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Education for Librarianship in the Next Century

MICHAEL K. BUCKLAND

Introduction

THE YEAR 1986 IS A GOOD YEAR to look back on education for librarianship: It is the ninety-ninth anniversary of the founding of the Columbia University School of Library Service and the centenary of academic education for librarianship one year earlier, in 1886, in Germany at the University of Göttingen.¹ This conference has been much concerned with the last century. What of education for librarianship in the *next* century? We can expect it to be somewhat different—but how much?—and in what ways? In considering these questions the focus of this paper will be primarily on *librarianship* in the next century and only secondarily on *education for librarianship*. The substance of librarianship would and should determine the substance—though not necessarily the form—of the curriculum. The issue is not whether there will be change but what will be the nature of the change.

Licklider's *Libraries of the Future*² provides a convenient point of departure. In 1966 Licklider described how the digital computer and associated technology could be used to provide sophisticated access to recorded knowledge. He outlined an online catalog enriched with additional indexing, access to full text, and a good deal of what would now be called "expert systems." The user and the system engage in dialogue, negotiating heuristically answers that are a compromise between what the user wants and what the system can supply.

In today's jargon one might describe what Licklider called a "pro-cognitive system" as a "smart" information retrieval system. There is an

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explicit description of a user at a console using a typewriter ("quite like a 1964 office typewriter") and asking for information on the topic "computer comprehension of semantic relations."

It is not that this vision is not plausible. It was and still is within limits. But what are the likely limits? What can be said of the completeness or potential distortion that this vision represents? Exploring the answers illustrates some of the difficulties inherent in such forecasting.

How complete is the forecast in its own terms? The extent to which the "procognitive system" could work depends on the effectiveness of descriptions or "representations" of recorded knowledge. Consistent, unambiguous representation (e.g., indexing) is more feasible in some fields of discourse than in others, in the "hard sciences" than in the "soft sciences," in descriptions of the physical world than of intellectual and social worlds. The problem does not appear to be a matter of inexpert indexing. The linguistic ambiguities of, for example, some social sciences literature, appear to be symptoms rather than causes, which seem to lie in the nature of the knowledge itself.³ Even though the system would be able to draw inferences and to make suggestions, the feasibility of Licklider's vision would vary by subject area as he himself recognized. In this case the vision appears to be applicable to a part rather than to the whole of recorded knowledge.

Is the vision incomplete, covering only one aspect of the area being forecasted? Essentially, Licklider was concerned with techniques of retrieval. The vision in *Libraries of the Future* is incomplete—or the title too broad. In projecting what may happen, an author will tend to focus, consciously or otherwise, on an aspect of librarianship that has interesting possibilities and to extrapolate its development. Changing one aspect while keeping others more or less stable is a standard technique in science fiction writing. It can also be used in reverse, to project anachronisms into the past for humorous effect, as in Mark Twain's *A Connecticut Yankee in King Arthur's Court*. In this case, projecting backwards into the past, the incongruity is obvious. With projections into the future, selective and uneven extrapolation can be difficult to detect.

How complete is the extrapolation in terms of its effects? In Licklider's case the computer and its associated technologies were seen as a means of easing the problem of access to recorded knowledge by creating a smart information retrieval system. With hindsight we can now see that the computer and its associated technologies are also exacerbating the problem that Licklider's procognitive system was intended to solve because, in other contexts, computers enable a great increase in the

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quantity of recorded knowledge through word processing, teleconferencing, and the recording and accumulation of vast stores of data. In other words, they exacerbate the problem in addition to offering a remedy. This extended discussion of Licklider's book is intended not as a criticism of his work but as a means of stressing the problem of completeness in forecasting.

Some Assumptions

At this point it may be convenient to review some assumptions:

1. The intention of this paper is to make forecasts of what seems likely, not to make specific predictions.
2. A major concern is to view the field as a whole and to avoid creating visions based upon the uneven extrapolation of one aspect of the field or another.
3. Although the purpose is to depict the future as it seems likely to be, such prediction is rash and a probable source of embarrassment if, in later years, anyone bothers to review the foolhardy predictions of 1986. There is, however, a more serious motivation: the best basis for a good prediction would be a deeper understanding of the nature of things—and if we can understand better the nature of things then we can hope to be more effective in the present and near future regardless of the merits of our long-range forecasts.
4. Not all options are explored. A nuclear holocaust, for example, could indeed change things a great deal. This paper concentrates, instead, on the development of what we take to be long-term trends.
5. The forecasts are personal ones. Although helpful advice has been received, no attempt has been made to use the Delphi technique whereby several people—none of whom really know—are asked to guess what will happen; and the results are formed into a collective guess. The rationale is that one is less likely to get the wrong answer if, instead of asking one person who doesn't know, one asks many people who don't know. Instead, it is hoped that the evidence and argument adduced can form the basis for some broad brush strokes of a future.

Some Examples of Stability

The approach is to ask the question: What *could* change? The introduction of computers is good evidence that there has been and is likely to continue to be *some* change, but how extensive will that change

be? It is impossible to know how extensive change will be, but it is possible to derive some insight by looking backwards and seeing how changeable different aspects of librarianship have been.

I was recently reading a volume of *Library Journal* and encountered discussions of copyright, public access to government documents, education for librarianship, preservation and conservation, reduction of catalog costs through cooperative cataloging arrangements, and improved subject access. I read about each of these topics in the 1886 volume of *Library Journal*, where there is also discussion of women in librarianship and the lack of comparable pay—and a plea that the emphasis on library technology needs to be complemented by more bibliographical instruction. These concerns seem remarkably contemporary. It is clear that not everything has changed in a century, and there can be a reasonable initial presumption of only moderate change in the next century. Should librarian-forecasters of the late twentieth century write down the same topics as their forecast of *Library Journal's* contents in 2086?

Consider the following comments on the importance of a collection development policy that includes the selection of works by dissident writers who challenge the establishment:

Moreover, all those who have written most successfully against any science, or who have opposed with most learning and force...the books of some of the most famous and renowned authors [should be included]....

Neither may all those who have introduced or modified anything in the sciences be omitted, for it is merely flattering the bondage of man's feeble wit if the scanty knowledge that we possess of these authors is buried under the disdain to which they are inescapably subject for having set themselves up against the ancients and having learnedly examined what others were accustomed to accept by tradition. For this reason, since of late more than thirty or forty authors of reputation have declared themselves against Aristotle; since Copernicus, Kepler, Galileo, have quite altered astronomy; Paracelsus, Severinus the Dane, Duchesne, and Crallius, medicine; and since many others have introduced strange and unheard-of reasoning, such as had never been foreseen, I affirm that all these authors are requisite to a library....

The examples are, of course, dated and the wording sounds quaint, but the argument is still relevant and cogent in terms of the Western liberal tradition of librarianship. With the substitution of more contemporary examples, this text could still be used in a course or policy statement on collection development. The quotation is from Gabriel Naudé's *Advice on Establishing a Library*, first published in 1627, not

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one mere century away but three and a half.⁴ This represents an element of stability in librarianship that contrasts markedly with the rapid change that Licklider sketched.

Three Sorts of Change

The stark contrast in degrees of change in the two examples—Naudé on collection development and Licklider on retrieval—suggests a new question: How far are various aspects of librarianship capable of change? If we had some sense of how different aspects of librarianship seemed susceptible to change, then we might hope to consider and forecast different aspects separately and then aggregate the results. The rates of change in the past century provide some basis for assessing the probably rates of change in the future.

Reflecting on the contrasts and similarities between U.S. librarianship in the 1880s and the 1980s suggests that aspects of librarianship can be sorted into three categories with respect to change: (1) library values, (2) library technology, and (3) library science.

Library Values

Library values include social values as they influence library policy and professional issues—e.g., the mission of the library service, the principles of selection, the librarian's attitude toward readers, and the role of the librarian.

It should be stressed that the concern here is with values that underlie day-to-day priorities and decisions: the concern is not with the practical techniques used to implement those decisions. One might well commend Naudé's principles of book selection to students today but not all of his advice on book procurement. His recommendation that one rummage around bookshops looking for printed sheets not yet folded and bound is no longer sound practical advice.⁵

In general, those aspects of librarianship based on values appear to have changed little since the 1880s, at least in mainstream librarianship in the United States. There are variations—e.g., the relative emphasis on outreach appears to have varied from time to time.

Consideration of selection and censorship (both book burning and book burying) helps clarify the issues. The specific titles that a librarian is willing or allowed to include clearly change with time. Where the line is drawn between acceptable and unacceptable—to librarian or to community—will vary with respect to individual titles and categories of material as society's standards and social, political, and religious values change. Yet there will always be a line drawn somewhere and the

arguments made concerning where the line should be appear to vary little over time. In other words, a good discussion of selection and censorship of the 1880s is likely also to be a good and valid discussion in the 1980s and very likely in the 2080s also—even though the specific titles and examples can be expected to change.

This is not to imply that library-related values are universal or unchanging. They are not. What would be acceptable in San Francisco today may not be acceptable in Tehran or Peking. What is acceptable in Massachusetts now might not have been acceptable in colonial times—and vice versa. Although there can be change over time in a given place, such change should be seen as based in *cultural forces* rather than *time*.

Library Technology

Library technology as used here means technology available for use in library services. Further, technology is concerned with the handling of physical things: paper, cardboard, microforms, magnetic, optical, or other recording media.

Technology is of particular significance to library services because libraries are concerned with *recorded* knowledge. Librarians and library users are concerned with ideas and assertions represented in texts and images, but can only do so through text-bearing and image-bearing objects, such as books made of paper, sound recordings made on magnetic tape, pictures on celluloid, numbers on cathode ray screens, and so on. These are the principal text-bearing objects.

Carbon paper, microfilm, and typewriter were available by 1886. In 1876 the university librarian of the University of California proposed using typewritten cards for the catalog. He wrote that "it has been suggested...that the use of the 'typewriter' be made in making the catalogue—if this be practicable, it is needless to recommend it, and to say that no time will be lost on my part in gaining the knowledge and power to handle the instrument."⁶ Twenty-six years later the typewriter was used for catalog card production. Twenty years later typing proficiency was a requirement for admission to the Berkeley School of Librarianship. Forty years later the typing proficiency requirement had lapsed. Twenty years after that a computer literacy requirement was imposed.

The telephone, teletype, punched cards, copying machines, and electronic computers have added to the options available. Currently there is interest in optical digital discs to record texts and in radio to transmit them.

While it cannot be known what technology will be available in the year 2086 the trend is clear: additional media for bearing text; more

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powerful technologies for handling text; and, unlike value-related aspects of librarianship, a clear line of progress with time. In this case we can be very confident that the *technological* tools available to librarianship will be much improved by 2086.

Library Science

There is, however, a third category of aspects of librarianship that is distinguishable from library values and library technology. This third category has to do with our *understanding* of librarianship. It is labeled here "library science," and it is used in a narrower, stricter sense than is customary in, for example, the use of the terms School of Library Science or Master of Library Science to designate the entire field.

This approach would, in general, exclude library automation as being more properly included in library technology but it would include the following:

1. Information retrieval theory, including the broad areas of the description and representation of the contents of pieces of recorded knowledge: indexing, cataloging, classification.
2. Information gathering behavior: user studies, bibliometrics, social epistemology, and studies of knowledge utilization.
3. Historical studies of books and of communication.
4. Analysis and description of bibliographical control in general.
5. The understanding of the nature and workings of libraries and related information services.⁷

Of these aspects of librarianship it can be said that there has been some progress in the past century but not very much. Because the central issues—i.e., information retrieval theory and information gathering behavior—are, or should be, rooted in truly obscure aspects of human behavior, progress will be slow and difficult and scholarly explanation will tend to lag behind the intuitive understanding of those intimately involved in the activities. Like library technology, there has been progress over the past century and we can expect progress in the next century. Unlike library technology we cannot claim that there has been much progress or that there is likely to be much. Much of the progress of the last century in these areas has been the refinement of earlier progress (e.g., cataloging principles) or concerned with relatively superficial symptoms of deeper phenomena (e.g., bibliometrics and citation analysis).

Assistance may come from related disciplines such as cognitive psychology and artificial intelligence. Librarians have voiced hopes for the interdisciplinary insights available from sociology, psychology,

philosophy, and linguistics, but, over the past century, the contributions of these disciplines to the understanding of librarianship have been modest and more relevant to context and background than to central concerns. One might wish that the intellectual history of librarianship and of library schools—the effects of different disciplines and strands of thought—had had some of the attention devoted to the institutional history of libraries and library schools.

A critical assumption here is that the contribution of artificial intelligence will be modest and/or concentrated on the simpler problems of library service. What follows would be different if one were to assume that artificial intelligence will have a massive effect or that it would solve the more intractable problems in indexing, interpreting, and explaining.

The Extent of Librarianship

In recent years there has been a broadening of the scope and extent of librarianship. The contexts of “library and information studies” are potentially very extensive: libraries of many kinds, obviously, but also online retrieval services; archives; databases; records management; and documentation of many kinds in engineering, litigation, and bureaucracies. Whether or not the activity is labeled librarianship is hardly relevant. Library service should, I believe, be viewed as one member of a family of retrieval-based information services and library schools could and probably will become, by merger or by expansion, colleges of broader scope—with the Master of Library Science (MLS) degree an important specialty within a range of programs. There is currently some movement in that direction, largely fueled by practical considerations of enrollment and placement.

There are plausible theoretical agreements why this trend could be expected with the gradual maturing of the academic side of librarianship and the evolution of schools of librarianship as academic departments. Although library schools are ordinarily viewed in relation to libraries, they need also to be viewed in their own right—as academic departments in an academic setting.⁸

A more conceptual, academic perspective is possible. For example, one can take the view that information science has to do with representations of knowledge both in the abstract sense (“texts”) and physical manifestations of these representations (“text-bearing objects”). Within that broad area, a plausible conceptual definition—as contrasted with an institutional definition—of the scope of library schools as they

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mature would be that they specialize in the analysis, description, storage, arrangement, retrieval, and use of representations of representations of knowledge. The arrangement, description, and retrieval imply representations of the texts of the representations of knowledge. The library card catalog, composed of brief descriptions of books and journals, is a familiar example of the representation of representations of knowledge.⁹

Information retrieval may be regarded as central because it includes principles of indexing, cataloging, classification, content analysis and description, techniques of storage, strategies for retrieval, and similar sorts of activity. Yet retrieval, though central, cannot be the only concern. In order to see retrieval in context, information studies in the broader sense need to be examined. Such studies concern representations of knowledge, knowledge itself, and, indeed, people and their needs insofar as their needs are related—through knowledge and representations of knowledge—to retrieval.

Pragmatic and theoretical views that argue for more broadly based schools are reinforced by considerations both of economies of scope and economies of scale. Hence the forecast is that the presently prevailing pattern of a "library school" with the primary or sole mission of awarding a "library degree" will soon survive only in isolated cases of arrested development.

Curriculum

Any given curricular content can be packaged many different ways, and any particular forecast of the future curriculum is as likely to be criticized for the way it is packaged as well as for its content. The content of the MLS and successor programs is likely to resemble current programs in broad outline. If the mission of library services is to bring information to people, then that mission itself would be unaffected by changes in media used to bring information and people together. Therefore, the curriculum of the future can reasonably be expected to continue to contain a few large basic overlapping elements:

1. the role of information in society and of library services;
2. the needs, information-gathering behavior and institutional contexts of groups to be served—e.g., students, researchers, children, the aged, and so on;
3. the theory and practice of information retrieval—cataloging, classification, indexing, bibliography, etc.; and

4. the managerial, political, and technological means most likely to be useful in developing and providing good library service.

The least amount of change can be expected in those parts of the curriculum that deal with library values. This is not that they could not change, but rather that, in the United States, there is no obvious reason to expect the major cultural and political changes that would move us from the Western liberal tradition of library services. Librarians may well seek to resist such changes.

Librarians can hope for, expect, and actively seek to effect changes in their understanding of the provision and use of library service in library science as narrowly defined in this paper. It is not clear that substantial progress should be forecast, however. Forecasters confidently can predict dramatic changes in information technology, changes that will offer capabilities that currently are unavailable.

The prospect of having catalogs, bibliographies, and texts all online already is beginning to overcome some of the major barriers to good library service imposed by the constraints inherent in the technology of cardboard and the technology of paper. One such barrier is the historic separation between catalogs and bibliographies;¹⁰ another is the physical separation of the catalog from the text; a third is the need for the user to travel to the library or for a "hard copy" to be transported to the user in order for the human eye to see the text. Information technology is beginning to remove these three familiar physical impediments to good service. Currently, there is a fundamental move from providing library services in libraries to providing library services to wherever people happen to be. Online catalogs, online reference, and telephone service from reference desks are steps in that direction.

The schools are likely to be preoccupied with the excitement of changing technology, at least for the next few decades. Yet, paradoxically, if this change is so great, it may in some sense be rather trivial. If *storage* problems diminish, problems of *access* become dominant. Yet what information technology contributes best is physical storage and physical access. These are, however, but two aspects of bringing information and people together. There remain the problems of deciding what should be retrieved, of language barriers, of comprehension, and of the politics of access to information. The control of access to any resource is properly viewed as a political matter.

The physical fact that a record has been stored in some place does not mean that you know it exists, that you could find it if you wanted it, that you could understand what it signified, that you should believe it, that it is not contradicted by some other record, or that just those who

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should have access to it do have access to it. Therefore, paradoxically, we may expect that the liberating power of the new information technologies will (and should) induce renewed attention to these traditional, nontechnological concerns of librarianship—so long as librarianship is a service profession, concerned with ideas as well as records.¹¹

Education for librarianship in the next century will depend on how librarianship evolves: the excitement of library technology provides a line of rapid change; one may hope for library science—the understanding of library service—to change too; one may hope for library values to change but little. Frederick Kilgour described the purpose of libraries as being “to actively participate in the evolution and production of those profoundly human creations: beauty, faith, justice, and knowledge.”¹² Education for librarianship in the next century will depend on what librarians make of library services in the nearer future.

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