to over 61,500 inquiries from Senate offices for bill status information. To deal with the volume of requests received, an automatic call sequencer answers Senate callers with a recorded message when the available four terminal operators are busy, and places them on hold automatically to be answered in sequence. During the same fiscal year, three reference librarians responded to over 12,000 requests for reference assistance and an additional 1000 requests involving the searching of commercial online databases. Most requests are answered by the staff within one day of receipt.

At the Congressional Research Service (CRS), about two-thirds of the inquiries received from the Congress are for basic, factual information. Among the types of inquiries handled are requests for books, documents and articles; quotations; biographical information; and information about organizations, associations, business firms and companies. In addition, the service provides a variety of in-depth policy analysis and research on every subject of interest to the Congress including background analyses, pro and con arguments, legal research, legislative analyses, legal research and legislative histories and scientific and economic analyses. The Congressional Reference Division (CRD), staffed by professional librarians, cleared over 230,000 inquiries during
fiscal year 1981—71 percent of them within twenty-four hours of receipt. Another division of CRS, the Library Services Division, responded to over 26,000 congressional requests during the same period of time.

In order to respond to such a large volume of requests, over 60 percent of which must be recorded, assigned and answered the same day as received, the CRS Inquiry Section was established to serve as the centralized point for the receipt and assignment of congressional requests. Fifteen inquiry recorders receive incoming calls from the Congress and interview callers to determine the purpose of the request, what information or analysis is required, what format would be most useful for the response, and the time frame desired for the response. This enables the section to direct the request to the appropriate CRS division to provide the information required. Electronic call directors distribute the call load equally to all inquiry recorders; an automatic call sequencer controls incoming calls when lines are busy and callers receive recorded status messages until calls can be serviced. An automated management information system, the Inquiry Status and Information System (ISIS), provides machine-generated control over the inquiries received and speeds the assignment and tracking process while protecting the confidentiality of records of congressional requests. In anticipation of requests received, conveniently prepackaged Research Guides, Info Packs and brief Find It Fast sheets on topics of recurring interest have been prepared by CRS for distribution which identify information search tools, provide packets of background information and list quick information sources.

Bibliographic Services

Quite a number of organizations, particularly those engaged in research activities, have active publication programs. Frequently, their libraries are called upon to conduct the initial searches of the literature for relevant citations concerning a given project, provide assistance to staff in checking and verifying bibliographic citations and provide advice regarding bibliographic format and style. In addition, special libraries on their own initiative may compile various reading lists, bibliographies, bibliographic reviews and pathfinders to the literature on topics of interest to clientele of the organization.

The task of compiling these listings has been greatly aided by the utilization of the various online search services. Some libraries, in fact, have discontinued the compilation of formally published bibliographies in favor of using the online systems to produce on-demand listings of the literature, tailored specifically to an individual request.
While this avoids the lengthy, labor-intensive and costly manual process of compiling bibliographies and provides the requester with rapid responses to his information inquiry, it passes on the problem of eliminating duplicates and false drops to the end user, as well as the problem of reconciling various output formats from different databases. Huleatt describes a technique for editing and formatting online searches to provide the user with a finished and more readily understandable product, while Hawkins explains how machine-readable output (MRO) from online searches received in lieu of conventional offline prints on paper is used at Bell Labs in compiling attractively formatted, classified, arranged, and indexed bibliographies.

Online Search Services

Perhaps the most dramatic development in information service work in special libraries within the past decade has been the establishment and increased use of online interactive search services. Since their inauguration in 1971, there has been spectacular growth in the utilization of commercially marketed online services, particularly by special libraries and more recently by academic and public libraries. For the most part, external interactive systems provided by commercial vendors (DIALOG Information Services, SDC Information Services, BRS, The Information Bank, LEXIS, WESTLAW) or government suppliers (RECON, JURIS, MEDLINE, SCORPIO) have been utilized; however, a few special libraries were found to subscribe to the tape services supplied by database producers and had them mounted on in-house systems.

From 1975 to 1979, the number of searches performed by Bell Laboratories increased nearly 1200 percent. A similar increase in search service activity at the U.S. Department of the Interior Library during the same time period was experienced by the author. Jacob reported that 46 percent of the subscribers of the New York Times Information Bank were special libraries; 50 percent of Lockheed's subscribers were either special or public libraries with special libraries predominating; 32.2 percent of SDC's subscribers were commercial libraries while 18 percent of BRS subscribers were identified as special libraries.

Online searching is used by special libraries for ready-reference purposes—to identify and verify known items. It is also used for retrospective searching, the preparation of bibliographies, and for selective dissemination of information (SDI). Its value for bibliometric studies,
making quantitative analyses of a body of literature or determining the contributions of a discipline is noted by Hawkins.\textsuperscript{17}

The benefits derived from computer-assisted searching of the published literature have been substantial, not only in terms of improved service to clientele and faster turnaround time, but in terms of searcher productivity, retrieval effectiveness and reduced costs.\textsuperscript{18} Online search services have enabled the special library to have access to a wide range of materials not in the library’s collection, and to current materials not yet indexed in print sources. There have been other impacts. Lancaster and Goldhor surveyed academic and special libraries to determine the extent to which these libraries had discontinued subscriptions to printed abstracting and indexing (A&I) services as a result of accessing their equivalents online. They established that there had been relatively few such cancellations, but noted that, “new libraries tended to move directly into electronic access on demand without ever going through the print on paper phase.” Moreover, they predicted an accelerated level of migration from print to online access within the near future.\textsuperscript{19}

Many reference librarians routinely query one of the online cataloging support services, such as OCLC, RLIN, WLN, or UTLAS to verify bibliographical information and ascertain the location of materials for interlibrary loan. Although these systems have been considered largely technical processing tools, Blood described the impact OCLC has made on reference service,\textsuperscript{20} Ojala illustrated the reference use made of BALLOTS (now RLIN) by the Bank of America Reference Library,\textsuperscript{21} Woods discussed the capabilities of the WLN computer system to support library services for reference and interlibrary loan for both staff and public,\textsuperscript{22} and Webster and Warden compared the cataloging support services for special librarians. The breakdown of special libraries subscribing to cataloging support services in spring 1980 was as follows: OCLC: 617; UTLAS: 150; RLIN: 72; and WLN: 1.\textsuperscript{23}

In addition to utilizing the cataloging support systems for bibliographic verification and location information, these services are used to compile bibliographies on authors and, in the case of RLIN, WLN and UTLAS, subject bibliographies. Results of these subject and author bibliographies are merged with the results of the searches of other online systems to provide the necessary complement of monographic literature to the output from databases largely composed of journal articles, report literature and newspapers.

As a result of computerized searching, there has been a concomitant increase in the demand for documents uncovered by the search and, in many instances, a dramatic increase in the number of requests received
for interlibrary loans. Hawkins attributed a 67 percent increase in the amount of interlibrary loan activity to be due largely to online searching while Martin advised those planning to initiate online search services to be prepared to handle a 50 percent or higher increase in ILL requests.

Document Delivery Services

For the reference librarian and information professional, the rapid identification and location of documents of interest is the important first step in satisfying user needs; the delivery of the needed documents within the required time frame is the next. If the needed materials are contained in the library’s collection, they can be readily dispatched to the requester; those not owned must be secured and delivered as rapidly as possible. Special librarians, it should be noted, rely heavily on direct, quick and often informal connections among themselves for the mutual exchange of information and the expediting of interlibrary loan arrangements since frequently the time period for satisfying patron’s requests is quite short.

A number of options are available for obtaining those documents not immediately accessible within the in-house collection: messenger service or shuttle to nearby locations; utilization of local-, state-, and regional-wide networks, or online ILL services; requesting documents through such suppliers as the British Library Lending Division, Linda Hall Library, and the Institute for Scientific Information; online document ordering via DIALOG’s Dialorder, SDC’s ORBDOC and The Source; various other commercial document delivery services; and delivery via telefacsimile. Systems with forty-eight hour or faster turnaround, Grattidge and King point out, are almost a requirement in the industrial library setting.25

The National Library of Medicine (NLM) has created a unique document delivery system to parallel its bibliographic services. McCarn describes NLM’s hierarchical network system which operates through eleven regions within the United States. Each region has a Regional Medical Library (RML) to monitor interlibrary loans, search services and other service activities for that region. The larger libraries within the regions are designated resource libraries for the provision of documents. If a local library does not have a requested document, it turns first to the nearest resource library, then to the RML of the region, and finally to the National Library of Medicine. With the recent creation and implementation of SERLINE (Serials Online) which contains information on over 120 medical school libraries with holdings of over...
6000 biomedical journals, a request can now be forwarded directly to the nearest library holding the journal.26

Indexing Services

The diversity and specialized nature of materials acquired and maintained by special libraries coupled with the need for the rapid retrieval and delivery of this material to clientele often necessitates the compilation of various in-house finding tools and indexes. Commercial indexes and directories generally are not available to cover such diverse and specialized materials in the depth and specificity required. In many instances, the reference staff is directly involved not only in identifying what types of information will likely be required by clientele on short notice, but in preparing the appropriate tools once identified: the indexes, directories, and resource and data files. In addition, organizations may turn to their libraries to develop indexes to various in-house publications and groups of records.27

Numerous examples appear in the literature describing the indexes created by special libraries for their unique collections of, for example: vertical files, reprints and preprints, picture collections, internal reports and correspondence collections, newspaper clippings, laboratory notebooks, test reports, technical orders and specifications, maintenance manuals, trade catalogs, as well as to indexes to local journals, ordinances and regulations, or documents and publications not indexed elsewhere. In the federal sector, particularly, and in innumerable law libraries, the reference staff is called upon to compile legislative histories citing bills, reports, hearings, debates, and other documents relative to legislation. These can be developed on demand, or there can be a formally organized program established in house to acquire the documents as issued so that the legislative histories relating to the organization's mission or particular areas of interest can be compiled in an on-going operation. An important function of the reference staff at the U.S. Department of the Interior Library was to index the Senate and House appropriation hearings for the department from galleys produced by the Government Printing Office. Detailed indexes to subjects, names and witnesses were compiled and rushed after editing to the appropriate House and Senate offices for transmittal to the GPO. The indexing function not only provided a vital service for government publishing and the department, but served to keep the departmental library reference staff informed about the programs, projects and organizations with which the department was involved.
Bator discusses the development of an automated vertical file indexing system utilizing a PDP-11 minicomputer and involving the entire reference staff in thesaurus construction and record input, while Bivins and Eriksson describe the application of two related, low-cost microcomputer-based systems designed for reference work in the creation and utilization of in-house data files: REFLES, or Reference Librarian Enhancement System, used to store factual information, and REFLINK (the 'Missing Link'), a modification of REFLES adding tree structure with extensive use of links and pointers. The development of a computer-assisted retrieval system involving a totally different system designed to provide access to the engineering and architectural drawings and maps of several large land development firms is described by Tenopir and Cibbarelli. Both manual and computerized in-house files exist, but increasingly, the utilization of micros, minis and word processors on the part of special libraries for the creation, searching and maintenance of in-house files is being reported in the literature.

In-house files need not be restricted to the published or written word. Often valuable resource files are developed to identify individuals both within and outside an organization who possess expertise in given areas of interest to the organization. The clientele and staff of the Congressional Research Service benefit from a quotations file compiled over the years by reference librarians in the course of searching for quotations and sayings attributed to individuals but which were not found in conventional reference works. The file is composed of approximately 6000 cards which identify the person, the quotation, and the source for those items located, or, information that the quotation could not be verified for those items not found. Resource directories and files containing descriptive information about programs, projects or organizations may also be compiled. Resource files to aid in the retrieval of information about available community service programs or concerning particular target groups are described by Mershon who lists the various groups which have formulated standards for information and referral (I&R) services and for the resource files they use. She also describes the development of a model automated resource file which generates listings of service organizations under six different reports. In contrast to batch-mode of operation, Light and Yamamoto describe an online I&R file utilizing a large computer on a time-shared basis and the options currently available for those desiring to automate their in-house resource files. Another example of a resource database providing online access to a directory of nonprofit organizations working in education is that developed for The Resource and Referral Service (RRS) of the National Center for Research in Vocational Education.
A number of special libraries utilize the private file services offered by several online, time-sharing vendors, such as SDC Information Services, DIALOG Information Services, and BRS to create, collect, store, search, and maintain their in-house files. In addition, some have produced specialized printed products from the magnetic tape output in photocomposition format from the databases they have mounted on these systems.

Abstracting Services

The preparation in-house of abstracts of published information is a major activity in some special libraries and information centers. These abstracts may be prepared and provided in the course of disseminating current information or in the process of answering specific inquiries. Some special libraries regularly scan incoming publications in order to select for abstracting and indexing those items most pertinent to users' interests. Locally prepared abstracts have a number of advantages over commercial abstracting services in that they can be tailored specifically to users' needs and made available shortly after the original publications are received and added to the collection; and, importantly, they reflect what is immediately accessible on site to library clientele. LaSalle describes the activities of the Portland Cement Association Library in selecting, preparing and distributing via a weekly Literature Received list the library-prepared abstracts of publications received (journal articles, proceedings papers, reports, books, and patents) and considered relevant to the association's interests. Over 100,000 entries are represented in a special subject, author and source abstract file compiled and maintained by the library to which an additional 4000 abstracts are added each year.  

Publishing and Alerting Services

One of the major functions of an active information service is the exploitation of the material acquired once it has been received and processed or otherwise identified as appropriate to bring to the attention of patrons within and, possibly, outside the organization. A wide assortment of means and techniques is utilized, singly or in combination, ranging from: library bulletins and "what's new in the library" columns in employee newsletters, to accessions lists, customized table-of-contents services, pathfinders, directories, guidebooks, bibliographic reviews, state-of-the-art reports, current awareness or selective dissemination of information (SDI) services, and annual reports. Most special
Librarians see their role as active disseminators of information rather than passive custodians of documents; however, the type, number and range of alerting services provided clientele will not only be dependent upon perceived patron needs, but the availability of the necessary staff and resources to support such services.

Chicago’s Municipal Reference Library publishes four pamphlets which are authored by members of the reference staff: “Facts about Chicago,” “The Government of the City of Chicago,” “Historical Information about Chicago,” and “The Mayors of the City of Chicago.” The Senate Library, a legislative and general reference library for the use of the U.S. Senators and their staffs, has produced a number of important reference works including: Index of Congressional Committee Hearings, Senate Election, Expulsion and Censure Cases from 1789, Presidential Vetoes 1789-1976, and Nomination and Election of the President and Vice-President of the United States. Many of its publications are found in the reference collections of libraries throughout the country.

The Congressional Research Service serving the U.S. Congress has an extensive publications program ranging from multi-volume Congressional prints providing in-depth policy analyses on every subject of interest to Congress to short, confidential legal interpretations and written analyses prepared for Members or Committees. In addition, CRS provides a selective dissemination of information alerting service directly to congressional clients and CRS staff. Subscribers to the service receive weekly computer printouts of detachable 3- by 5-inch cards containing bibliographic citations of recent articles, studies and documents relevant to their areas of policy. The cards are used to request full text copies of cited publications. In fiscal year 1981, CRS provided copies of over 53,600 documents requested by subscribers.

The Bell Laboratories Library has an active publication program. In addition to publishing a diversity of specialized information directories, catalogs, indexes and pathfinders, the Bell Labs Library provides information alerting services, including the regular publication of fifteen major announcement bulletins and a computer-aided system for selectively disseminating internal technical documents. The bulletins cover internal documents, external reports, books, serials, Bell Labs talks and papers, audio/videotapes, and published papers in all major fields of interest to Bell Labs technical and managerial personnel. MERCURY, Bell Labs Library system for selectively distributing internal technical reports, seminar announcements, computer documents and other information, is directed primarily to getting a new internal document to the right readers. Over 5500 Bell Labs employees are
enrolled in this service. Via MERCURY, an author may distribute a paper not only to named colleagues and departments, but also to all personnel who have indicated an interest in receiving papers on specific subjects or projects or from specified authors or departments. Two other alerting services issued biweekly by the Bell Labs Library are compiled by using data from external magnetic tapes and from internal keyboarding. The BELLTAB system produces Current Technical Reports, a subject-structured awareness service listing selected technical reports mostly derived from the magnetic tapes supplied by the National Technical Information Service (NTIS). The BELLPAR system produces Current Technical Papers composed of five different subject bulletins listing approximately 50,000 journal papers annually. BELLPAR selects citations of interest from the INSPEC and SPIN tapes and adds citations selected by the Library Network’s Literature Analysts from journals not covered by the tape services. Each publication provides a convenient order form for requesting copies of items announced. Commenting upon the underlying philosophy behind the Bell Labs Library Network publications program, Kennedy states his conviction that, “the essence of special library services is outreach directed to need. The emphasis is on projection rather than reaction, which implies going to the users, making it easy for them to learn about the request and get information, marketing the library image and the repertoire of library service network-wide, and researching and developing information alerting and access packages addressed both to known and forecast needs.”

Mulvaney describes a much smaller but similar information alerting operation designed for the Caterpillar Tractor Company for which the semimonthly Review of Current Literature is compiled and distributed by the library. This service lists books, periodical articles, society papers, and university publications acquired and deemed of importance to Caterpillar’s research and engineering programs, and provides, in addition, a convenient mechanism for recipients of the Review to request copies of items listed therein. A minicomputer produces the library-compiled Index to Current Literature for the Blue Cross Association and Blue Shield Association Library to provide access to the specialized literature covering the financing and economic aspects of health care and health insurance. One special library reported that a computer-produced library bulletin developed to announce recent accessions of technical reports had evolved into a full-scale information retrieval tool providing access to a small but developing in-house file of reports and journal articles.
Translation Services

It is not uncommon for special libraries to be called upon to provide three distinct services in regard to foreign language materials: (1) finding translations of articles or documents appearing in foreign languages, or (2) finding persons, organizations or services able to translate foreign language material into English, and (3) locating persons, organizations or services able to translate in-house publications or correspondence from English into another language.

A few special libraries have full-time translators on the staff; in most situations, however, the library merely makes arrangements for a commercial translation to be made after having ascertained that none has been prepared and made publically available through such services as the National Translations Center at the John Crerar Library in Chicago, through the National Technical Information Service in Springfield, Virginia or through the U.S. Joint Publications Research Service in Arlington, Virginia. Some key foreign journals are translated in full into English and published as cover-to-cover translations. In order to maintain this type of translation service for clientele, a special library must maintain an up-to-date collection of reference tools: directories of translations centers, translating services and translators, and publishers and their publications announcing and indexing translations.

At the Congressional Research Service, the Language Services Section, with a staff of six covering nineteen languages, provides translating and interpreting services to Members and committees of Congress and assists CRS researchers in the preparation of congressional analyses. During fiscal year 1981, this section completed more than 1500 requests involving six different areas of service: translations into English of a wide variety of materials—documents, articles and correspondence; translations of correspondence from English into Spanish, German, French, or Russian; oral interpretation of several languages either in person or by telephone; information on languages, the field of translating, or translators; materials and information on sources for foreign-language publications; and research for materials either available in translation or for those needed in the original foreign language. "One of the most popular services of the Section is the translation into Spanish of Members' newsletters, speeches, press releases, and correspondence for those Members whose districts comprise large Spanish-speaking populations."43
Clipping Services

The daily provision of newspaper clipping services is important to many individuals within an organization who must be aware of and sensitive to media coverage regarding the organization's activities and interests. A number of special libraries are responsible for providing such clipping services for their organizations; others, if they do not compile the information themselves, must make certain that they regularly receive these services on a timely basis in order to be apprised of current new developments concerning their organizations and be prepared to respond to the inevitable requests for additional background information. Daily reading of clipping services and the various news services on the part of reference librarians working in special libraries is a must.

The role of the newspaper library in collecting, selecting, organizing, indexing, and microfilming clippings, photographs and other new materials is described by Miller while Bibby, Olson and Morrow provide further insights on the compilation and maintenance of clipping services. Bibby describes the activities of the Canadian Consulate General Library in distributing a weekly newspaper clipping service to its clientele in Chicago and Olson reviews the responsibilities of the Illinois Agricultural Association (IAA) and Affiliated Companies' staff in reviewing and clipping six different newspapers on a daily basis. Morrow, on the other hand, examines the activities of the Chicago Municipal Library reference staff in dividing the responsibility of reading and marking for inclusion into the newspaper clippings file those articles pertinent to and about Chicago taken from daily newspapers of the region, from about twenty local neighborhood weeklies and from the New York Times, the Washington Post and the Wall Street Journal. One of CRS's major research resources is its Main Reference Files, a unique collection of over one million newspaper and magazine clippings, government documents, pamphlets, archival CRS reports and fugitive materials of current research interest. This collection, "furnishes the CRS staff with the raw materials for its work in responding to congressional requests for information and policy analysis."

The alert special librarian will not wait for the inevitable inquiry for background information, however, but will assume the initiative and assemble the necessary data and provide it to appropriate individuals in advance of the request.
Records Management and Archival Functions

The internal documents resulting from the activities of various units within an organization often must be retained by law or for future use. There are instances where these internally produced documents and records are organized and retained in the library as part of the organization's working collection of materials rather than administered separately. A unique archive of some 3000 projects of an engineering firm which is housed with and controlled by its library is described by Bagby. Deere and Company, whose archives have been administered by its library for many years, now has more than 35,000 archival documents—all of which are entered into an online, interactive time-sharing system offering private file service. Hospital archives administered by its library is outlined by Messerle and the activities of the Technical Information Center of the Caterpillar Tractor Company which has the responsibility for indexing and retrieving information from the company's internal report and letter collection is described by Mulvaney. Ammarette Roberts provides a detailed summary and assessment of the problems involved in records management together with recommendations for the special librarian in inventoring active and inactive records, the feasibility of microfilming, the supplies and equipment involved as well as advice concerning record retention schedules and the storage capacities of various media. Two information centers of Merck Sharp & Dohme Research Laboratories are responsible for the storage and retrieval of site-oriented, unpublished project information. Each center processes approximately 1500 individual documents per week composed of reports, memoranda, correspondence, notebooks, regulatory submissions, prepublication manuscripts, and legacy files from various individuals and departments. The design, development and operation of a computerized system for handling these archived records in multimedia format is described by Peterson et al.

Archival collections placed within the jurisdiction of the special library may come about by an agency or organization designating the library a central repository for receiving, for instance, one to three copies of all permanent records of the organization: internally produced reports, house organs, studies or publications. In other cases, it is the special librarian who takes the initiative and assumes the responsibility for collecting, classifying and indexing those internal documents of potential historic value. The archival responsibilities of the special librarian are outlined by Kadooka-Mardfin who describes the development and operation of a municipal archives in the City and County of Honolulu.
"Perhaps no single development in libraries," wrote Galvin, "has contributed more to the growth of the concept of reference service in our own time than has the special library movement." Through the years, the emphasis in special libraries and information centers has centered upon the information function and a determination to deliver timely, personalized and in-depth service to clientele. Individual special libraries vary considerably, however, in the extent to which they can provide the specialized services described above; each will, on the other hand, be expected to provide the type of information service most essential to the parent organization to support its mission and objectives. Recognizing that information is a resource whose generation consumes time and money and whose use could conserve time and money, the special library should be dedicated to finding the proper compromise between providing the best possible service and supplying it in the least possible time and at the lowest possible cost. More than any single factor, the special library will be judged and its success be determined by the extent to which it meets user information needs in the most cost effective manner; that is, its effectiveness in delivering useful information within the needed time frame and in the format required for its ready utilization.

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Online Searching in the Reference Room

BRUCE D. BONTA

Introduction: Humans and Machines

VISUALIZE A SCENE IN the hallway of a mid-city business building. Standing to the left just outside an office door is a tall, good-looking young executive, his left hand perched on his hip, and his right hand held thoughtfully up to his chin. He is listening attentively to the janitor, an older, shorter man who has taken a few minutes out from his mopping to expound on a subject of vital interest to both of them. Down the hall behind them the twilight of evening and the lights of the other office buildings shine through a large window and twinkle off the wet floor, outlining the momentarily forgotten attaché case and mop bucket. Below this picture of productive social intercourse, for this is an advertisement in the Wall Street Journal, is the message, “At Sperry, listening is not a 9 to 5 job.” The ad continues with a brief statement about the importance of careful listening on the success of any company endeavor.

The attitude of the Sperry Corporation, a major manufacturer of computer systems, is significant as well as refreshing, and it relates very closely to the development of online bibliographic searching in library reference departments. Listening is one of the major facets of effective human interaction, which is important for good business and absolutely essential for successful service in the reference room, either at the desk or at the online terminal. Interpersonal relations are a necessary part of the information transfer process, and consideration of them will

form the core of this paper on online searching in a reference setting. The major concerns will be with the processes and activities that make online searching such a natural part of reference departments. And after considering the role of the searcher versus that of the end-user, an attempt will be made to predict the future trends of reference service in an increasingly online environment.

Integration of Online Searching in Reference Departments

In the ten years that online access to a variety of bibliographic databases has been widely available, libraries, and particularly reference librarians, have been strong supporters of offering access to them within the context of the other library reference services. A 1976 survey of some members within the American Library Association's Reference and Adult Services Division found very strong agreement with the idea that academic and research libraries should provide computerized search services (95.6 percent of the respondents). Furthermore, there was nearly as strong an agreement (over 80 percent) that special libraries, college libraries, large public libraries, and government libraries should be searching. For medium and small public libraries, however, opinions were divided as to whether or not they should offer online search services—24 percent of the respondents felt that they should, 39 percent indicated they should not, and 33 percent were in between.2

Although reference librarians are clearly enthusiastic about online searching, especially in the academic, research, and larger public libraries, several recent surveys have indicated that the service is not by any means universal, even in those types of libraries.3 Where search services have been established, libraries have generally recognized searching as a reference function and located it within the reference department.4

Unfortunately, there have been some problems with the introduction of online searching in reference departments. For one thing, not all reference librarians have been enthusiastic about searching. Where there has been a polarized staff, with some librarians searching and others not, the situation has been eased by the searchers making efforts to introduce and familiarize their colleagues with online searching. Also, the emphasis on searching in library schools encourages its greater acceptance in reference departments as staff turnover takes place.5 Although only 58.3 percent of RASD members felt, in 1976, that online literature searching should be part of their own library's reference department,6 the percentage would probably be higher today since online searching continues to grow in importance as a library reference function.
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The introduction of online searching has also posed administrative problems for libraries. Most notably, it has represented an added duty for the librarians. Training staff, interviewing patrons, and formulating and executing searches all take time. Keeping statistics, setting up accounting procedures, monitoring a fee structure, and promoting the service are additional aspects of the administrative costs of the search service.\(^7\)

Despite these staff and administrative problems with integrating search services into library reference departments, there are advantages and benefits that more than counterbalance the disadvantages. For one thing, many reference questions are best searched online, with only limited assistance from printed sources, while others are best suited for the opposite perspective—a heavier reliance on the printed sources with online searching more or less incidental. This spillover of one medium into another results in a "continuum of information," often without clear lines of demarcation.\(^8\) Another benefit of integrated services is that patrons who might otherwise be reluctant to ask for help at the reference desk are willing to approach librarians for online searches. Librarians report that they are able to instruct the requesters in search strategies through printed reference sources while working with them at the terminal.\(^9\)

Another positive aspect to having a search service established in the reference department is the enrichment of the librarian's professional skills. The reference librarian who searches a database online develops a better understanding of both the nature of the literature and the vagaries of the arrangement and indexing in that database than would normally be gained from simple referrals to the printed equivalent, where the patron does most of the work of searching.

Reference Aspects of the Search Process

Most academic library online search services were established to assist in the compilation of bibliographies, usually with costs such as online connect-time charges and the offline prints recovered by the libraries charging fees for this service. In addition, many libraries have allowed their reference librarians to use their terminals to help find answers to ready-reference questions. In contrast to the literature searching, this ready reference use of the terminal is normally done without charge to the requestor. Major types of questions that might benefit from the librarians' ability to use the terminal include subject questions (such as finding a few references or ascertaining appropriate index
BRUCE BONTA

terms), verifying citations to journal and monograph citations, author searches, and address questions.\textsuperscript{10} Other ready reference uses of the searching terminal might include requests for statistics, comparisons of journals, information about people and groups, listings of works published by small publishers, and so forth.\textsuperscript{11} The major cataloging databases—such as OCLC and RLIN—are widely used for reference purposes also, but that use will not be considered here since this paper is concerned with the online bibliographic databases which are searched primarily for reference information.

Libraries that use an online terminal for ready reference questions have indicated a high rate of success. Two subject libraries at the University of Minnesota that evaluated their use of online searching on reference questions found that their experienced searchers used the databases more willingly and were more successful in their use of them than were their less-experienced colleagues. The success rate, as judged by the patrons, was 84 percent for the experienced searchers, 53 percent for the less-experienced ones, with an overall success rate of 72 percent.\textsuperscript{12} At the University of Maryland's McKeldin Library, the percentage of questions that were answered successfully by using a database started out at 49 percent but quickly increased to 64 percent as the program continued.\textsuperscript{13} Of the 232 reference questions searched online at the Pennsylvania State University from mid-1978 through late 1980, 70 percent were judged to have been successful.\textsuperscript{14} Not only was the success rate quite comparable at all three institutions, but the average length of time online to search the ready reference questions was also similar: 5.4 minutes at Minnesota, 4 minutes at Maryland, 4.3 minutes at Penn State.\textsuperscript{15}

The University of Maryland has carried online searching for ready reference questions to its next logical step. The reference staff have found it helpful to compile a card index which is used to assist the librarians when they turn to the terminal with a reference question. Index entries are filed under appropriate subject headings—for example, art exhibits, directories, obituaries—that the librarian checks when preparing to use the online resource for help with a question. Each card suggests databases, search headings, and strategies for the librarians to use for that type of question. The advantages to having such information readily available include the ability to skip checking the system and database manuals, a time-consuming process that sometimes militates against rapidity of doing ready-reference searches online.\textsuperscript{16}

While using online searching to aid in answering reference questions is important at many academic library reference desks, the more
formally structured literature search service is still the major use of online databases in libraries. The library's computer-based bibliographic search service is established as a parallel to the regular reference service, with many points of similarity between the two services but with some significant differences as well.

The first and perhaps most obvious parallel between the online search and the ready reference question is the importance of an effective presearch interview. The interview is important for the computer search because the cost of online time requires efficiency and avoiding errors. The searcher needs to understand clearly what the client wants, while the client needs to learn what the machine can do. In fact, often the patron states the problem too broadly, much as for any other reference question, and the librarian has to pin the requester down to a specific topic. The searcher needs to distinguish between statements made by the requester and the real meaning of the topic.

Consider the presearch interview in more detail. It often begins with the librarian going over some of the major procedural issues such as the costs involved in the search, the formats available, and the time it takes to get search prints back. Continuing from there the basic elements of the interview situation are: explaining the benefits and limitations of online searching; describing when a computer search is or is not appropriate; mentioning other sources; discussing the subject of the search; developing an appropriate search strategy; explaining features of the search system; describing and then choosing appropriate databases to search; and describing the sort of procedures that will be followed online, including the structuring of terms, reviewing citations, and ordering offline printing. Not all of those basic elements would be present in each interview, depending on the patron's experience, the difficulty of the topic, and whether or not the requester was planning to be present during the search. Such an interview might range from five to sixty minutes in length, with twenty to forty minutes being the usual range.

While those basic elements of a presearch interview might appear to bear little resemblance to the situation that prevails at a reference desk, in fact the similarity in procedures is striking. During the course of the presearch interview, for instance, the patron and the librarian should discuss all aspects of a topic until it is completely understood. The searcher (or librarian) should use open-ended questions in an effort to make sure that all the necessary questions—when, where, why, what, who, how, which properties, and opposite conditions—are properly considered during the discussion.
Some factors that may tend to inhibit the effectiveness of the pre-search interview include time pressures on either the patron or the searcher, uncertainty of roles, fear that the searcher will discover the requester's lack of knowledge, fear that the idea or proposal might be pirated, and inaccurate descriptions of the user's needs. Certain personal characteristics of the search requester also might impede an effective presearch interview, such as language difficulties, a patron who is too busy to talk with the searcher, one who is slow-learning or confused, and one who tries to dominate the search. On the other hand, the searcher can adversely affect the success of the interview by making it either too short or too long. Another problem can be a new searcher who has to deal with nervousness, inexperience, and lack of judgment on how many citations to expect in the search results.

All of these potentially inhibiting factors may also be present at the reference desk. For example, the nervous, inexperienced librarian at either the reference desk or the search terminal, when faced with an obscure or difficult question, can discover creative ways to stall and flounder around (though very professionally, of course): at the desk, thumbing through the Library of Congress Subject Headings volumes always looks good, and at the terminal the comparable activity is carefully looking through a database or vendor manual. Both activities may lead to good information but they also may buy the inexperienced librarian a bit of time to ask more questions and begin to make decisions on the best routes to the needed information.

After the topic is thoroughly understood by the searcher and the capabilities of the system adequately explained to the requester, the next major step in the presearch process is for the librarian to select the databases that will be searched. The searcher might consider several different factors in the selection process, of which the most obvious one is determining the subject coverage of each database. The subject of the database can be judged from descriptive information about it, by using it online in a trial and error method, or by consulting vocabulary listings, list of journals, or lists of codes and classification schemes specific to the database. Another area for the searcher to consider in selecting a database is the nature of the source documents covered—such as journal articles, monographs, or dissertations. A third consideration is the period of time covered by the database, and a fourth is which elements in each record are searchable and which are printable. An additional factor that would help in the selection of appropriate databases to search would be the experience of the searcher in the success of various topics in the relevant databases. For any library that subscribes to the print equivalents of the databases being considered for an online
search, another obvious option for the searcher is to examine some issues of the indexes and abstracts to help determine the best choices.

One approach to choosing the best databases to use in a search is to analyze the question using a series of decision points. The decisions range from the general to the specific, with choices on each level being made from an array of possibilities, menu-fashion. An interesting example of this method was developed by Donati for choosing the best databases to use in a search of business topics.26

Although few librarians at a reference desk would analyze questions in such a formal fashion as Donati's, reference librarians choose among printed sources in a similar fashion. The first, almost subconscious decision, is the type of reference work needed: directory, encyclopedia, dictionary, bibliography, handbook, text, or whatever. The next decision level involves the comprehensiveness, language, time period and other similar factors about the needed citations. But as Donati says—in a comment that might as well apply to the reference desk as the search terminal—when making choices of databases to search, there is no substitute for the intelligent searcher who can analyze the questions according to appropriate criteria and base selections on the decisions reached.27

One issue related to the presearch interview that does not really have a reference desk counterpart is the question of whether or not the patron should be present during the actual running of the search. Judging from recent surveys, it would seem that the majority of academic libraries are quite flexible about whether or not to have the requester present for the search: only a limited number of libraries always or never have the patron present.28 Knapp, arguing the importance of having the requester present, says the feedback from the users will improve the quality of the search. When the most appropriate search structure is used and the results are still disappointing, only the presence of the user can allow a modification of the search to bring up alternate references that will really be useful.29 Somerville adds to this argument the point that the requester who is present for a search has a better first-hand awareness of the decisions that were made during the search and the nature of the searching process. She adds, however, that there are factors which might argue against having the requester present for the search, such as difficulty of scheduling, the time-wasting because of long discussions, and searcher nervousness which is induced by the requester's presence.30

An explanation of the differences in presence or absence of patrons may be based on whether the topic is in the social sciences or the sciences and technology. In a study done at the University of Utah Library in
1975-76, Hoover showed that for almost all of the social science searches in ERIC and Psychological Abstracts the patrons were present, but for searches in Chemical Abstracts and NTIS, only about one-third were conducted with the requester present. Hoover found that searches done using the less precise, less specific language of the social sciences often required online revision. The more precise science and technology vocabularies gave satisfactory results using the original search formulations.

A final area for comparison between the interview conducted for online searches and those held at the reference desk for questions considers the skills and attributes necessary for the librarian to be successful in either role. Among the cognitive skills that are important for the searcher is the ability to analyze concepts, to focus on the primary subject of a search. The searcher must recognize subjects that overlap, those that relate but are tangential, and those that are unrelated. Another necessary skill is the ability to think in a flexible manner, to see different possible solutions to a problem. Thinking of synonyms for search terms also is important to the construction of a search. The ability to anticipate variations in word forms and the ability to spell are important. Other personal attributes that characterize the successful online searcher include self-confidence, an outgoing personality, an ability to build good rapport with patrons, a good memory for search details, perseverance when expected results don’t turn up, patience in the face of computer or communications problems, and efficient work habits at the terminal.

As has been indicated already, the reference-interviewing and fact-elucidating techniques of the online searcher must be highly developed in order to conduct successful searches. These online skills have a spinoff in that they enrich the librarian’s reference desk skills as well. While any reference librarian could study a list of the cognitive skills and personal attributes of the successful searcher and claim, quite validly, that the same characteristics are important at the reference desk, these are some overall differences between the skills needed at the two reference service points. The searcher’s skills are somewhat more cognitive in dealing with the user’s information needs; somewhat less of the personal interactive skills, which are so critical in reference desk settings, are needed at the search terminal. Getting patrons to open up about their topics is less likely to be a problem in the search situation than at the desk.
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Future Role of the Reference Librarian

One of the major reasons for examining the presearch interview, the selection of databases, and the skills of the searcher has been to come to a conclusion about the future role of the reference librarian. But while those activities and attributes may be strikingly similar to those of their reference desk counterparts, the librarian may still not have a viable future if nearly all significant information becomes available online and if end-users become capable of doing, and are willing to do, nearly all their own searching. The second possibility, end-user searching, needs to be examined first to gain a perspective on the future of the reference profession.

Nielsen observes, in a very perceptive article, "that a technological goal for online development is to create systems which substantially reduce the need for intermediaries." Among them are several different user-friendly interface systems which have been developed to allow different types of users to do their own online searching. These take various approaches, such as making a complex system available to users less skilled in searching by making available a simplified search procedure, developing a computer intermediary that allows the user to search different systems with the same commands, or designing a system for searching different databases without the user needing to restructure the search.

In addition to developing technology which will help the user to search without the need for an intermediary, there are economic forces affecting this development. Vendors as well as database producers are competing for business by offering workshops and training sessions to end-users as well as to librarians. They are also publishing better manuals in an effort to attract more business. In fact, libraries themselves can hardly afford any other option than to have patrons do their own searching as they design online access systems to their own bibliographic holdings.

The question of whether or not the end-users can be successfully taught to do their own searching, and if they will be interested and willing to do it, has been studied in three different experiments lately. One was a pilot course taught at the Oregon State University for upper level undergraduate and graduate biology students with the purpose of the students learning to do their own searching. The instructors learned from the experience that, while they were interested in developing materials that would increase the searching skills of the end-users, the students were more interested in obtaining information from the online systems than they were in learning a new skill. The students, however,
were enthusiastic about their ability to do searches whenever they needed to. As a follow-up to the course, a searching terminal was provided next to the students' laboratory to evaluate how they used BIOSIS online. The results showed that the students were creative about finding alternatives for search terms but they did not use the concept and biosystematic codes. In contrast to librarian searchers, they spent less time constructing search strategies and using thesauri or manuals, and more time online. A conclusion was that, even though the searches may have been less thorough, they may well have been just as effective as the professionally conducted ones.40

Another recent report came up with similar findings. A graduate level research methods course taught at Ohio State University in 1981 included training in the AGRICOLA and NTIS databases. By the end of the course, most of the students felt they could handle choosing an online database, preparing the strategy, and doing the search online. However, most felt they still had the need for coaching from the librarians during the first two steps. And only a slight majority said they would be able to handle the third step, the actual search, without coaching.41

A third, very intriguing study of end-user searching was conducted at the Raytheon Company for one year. The experiment was set up to have twenty engineers and scientists trained to use COMPENDEX, NTIS, and the INSPEC group of databases on Dialog. They had seven introductory months of free searching followed by five months at cost. The experiment was designed to determine if the engineers and scientists would use online searching as an information retrieval tool in their regular work on a casual, as-needed basis. The study showed that most of the participants would continue to use the searching terminal, but some would not. Other than one person who had trouble because of an inability to type, the nonusers had two principal reasons for not using the terminal: either they used the searching system too infrequently to maintain proficiency, or they felt that the qualitative differences between their own searches and the searches done by an intermediary were not enough to warrant their time and trouble.42

How did the engineers and scientists themselves view the information transfer process during the Raytheon/Dialog experiment? Most were enthusiastic. They found some frustrations with document delivery and problems with some of the complexities of the searching system, but on the whole they saw great value in doing their own searching. One of the conclusions was that scientists and engineers do not share equally the verbal facility and sensitivity to syntax that is necessary for effective
Arguments for and against end-users doing their own searching were summarized recently by Brooks. Arguing in favor is the fact that appointments do not have to be made. Furthermore, the subject of the request does not have to be translated to an intermediary. On the other hand, arguments against include the fact that end-users search less frequently than the librarians, which results in end-user difficulty in maintaining familiarity with systems and databases. Another problem is the lack of end-user training in the methods of organizing information and developing search strategies. Brooks goes on to argue that online searching by end-users will increase as people become more computer literate. She feels that this will not eliminate the professional searcher, however. The skilled searcher is more cost effective than the end-user at the terminal, and for many end-users, the time involved in learning and maintaining search skills is not worth it.

A very convincing argument involves looking at three different areas of expertise involved in searching the online bibliographic databases: knowledge of the database being searched—its coverage, structure, approach and elements; knowledge of the search system; and knowledge of the subject itself. Few online searchers are highly competent in all three areas. For some searches, the expertise of an intermediary in the intricacies of the system and the particulars of the database is more important than the specialized subject knowledge of the end-user, while for other searches the reverse is true. And of course for some, both the intermediary and the end-user knowledge are equally important in achieving a successful search. While effective results can be obtained by intermediaries who do not know the subject of the search well, or by end-users who do not know all the characteristics of the online databases and searching systems, the best results are obtained when all three knowledge areas are combined during the searching session.

The best conclusion is for librarians to recognize that the end-users inevitably will—and should—do a fair amount of their own online bibliographic searching. If this is so, then how much are librarians involved in training the end-users to do their own searching? Apparently very little—in only a few libraries are users themselves taught to search. Educating end-users to do their own searching may well be a responsibility that librarians, library educators, and information scientists should assume as well as the database producers. Academic librarians who are trained as searchers might be able to offer credit courses, at
least on campuses where they have faculty status, to teach search techniques to students. On campuses where librarians are not already teaching credit courses, political, economic and administrative issues would have to be resolved before such teaching could begin. A second approach might be for libraries to make terminals available to the public, either on coin-operated machines or through some other means of covering the costs. Another way to foster end-user searching would be for librarians to work with database producers and vendors to help them develop user-friendly search systems. And finally, librarians could accept, as part of the library’s normal outreach service, the encouragement and training of users to do their own searching, much as they accept the responsibility of teaching patrons, either individually or through course-related instruction, how to find information in the printed collections and reference works.

Underlying so much of this issue of end-user searching is the question of whether such a development will somehow deprofessionalize the reference librarian. Nielsen concludes that end-user access will bring about the deprofessionalizing results predicted by sociological theory, and he suggests that librarians should decide if it is in their interests to foster that trend.48 Faibisoff and Hurych conclude, on the other hand, that not only is increased searching by end-users likely, but it will bring many benefits to the library profession. They feel that the results of end-user searching will be that the higher level, more complex and demanding searches will continue to be referred to the librarian intermediary.49 An earlier article by Meadow argued the same theme: as the searching languages become easier, end-users will begin to do their own bibliographic searching. The result will be a requirement for more highly skilled searchers, with search interviews and searches performed on a higher level of sophistication than they are presently.50

A lot of the anxiety about deprofessionalization dates back to the early days of online literature searching in libraries, when librarians began to feel an immediate increase in their professional status as a result of their new activity. A report based on visits to a number of libraries in 1975-76 indicated that the impact of searching on the reference staff was one of a heightened sense of being in control, of being a professional and not just a library clerk. Librarians were thinking of making the reference desk a spot for directional information and referral, so that all of the more in-depth bibliographic reference service would take place in the office setting.51 With such an office consultation service, and with charging fees, it became easy to imagine a librarian/patron relationship developing much like that of the doctor/patient or
the lawyer/client. Thus, despite the increased pressure on the reference librarians' time due to the additional searching responsibility, at one large research library the reference librarians all wanted to do more searches. One might assume, however, that such eagerness would mature into a more realistic balancing of searching with other reference duties.

It is also reasonable to suggest that the maturing of online reference service will allow librarians to realize the inherent values of their intermediary roles at both the desk and the online terminal. They may thus learn to ignore the issues of role and status, which only distract from the central concerns of the reference librarian's profession—insuring that people find the information they need to work and live effective lives.

Conclusion

Unlike the personnel at the Sperry Corporation, who may need to be reminded that listening is an important part of their business, good reference librarians are keenly aware of the fact that effective listening and interacting with people are essential elements of both on-desk and online reference services. In addition to these interpersonal skills, a librarian at either the terminal or the desk should possess first-rate cognitive and analytical abilities as well as the capability of choosing appropriate reference sources or databases. Similarly, the reference room and the adjoining online search service are just as surely linked by the patrons' information needs, which often can be satisfied by both printed and online sources.

Predicting the future importance of print sources versus the online databases in the reference room is difficult, however. Some librarians feel that, inevitably, online databases will steadily replace the use of the printed equivalents, but this position is a hard one to prove. Actually, it may turn out that some online databases will have little economic viability in the marketplace, and their print equivalents may remain more popular and acceptable. A recent study of one online database and its print and microfiche counterparts found that the online version offered no substantial advantages over the other two formats.

Despite the many benefits of the online literature search—speed, accuracy, thoroughness, comprehensiveness—there is still an inherent limitation in online searching. The serendipity factor, the chance discovery of information and ideas, is usually lessened during the online search. This element of chance feeds the creativity and imagination of
any student, scholar, scientist, executive or citizen who is researching virtually any subject. Of course, the print materials in the reference room and throughout the library represent just a portion of the many sources of information that people have.

But without denying the tremendous advantages of the online literature search—or the online search of the library's bibliographic holdings, for that matter—the ability to browse among the book and journal collections or to chance across additional sources in the reference room is a vital element in the creative process. Sperry concludes its message about listening with the thought, "you never know where the next great idea is coming from," but the same point would be true about effective use of the library, the reference room, and that human information resource, the reference librarian.

Which leads to the final question: What is the future of the reference room and the reference librarian for those information seekers who do continue to need the breadth, depth and comprehensiveness of the library? One answer is that the amount of disseminated information (published or online) and the technology of offering it will probably continue to grow faster than the technology of accessing information. A second factor which points just as surely to the need for an intermediary is the difficulty many people have in defining their own informational needs in terms necessary to retrieve what is needed from reference sources. A third difficulty for a lot of people is coping with the many different types and constructions of reference sources. And a fourth issue is the tendency of many researchers to branch out beyond their own specializations, thus needing help in charting the way through unfamiliar informational territory. In other words, as online service becomes an ever stronger part of the library, general reference service and the general reference staff will become an increasingly vital part of the spectrum of informational sources.

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Winter 1984, *Information Policy and Social Change Dynamics*. Editor: Peter Neenan, Assistant Professor, School of Library Science, University of North Carolina at Chapel Hill.