

# Implications for Library and Information Science Education

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THERE IS CONSIDERABLE SUPPORT for the belief that librarianship is the most institutionalized of professions. Library education, for example, began its life in schools established within libraries and even today many library schools are physically located within library buildings. The institutionalization is clearly reflected in the names of our professional societies. It is significant, I believe, that we speak of "library associations" rather than "librarian associations"; it is even more significant that we tend to think of "library schools" rather than "librarian schools."

There is at least one obvious reason for this situation. Libraries existed before librarians did. Moreover, for several centuries the librarian was little more than a custodian or curator of materials. The librarian as provider of some form of professional service is a comparatively new phenomenon. This historical accident may explain why the library, rather than the librarian, has traditionally been the focus of our attention as a profession. It completely fails to explain why we still seem to concentrate on a physical facility—a building housing artifacts—rather than on the technical expertise of skilled practitioners, which is surely the most important thing that the profession has to offer.

Since it is the institution that has been emphasized by librarians themselves, it is little wonder that dictionaries still tend to define "librarian" as "a keeper or custodian of a library." It is also hardly surprising that the public at large thinks of a librarian only as "someone

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who works in a library" and librarianship as "what goes on in a library." Because many of the activities most visible in libraries are routine and repetitive, the public can hardly be blamed for failing to recognize the librarian as a skilled professional practitioner. Our image and status suffer as a direct consequence of our own misguided emphases. Even today the public relations message of the profession is "visit your library" rather than "consult your librarian."

I am not the first person to decry this preoccupation with the library as an institution. Giuliano<sup>1</sup> did this admirably more than a decade ago. In an unusually perspicacious paper, regrettably much overlooked, Giuliano draws an analogy between librarianship and medicine. Our focus on the library as an institution would find its equivalent in the medical profession if it focused its attention on the hospital as the major institutional element in health-care delivery. By the same token, if medical education were modeled on library education, it would seek to prepare "hospitalarians" rather than physicians.

There is no more justification for defining modern librarianship as "what goes on in a library" than there is for defining medicine as "what goes on in a hospital." Many different types of professionals may work in the environment of a hospital—not only physicians but pharmacists, nurses, dieticians, a whole host of skilled technicians (such as radiologists), and, of course, hospital administrators. All of these require different types and levels of education and training and they receive this diversity through completely different programs. Only the hospital administrator (and supporting administrative staff), of all these categories, is exclusively associated with the hospital as an institution. Physicians certainly can operate outside a hospital; so can nurses, pharmacists and others.

The library is in many ways less complex than the hospital. Nevertheless, is it realistic to suppose that the diverse professional skills associated with the operation of libraries, and information centers in general, can all be presented within the context of a single educational program, which is what our library schools seem to assume? The equivalent assumption in medicine would be that all who work in a hospital require the same body of knowledge, which is clearly absurd. Yet, in effect, the library profession fails to distinguish its physicians from its hospital administrators or even, on occasions, from its nurses and pharmacists.

The fact is, of course, that librarians have traditionally been more dependent on the library than physicians have been on the hospital, pharmacy or other facility. The librarian needed access to books and

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other physical artifacts in order to answer factual questions, prepare bibliographies and, to a lesser extent, advise people what to read to satisfy particular desires or needs. But the librarian may have made himself more dependent on the library than was strictly necessary. A physician can prescribe drugs without actually working in a pharmacy. A librarian, on the other hand, seems unable or unwilling to prescribe reading materials or information sources unless from a desk in the library.

This overdependence on a physical facility has had undesirable consequences. For one thing, it has tended to blur and confuse quite different activities. It is my contention that the major professional tasks that librarians perform are all tasks in which the librarian acts as a type of consultant. The librarian is, or should be, a recorded knowledge consultant in much the same way that the physician is primarily a health-care consultant. The prescribing of informational/reading materials is an important professional activity of librarians. The location and delivery of these materials, once prescribed, is not a professional task; at least, it is a task requiring a different type and level of expertise. A physician prescribes drugs but we go to the pharmacist to locate and deliver them. In the library profession we fail to distinguish the diverse levels of expertise and experience implied in diagnosis and prescription, location and delivery, and even the arrangement of the drugs on the pharmacy shelves. A second undesirable consequence is that the institution has offered a virtual sanctuary for some librarians, who have found plausible excuses for staying hidden there rather than venturing out to meet and be met by the various constituencies they are to serve.

### **Some Deinstitutionalization**

In the past there has been some functioning of librarians outside the library environment. A notable example dates back to the beginning of the century: the subject bibliographers, affiliated with a German university library, but functioning in academic departments corresponding to their own areas of expertise. This idea of an information specialist as an integral component of an academic faculty has been slow to catch on elsewhere.

The so-called "clinical medical librarian," while working from a medical library, has achieved a more complete association with the health-care process by attending patient rounds in hospitals and participating in clinical conferences. Consequently, such librarians are more

readily accepted as legitimate members of a health-care team. More importantly, closer association with the health-care process has brought about a better understanding of the information needs arising from this process.

Over the years there has been some level of experimentation with "floating librarians" in the public library setting. Recently such experimentation has matured into "team librarianship," a concept that has emerged within the public library movement in the United Kingdom. In team librarianship the library is operated by nonprofessionals while the professionals work outside the library in a more direct relationship with the people they are to serve.

The origin of the "information broker" has been traced back more than fifty years. Nevertheless, it is only within the last ten years or so that an explosion of fee-based information services has occurred. The information broker is a free-lance librarian, operating outside the confines of a particular institution; he is a deinstitutionalized librarian.

There is, then, some evidence of deinstitutionalization in the profession, although the trends have so far caused ripples rather than real waves. However, now there is at least a glimmer of recognition that librarians need not necessarily work in libraries.

### **Impact of Technology**

It is my belief that the process of deinstitutionalization will accelerate very dramatically in the next few years. The fact is that computer and telecommunications technologies are making it increasingly feasible for librarians to perform their professional tasks outside of the library.

Technology has affected libraries in two quite different ways. First, computer processing has been applied to "library automation," to the "housekeeping" or inventory-control activities of libraries. This is really a trivial application. It affects the manipulation of records representing physical artifacts but has virtually no effect on the way the artifacts themselves are handled. Indeed, the artifacts are dealt with in libraries much as they were a century ago. Clearly, a library with automated records is only cosmetically different from one without; the public would be hard put to notice any difference. Not a fundamental metamorphosis of the library!

The second effect, however, is fundamental and far-reaching, so far-reaching that it promises to change our whole concept of what a library is or should be. It also changes our whole notion of what librarianship means. This effect, which results from the application of

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computers to publishing and the distribution of information, is the ability to use this technology to access remote sources of information ("databases" or "databanks"), i.e., sources not physically present on the shelves of the library.

I have discussed the implications of this development in detail elsewhere<sup>2</sup> and it seems pointless to repeat such detail here. Suffice to say that machine-readable information sources—only about twenty years old—and the ability to access such resources through telecommunications networks—a development of only the last decade or so—have increased the quality of information service that libraries (especially small ones) can provide by literally an order of magnitude, have created a process of geographic democratization (it matters less and less where one happens to be in terms of access to information), are having a profound and positive effect on the economics of information provision, and, perhaps most importantly, are causing the gradual disembodiment of the library. The library without walls already exists.

The disembodiment process will certainly continue. For some special libraries, it would be true to say that the information sources that can be accessed through telecommunications networks are already more important than those owned and sitting on library shelves. In the longer term, access will actually supplant ownership as print on paper is gradually replaced by electronic publishing. If we carry this to its logical conclusion, of course, the collections of all libraries become the same, for all will have access to any electronic item, as and when it is needed, providing only that they can pay for this access.

In point of fact, however, libraries as we know them seem likely to disappear. Facilities will still exist to preserve the print-on-paper record of the past, of course, but they will be more like archives, or even museums, providing little in the way of public service. As for the electronic sources, libraries may have an interim role to play, and may play this role for the next twenty to thirty years. The interim role is to subsidize access to electronic publications in the way the library has traditionally subsidized access to print on paper. In the longer term it seems certain that the library will be bypassed. That is, people will have very little reason to visit libraries in order to achieve access to information resources. I believe it is highly significant that the owner of a home computer, or the householder having certain forms of interactive television available, is in about the same position vis-à-vis access to electronic information sources that libraries were only a decade ago.

## The Future of the Librarian

In short, I see little future for the library. But what of the librarian? I have already claimed that such a professional need not operate from a library. Technological advances continue to reduce dependence on a physical facility housing physical artifacts. It seems possible, then, that the librarian could long outlive the library. In an age of electronics, we may need "electronic librarians." In an age of information, information specialists may increase rather than decline in value.

The future of the librarian as a skilled information consultant seems to depend upon answers to a number of critical questions:

1. Will the demand for information increase?
2. Will people need professional help in solving their information problems?
3. Will the library profession be able to adapt to a rapidly changing environment and to respond to the challenges it presents?

The characteristics of the "information age" strongly suggest that the pursuit and processing of information will become increasingly important throughout all segments of society. An "information skilled populace" will be needed to implement and exploit new technologies applied to all aspects of human endeavor. Demands for information resources may also increase through other stimuli—the need to support "lifelong learning," to enhance use of leisure time, and to satisfy the public's growing interest in "participation" in the broadest sense (e.g., more direct involvement in their own health care). Because the collection, processing and dissemination of information is becoming such an essential element in our lives, librarians, as skilled information providers, could gain considerably in both value and recognition.

The second question is more troublesome. If publications and information sources of all types become readily accessible to the public through home computers or through interactive television, will our "information skilled populace" be so familiar with these sources, and will they have become so easy to use, that professional information specialists will no longer be needed? Stefani<sup>9</sup> believes this to be true:

Technological advances and economic factors will probably end the intermediary-client relationship altogether. If online use instruction and command languages are developed so that end users can easily manipulate their own searches, an intermediary will no longer be necessary. Furthermore, if search costs are reduced, the economic value of the expertise of the search intermediary will decrease, and the intermediary's services will be bypassed.

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In the longer term she may well be correct. In the shorter term, however, information specialists will survive much beyond the time when the library, as a service institution, has ceased to exist.

Electronic sources will proliferate so rapidly that personal guides to these sources will be much needed. It may be a long time before we can construct vast electronic networks that can proceed to select the source most appropriate to any information need and search it "transparently" to the user. Research and development is proceeding on many of the elements of such a network but it certainly cannot be considered as just around the corner. In the meantime, information specialists will be needed as guides to these resources and, in some cases, as interpreters of their results.

It seems likely that the information professionals of the future must be more specialized in terms of the subject matter they deal with. Very possibly they will be expected to perform an "information analysis" type of function: searching, selecting the best of the information retrieved, and submitting the evaluated results to the requester. The information specialist, then, is essentially an information consultant. Horton<sup>4</sup> refers to this type of person as an "information counselor"; one important role such a professional will play is simply helping people "better articulate their information requirements...." Information specialists of the future can also be expected to play a more active role in education and training since they will be the ones most qualified to teach people how to select sources, how to access them, and how to exploit them.

There will also be other tasks for information specialists—in the planning/design of electronic publications, in the design and operation of electronic networks, in the organization of electronic information files (for institutions but also, perhaps, for individuals), in devising and implementing new types of information services, and keeping clients aware of new information sources as they become available.

Kochen<sup>5</sup> believes that the information professional of the future will play a more important role than is true today:

This information professional is likely to be employed as a facilitator or linker, as a kingpin in a network in which control is shared by service providers and their clients in jointly coping with complex tasks. It will be an occupation of great responsibility, requiring correspondingly high standards of admission to and training for the profession.

These information professionals can be looked upon as "electronic librarians." They are, however, librarians without libraries. Electronic

networks will be used to communicate with clients as well as with information sources. Reintjes<sup>6</sup> recognized the importance of librarians of this kind:

In future integrated information-transfer networks, librarians will be the most valuable human resources of the network. Their detailed knowledge of the contents of the network and their ability to employ retrieval techniques that will extract the maximum amount of information from it will create intense demand for their expert services.

The information age is not exclusively an age of electronics. As Horton<sup>7</sup> points out, it is also an age in which highly skilled human resources will be in great demand:

Exploiting the full potential of the Information Age is going to require a basic rethinking of traditional Industrial Age yardsticks—placing the emphasis on creativity, talent, and brainpower. Those are the real “capital assets” of the Information Economy, not information handling machines. Certainly none of this would be possible without the computer and the electronic chip and satellite and other technological breakthroughs. But their distinctive contribution is still in making processes go faster, more efficiently, and reducing the unit cost of information handling. The real payoff is going to come in training and grooming new kinds of Information Age human resources.

This last sentence is particularly significant. Who is to train and groom these information professionals? What are they to be trained in?

### **Education for the Profession**

The really critical question is “can the profession adapt to a rapidly changing social and technological environment?” If it is to respond positively, it seems clear that the lead must come from our professional education.

Commendably, some attention is now being paid to the identification of professional competencies that will be needed in the information specialist of the future. The Department of Education has recently funded such a study and the Commission of the European Communities has funded the development of a detailed “profile” of the “information intermediary,” including specific competencies needed and the implications for education and training.

This attention is long overdue. Regrettably, our schools have been as institutionalized as the rest of the profession. It would not be too uncharitable to say that “what goes on in a library” is still the principal

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focus of our collective curricula. In some schools, I suspect and fear, it is the sole substance of the instruction.

The term *information science* is relatively new. Even the expression "information retrieval," which we now take completely for granted, did not come into use until after the Second World War. Borko<sup>8</sup> has defined *information science* as follows:

That discipline that investigates the properties and behavior of information, the forces governing the flow of information and the means of processing information for optimum accessibility and usability....It has both a pure science component which inquires into the subject without regard to its application and an applied science component, which develops services and products.

This certainly seems comprehensive. In effect, it states that information science is concerned with all phenomena and aspects of the information transfer process.

Clearly, by this definition, information science existed long before the label "information science" appeared. Nevertheless, information science has only emerged as a recognized field within the past thirty years or so. Certainly there were no "information scientists" earlier, although there were "documentalists" and, of course, librarians.

Some curious anomalies have occurred in these thirty years vis-à-vis the relationship between information science and library science. In the first place, it is undoubtedly true that the great majority of those who call themselves information scientists (and who are, for example, members of the American Society for Information Science) are not librarians and have not received any formal education in library science. It would also be hard to dispute the fact that most of the major advances in information science have come from outside the library profession. On the other hand, it is our traditional library schools that are providing whatever information science education exists, at least in the English-speaking world. There are, it is true, a few other institutions that have "information science" programs. On closer inspection, however, it turns out that these are really programs in computer science. An educational institution that regards "information science" as synonymous with "computer science" can hardly be taken very seriously. There is nothing in Borko's definition that suggests that computers are fundamental to information science, much less that a detailed understanding of computers is essential to the information scientist. Computers are no more relevant to information science than they are to banking, to accounting, to education, to travel agencies. They are useful tools, in information science as in other fields of endeavor, the most

useful tools we have ever had, but we must not confuse the tool with the application.

Many of the accredited library schools in this country have already changed their names to "schools of library and information science." I suspect, however, that, almost without exception, the "and" in this title is interpreted only in its Boolean sense: library schools restrict themselves largely to the logical intersection of information science and libraries. They look at information science to the extent that this broad field impinges on the library as an institution. Information science has not permeated our curricula. In fact, it has been essentially patched on to the traditional institutionalized approach. We have nothing more than a cut-and-paste curriculum. Is this the way to provide the leadership the profession needs at this critical time?

The main purpose of this paper is to plead what I feel to be a cause of obvious merit: to shift the focus of our professional concern away from the library as an institution and toward the skilled information professional who, for want of a better term, I will continue to refer to as "librarian." I have argued why the shift should occur, why the librarian need not function within a library, and why the librarian may well outlive the library. Obviously, the focus of our professional education must be the librarian and not the library.

I do not pretend to know in detail what our curriculum should look like. It could be that many of the essential ingredients are already there, in our better schools at least, but that they are just not packaged in the way they should be. Our present packages (i.e., courses) still reflect our preoccupation with the institution.

If we break away from this institutional bias and look upon the librarian as primarily a facilitator of communication (i.e., a facilitator of access to recorded knowledge), it is clear that this individual must be concerned with and knowledgeable on all aspects of information science as reflected in Borko's definition. The substance of the librarians' curriculum, then, can be nothing less than human communication in general, with formal communication receiving most of the emphasis. The librarian must study and be familiar with all aspects of the communication "cycle," from the creation of recorded knowledge (including, of course, the characteristics and motivations of "authors"), through its distribution, its processing by various types of agencies, and its eventual assimilation and application. To the extent that certain of these activities can be performed in or by libraries, the library as an institution should receive more attention; it should not dominate the entire curriculum. The center of our attention must be the professional

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information specialist and how this individual can assist the communication process.

I am afraid that I disagree with many of my colleagues on what competencies will be needed in the librarian of the future. I cannot accept that numeracy is or ever will be as important as literacy. A librarian is, first and foremost, a communicator. For communication among humans, whether formal or informal, words are immeasurably more important than numbers. This situation is unlikely to change in the foreseeable future.

In the last few years, increasing attention has been paid to a wide range of "management skills," including everything from statistics to operations research. In the short term, this was somewhat justifiable since libraries have been growing, becoming more complex, and having to compete more strongly for limited financial resources. Nevertheless, our recent preoccupation with the management sciences is another example of our inability to distinguish the education of the physician from the education of the hospital administrator. This preoccupation should decline in the future. After all, there may not be many libraries around to be managed. This is not to imply that all forms of management skill will be irrelevant to the librarian of the future. The management of large organizations may have little relevance, but basic entrepreneurial skills could be very important.

The librarian of the future will depend heavily on computers and telecommunications networks. He will certainly need to understand the capabilities and limitations of these technologies. This does not mean that he need know how computers work. That the successful exploitation of computer resources requires knowledge of how computers operate is a myth of obscure origin. Millions of people depend for their livelihoods on the driving of automobiles; few of these care to understand in detail how a car works. Moreover, knowing how a car works does not necessarily improve one's driving skills. Much more important to the librarian will be a detailed knowledge of the characteristics of the information resources available through telecommunications networks and in other forms, and how these resources can be exploited most effectively. In librarianship, as in automobiles, the driving skills are more important than the mechanics, at least for most individuals.

This volume is timely. "Atypical careers" presumably means careers for librarians in atypical environments. At present, "atypical" implies "outside the library." This situation will change. In fact, if my predictions are correct, the atypical will become the typical. The survival of the profession may well depend on this.

Let me conclude with a quotation from a futurist who is also a specialist in the management of change:<sup>9</sup>

Today's tidal wave of change is terrifying many people who have depended upon institutions that are now crumbling....As history shows us, during such transformations the institutions that comprise the framework of the dying society crumble and fall apart, a necessary pre-condition to the construction of the new institutions of a new society. Old institutions impede the development of a new age, which has new needs and new people.

Like it or not, the library is becoming just such a crumbling institution. But the library profession now has the opportunity to construct the new type of institution the quotation refers to, an institution based on technical expertise rather than physical facilities. This is a time of change, a time of turmoil, a time of excitement, a time of challenge for the profession. I hope we show ourselves equal to the challenge.

NOTE: This paper is adapted from the author's article, "Future Librarianship: Preparing for an unconventional Career." *Wilson Library Bulletin* 57(July 1983):747-53 and is printed here through the courtesy of H.W. Wilson Company.

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