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TRENDS

Education for Library and
Information Management Careers
in Corporate Environments

Linda L. Hill
Issue Editor

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CONTENTS

Introduction

LINDA L. HILL

IT IS A PLEASURE to bring you this issue of *Library Trends* focused on the educational foundations for library and information management careers in corporate environments. Professions operate in an environment in which one competes with another, as was convincingly presented by Andrew Abbott (1988) in his book entitled *The System of Professions: An Essay on the Division of Expert Labor.* Abbott demonstrates that there are multiple professional claims for jurisdiction over problem and service areas and more than one view exists on how to diagnose the problems and prescribe the cures. His explication is relevant to the topic of this issue, therefore a summary of some of his points is useful to an understanding of the discussions included here.

According to Abbott there are three elements of professional practice: diagnosis, inference, and treatment. To assert expertise, a profession claims to hold the keys to the identification of the real problem, to have the knowledge to analyze the risks and the benefits of treatments, and to develop treatment systems and prescribe appropriate treatments. But, in a competitive environment, there are vulnerabilities for any profession in each of these areas. Even the definition of the work of the profession can be challenged by other professions with definitions that place the work within their own domains.

Beyond this basic framework of the competitive environment in which professions exist, Abbott provides many insights into the way that this competition works. The following five points from his work are particularly relevant here:

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1. A profession that is doing mostly routine work is vulnerable to incursions; procedures and processes that are routine are obvious targets for deprofessionalization. Claims that routine work must be done by professionals so that unusual cases will not be missed are used by some professions to retain their jurisdictions. Claims that nearly all of the cases are nonroutine "does not persuade external critics" (p. 51).

2. The public's view of a profession develops over a period of a decade or more and does not change suddenly no matter what changes the profession itself makes in terms of the character of the work, the educational foundation, etc. The public seems to remember professionals in the image it first saw them and that image is fairly stable (p. 61).

3. Librarianship had a clear objective in the beginning: to organize collections of printed materials in libraries. By virtue of this place-bound definition of its jurisdiction, librarianship faced little competition from other professions. But the place limitation has disappeared with the advent of electronic media, telecommunications, and networking. Now computer specialists and others are claiming a treatment substitution; they accept the diagnosis but claim to be able to prescribe the treatment more effectively and more efficiently (from the case study on librarianship, pp. 217-24).

4. A profession is increasingly vulnerable to loss of jurisdiction from competition if its results cannot be clearly measured, if its treatments are general and not specific, if the human characteristics of its clients are not adequately considered in the treatments prescribed, and if its treatments do not ameliorate the problem (pp. 46-48).

5. If the academic knowledge system fails in creating new treatments, diagnoses, and inferences for working professionals, professional jurisdictions are gradually weakened (p. 57).

Obviously, these points apply to library/information management in corporate environments. Too often professionals are perceived to be doing routine work; the public image of librarianship does not match the skills and knowledge that today's professionals have, therefore creating the need to constantly promote a new image. Too often the treatments prescribed are general rather than specific and there is little evidence that these treatments are effective. Academic institutions are perceived to be weak in conducting research that increases understanding of information management problems and the effectiveness of various treatments.

To label corporate library/information management as special librarianship is to belie the great turmoil and new paradigms that are emerging as information managers with different skills seek to solve the information management problems formerly secure within the realm of librarianship. It is not clear, at this point in time, what jurisdictions librarianship will continue to claim as its own. With changing professional jurisdiction and new market opportunities, it is not certain what the nature of the new profession will be and what skills and knowledge should be taught in preparation for that career. As the contributors to this issue indicate, the profession of librarianship is re-examining the educational programs established to prepare professionals for the challenges of an expanded profession in this competitive environment.

Richard Willner, a corporate library manager, provides the lead article. He makes a strong case for a substantial adjustment in our understanding of the current requirements for the profession and for the formal education that supports it. He discusses the challenging financial strategies of organizations as they balance investment in technology with favorable impacts on the business results; the complexity of the information industry; and the absolute need for library professionals who can have a greater impact on information management decisions based on their professional knowledge and their management and communication skills. Library professionals, he says, who "[manage] client expectations with reference to the strengths and weaknesses of sources and delivery systems as well as their associated costs" require a "combination of source knowledge, system skill, analytical ability, communications skill, business interest, and drive." The educational foundation, he argues, should be theoretical—not job training—and should concentrate on the core of knowledge required by all in the profession. The educational experience should be intellectually challenging and provide excellent people the "array of strong skills" which will enable them to have mobility and advancement in the field—without that, the talent we need will not be attracted to librarianship nor will it be retained.

The succeeding two articles address the marketplace for special librarians. The first, by James Tchobanoff and Jack Price, expresses the view of corporate library managers in technical industries in contrast to the financial industry represented by Richard Willner. Tchobanoff and Price look at situations where the library operation is small in terms of the number of staff and isolated in terms of corporate support for staff recruitment and development. As employers, they specify six "levels" used to "evaluate potential candidates" for positions and four areas in which they expect the master's level programs to prepare the new graduates. They are looking for generalists who can learn the "local practices." They contend that special libraries are "distinctly different from public, school, or university libraries," and list the reasons why. Finally, they recommend that industrial librarians take on some responsibility for producing library school graduates that meet employer needs through engaging in two-way dialogues, sponsoring internships, becoming adjunct professors, and otherwise participating in the educational process.

Blaise Cronin, Michael Stiffler, and Dorothy Day report on a study they conducted on the "emergent market for information pro-fessionals." They analyzed job advertisements (both local and national), interviewed graduates of the University of Indiana's School of Library and Information Science who are working in nontraditional

positions in the state of Indiana, and conducted a mail survey of alumni to get a picture of the qualifications needed in the U.S. information sector beyond traditional librarianship. Their "generalizations," based on the information they gathered, support our worst fears: for example, the M.L.S. degree is "perceived by many practitioners to be out of sync with the demands of the emergent market" and library and information science (LIS) schools "will need to revise not only their curricula, but also their culture if they are to become successful players in this market"—the market "outside the traditional library setting." The details of the responses provide insight into the sobering challenges for LIS education. Their study supports the need for "both subject expertise and business savvy" in those who would work in information management positions beyond the large institutional library settings.

Michael Koenig brings another point of view to the discussion by pointing out the importance of computer technology to current and future information management; the relationship of librarianship to not only business but also to publishing, journalism, and other information media; and the increasingly international orientation of information transfer. Using the example of the demise of Columbia University's School of Library Science on the one hand and the movements toward combined programs in some universities, he calls into question the "stand-alone" school of library and information science. His view of the "core" for library/information science education expands to include the design and creation of information systems to handle internal data as well as externally created information. The extent of the changes needed amount to a "polarity reversal" from a service orientation to a more entrepreneurial approach.

The next article by William Fisher and James M. Matarazzo emphasizes the importance of continuing education as a necessary component of professional life—a point also made by other contributing authors. Given the brevity of the master's level library/ information science degree, the complexity of the professional domain, and the explosive nature of the technological and international changes taking place, continuing education is without doubt necessary. This article also addresses the role of the Special Libraries Association (SLA) in providing continuing education programs and in providing guidance to formal library/information science education. The SLA *Position Statement on Graduate Education* is included as an appendix to this article.

Judy Macfarlane and Miriam Tees provide a Canadian perspective to the discussion by reviewing the approaches of accredited schools of librarianship in Canada to the preparation of students for careers

in special librarianship. For the six Canadian schools with courses in special librarianship, a table indicates the topics covered in the courses. A further discussion is also provided of the SLA's involvement with formal and continuing education, including its comments on the recent revision of the American Library Association's accreditation standards for master's programs as well as other educational initiatives. Emphasizing the need for continuing professional development, Macfarlane and Tees contend that "effective continuous education should be the norm rather than the exception" in order "to create a culture that accepts change as the norm...[and one] able to move quickly to meet the challenges of the 1990s and beyond."

Two contributing authors discuss educational models in very specific areas of librarianship where partnerships exist that link the subject area with information management in the educational process. Penny Hazelton's explanation of the educational preparation for law librarianship shows how things have changed in this field since the early twentieth century and how educational standards have developed to attempt to guide provision of the increasing knowledge and competencies needed to be successful in today's increasingly complex legal environment. Hazelton points out the necessity of marketing, use of retrieval and document delivery technologies and services, and library networking in for-profit law settings. Indeed, law librarians in academia also cannot escape the need to apply these techniques and must increasingly look for sources of revenue to support their services. The current educational model for law librarianship, Hazelton says, is probably not good enough to prepare new graduates for these challenges. Her explanation of the pace of the changes in law practice and the growing interdisciplinary and international nature of legal research makes it clear how difficult it is now to be a competent law librarian. It is difficult to attract and keep high quality law librarians when salary levels are still too low, career development is limited, and prestige lags behind other career paths in law. This focus on the practice of law librarianship and preparation for this career illustrates problems found in all areas of special librarianship. The *American Association of Law Libraries Guidelines for Graduate Programs in Law Librarianship* is included as an appendix to this article.

Ellen Detlefsen provides a tour of medical librarianship and its educational base and clearly demonstrates the extreme challenges to the very nature of the profession from increasing involvement in medical information management by the medical professions themselves. In the face of increased demands on medical information management knowledge and skills, the LIS schools are thinly staffed to provide the specialized courses needed. Cooperative developments

with other academic medical programs show promise but are only available in a few universities. But, the medical world provides some of the most inspiring examples of information professionals who are full members of hospital and clinical teams working together in patient care. And some very interesting and important doctoral research in medical subject areas is being performed in LIS schools. Detlefsen states that professional linkages to other health professionals and programs must be part of successful change in LIS education for careers in the health sciences.

Distilling the recommendations of the authors in these eight papers down to a few main points about the educational foundation for library and information management careers risks diverting attention from the richness of their thoughts. Nevertheless, some main themes are apparent. There is a recognition that our current formal educational programs must change quickly and substantially to meet the challenges of the future of information management in corporate environments. Change must include more movement toward interdisciplinary programs with other professional schools; an education based on core knowledge areas to prepare students for career mobility within library/information management positions; an educational core that includes information technologies, intellectual technologies[1] (Taylor, 1986); a focus on understanding and meeting customer (user) information needs, the economics of information, and management techniques; a market-driven and customer-centered approach to educational planning; and a high priority given to continuous education to renew knowledge and skills.

In 1985, Herb White and Marion Paris speculated that "it is possible that no single overall strategy can be devised (for educational preparation for the library field as a whole) and that it will be necessary to fragment our profession into a series of subprofessions, at least into a series of educational specializations" (p. 31). They thought that this would be unfortunate but perhaps necessary. Unless LIS schools can discover, teach, and advance the core knowledge areas needed by the growing market area of corporate information management, the fragmentation of the profession will be assured.

I thank the authors for their work in putting together their articles for this issue. A special acknowledgment needs to be given for the contribution of the nonacademic authors for whom the award system rarely gives credit for professional publication. I also wish to thank F. W. Lancaster for inviting me to edit this issue and the staff of *Library Trends* at the University of Illinois for their support. I would also like to acknowledge Karen Holloway, my colleague at the NASA Scientific and Technical Information Program Office, for her review of this introduction.

NOTE

[1] Robert Taylor's category of Intellectual Technologies, one of his six foci for the education of information professionals, is an appropriate label for the heart of library science. It encompasses the methods used to organize information for storage, retrieval, and for communication in textual form, graphic structure, and visual image, including database design, indexing structure, and classification systems. His other five areas are Information Use Environments (understanding user needs); Availability of Data, Information, and Knowledge (understanding the generation and transfer of information); Information Systems and Analysis; Information Technologies; and the Economics of Information Provision and Use.

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Education for Library and Information Management Careers in Business and Financial Services

RICHARD A. WILLNER

ABSTRACT

DURING THE 1980s, information technology proliferated in corporations. While the technology permitted information professionals to add much more value, it also greatly increased information expense. Rising expense made financial management the fundamental library management competency, while intensifying top management pressure on the library more generally. Unfortunately, librarians continue to lack serious interest in the financial management implications of information technology. The education tends to reinforce this because it is defined by a series of obsolete dualisms—theoretical versus practical, core versus types of libraries, active versus passive learning. Acceptance of theory—plus a rigorous active approach to the core—will help release the education's potential for both corporate libraries and the businesses they serve.

INTRODUCTION

Corporate library management is in crisis. Top jobs turn over frequently. Sometimes new library managers are general administrators with financial backgrounds and are not librarians. Relatively few librarians aspire to top jobs. Other warning signs are easy to miss. For example, the profession accepts the small size of most corporate libraries as a function of subject specialization. At the same time, many librarians envy other managers whose functional areas grow as they progress beyond their original position parameters.

Corporate library management is in crisis because too many library directors lack substance. How has this happened? This article will begin by answering this question. To do so, it develops a historical perspective on the current management environment in corporate libraries. This will receive considerable emphasis because relatively few professionals are aware of the profound nature of the changes that have occurred in late twentieth-century business libraries. Next, the article will discuss library science education and assess its strengths and weaknesses from the perspective of contemporary corporate library management. Since people become managers by doing management jobs, staff development issues will be pervasive.

THE RISE OF FINANCIAL MANAGEMENT

Between 1980 and 1990, corporate libraries changed dramatically. This change is the key to understanding the library management crisis and warrants a comparison of corporate libraries then and now. In 1980, corporate library management focused on human resources and library operations. Library managers hired quality staff and organized their work. Most library staff were reference librarians who found information for clients on demand. Expert reference work was the library's primary client service and this service was the hallmark of special libraries. Resource development activities were relatively less important because clients lacked time to use collections and adequate collection space was often scarce. Many first rate service-oriented corporate libraries had no catalog because the associated effort was deemed inappropriate to collection size. Libraries generally lacked advanced technology. However, telephones, wire machines, typewriters, copiers, and microfilm readers had been introduced over the years. But the large mainframe and minicomputer applications typical of the period were absent from all but the largest libraries serving major scientific research organizations with an exceptional level of systems orientation. Online databases were still relatively new. Few in number, they were perceived as supplemental sources to be searched at simple terminals by only the most highly experienced staff. Terminals were frequently located in dedicated rooms and sometimes behind locked doors. Overall, corporate library costs were low. When viewed as a percentage of corporate revenue, they were actually insignificant. This meant that financial management was not an important component of library management. The biggest expense in almost every library was for reference staff. Resource expense was usually quite small. Quite naturally, top librarians came from the reference ranks. And, while they prepared annual budgets, managers knew that if reference service was good and users were happy the budget would be approved.

By 1990, financial management had become a basic library management competency. Most employees were still highly proficient

reference librarians who found information on demand for clients. However, it was common for them to disperse hundreds of thousands of dollars annually in the normal course of making professional judgments. Resource management activities were highly automated and the more talented technical services people could independently develop and deliver information products directly to clients. Top corporate libraries had as many microcomputers as people. Overall, corporate library costs had increased substantially. Sometimes they were 1 percent to 2 percent of the sponsoring business units' revenue. This figure was astonishing given that MIS expense was usually 6 percent to 7 percent of revenue in information intensive industries (Erbschloe, 1992, p. 3). The library budget looked quite different, too. The salary line, to be sure, was bigger. Not only had the head count increased, but base salaries had grown at a rate greater than that of inflation—perhaps for the first time in the history of the profession. On the other hand, resource expense was now two to three times greater than salary expense. Resource managers with good analytical and systems skills now had strong backgrounds for top jobs. And although good reference service and satisfied customers were still the heart of the library, they would not make budget approval a foregone conclusion.

The more costly 1990 corporate library and the closely related importance of managing it financially were caused by the proliferation of information technology in corporations. Sometime after 1982, electronic databases, microcomputers, LANs, and third party applications unleashed unprecedented growth in corporate library expense. The new technology also tended to establish direct links among information use, resource expense, and associated staff time and skill level. This had a dramatic impact on corporate libraries and library management.

First, library staff work became measurable in an entirely new way because knowledgeable people could produce better results in less time at less cost than those with poor skills. Second, it became possible to quantify and evaluate source usage on a large scale easily and in a meaningful way. Previously, counting inspections of library resources to develop cost per use data were so burdensome that they were simply never deemed worth the effort. From a management perspective, that which is measurable is, by extension, controllable.

Increased library cost, plus improved ability to quantify time and expense, meant that library directors could reasonably be expected to analyze their operations fiscally and report their findings to management periodically; this process would become the substance of library management. Initially, most library directors did not recognize this fundamental development or appreciate its implications

for library management. Granted, managers focused on costs at the project level—cost per online search, for instance. However, few of them extrapolated library fiscal analyses demonstrating business impact from these incidentals. After all, the new technology permitted talented library staff to add much more value to research and, by extension, their companies. Some traditional functions, like literature searching, were so transformed as to be completely unrecognizable in terms of both speed and comprehensiveness. In some cases, there was demonstrable productivity improvement not only in the library but also in user areas as well. The application of Compustat to ratio analysis of companies, for example, permitted a skilled information intermediary to do in a morning what had previously taken teams of business analysts many days.

However, this type of productivity improvement—whether observable in the library staff or user ranks—almost never meant head count reduction because talented people used the new technically driven capabilities to expand their job functions by doing things which had never been done before, and management, most often, did not question this. Here, marketing also played an important role. Virtually all of the new technology was promoted—by both vendors and corporate information managers—on the basis that it would make companies more competitive and hence more successful. So long as business was good, management accepted this with relatively little proof and in many cases actively encouraged both the diffusion of information technology and the growth of many kinds of value added information services, including libraries. They also accepted sharply increased costs as the price of obtaining the "competitive edge."

When business staggered in the late 1980s, this rationale was severely challenged. After all, some companies with very advanced technological infrastructures actually closed. Some companies with relatively weak technical platforms built upon older types of strengths—strong, high level client relationship management, for example—flourished. Clearly, there was no necessary link between technology spending and profitability. Top management did not abandon technology. Rather, they demanded that all information managers—including librarians—conceptualize and implement "next steps." This involved scrutiny of all information-related costs and substantial fiscal analysis. Financial management was now a management expectation of library directors.

THE MATURATION OF THE INFORMATION INDUSTRY

The rise of financial management in corporate libraries coincided with the rise and maturation of the new electronic information

industry, a phenomenon which ultimately increased the importance of library fiscal management still further. To understand how this occurred, it is necessary to trace key industry developments which happened with amazing speed over a period of only ten years between 1978 and 1987. The electronic information industry is, of course, large, and different observers size and segment it quite differently. For the purposes of this discussion, the most useful segmentation is represented by Figure 1 (Arnold, personal communication, March 1990).

Total = $9.7B Market Value

Real Time Financial Data—$4.9B
Big Players—Reuters; Dow Jones; Quotron
Participation is concentrated.
Players own content and distribution capability.

Historic Financial and Market Data—$3.5B
Big Players—D&B; S&P; Donnelley
Participation is less concentrated.
Some players do not own content.

Text and Reference Products—$1.3B
Big Players—MDC; Dialog
Participation is very diffuse.
Content is owned by thousands of small players.

Figure 1. Segmentation of the electronic information industry

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A striking feature of the figure is the correspondence among the diffuse ownership of content, its specificity, and its intended market. Put another way, the information industry is a source business. Relatively few sources have really large markets with high ability to pay.

   This electronic information industry structure is fundamentally very old, being derived from that of traditional reference publishing with which it shares profound social assumptions upon which an elaborate legal framework has been built. During the 1970s and early 1980s, the electronic information industry essentially put reference publishing in a solutions business by making reference data manipulable. New companies—value added resellers—grew rapidly, introducing literally thousands of products and defining market niches based upon software functionality, content, coverage, and complex pricing. However, this rapid growth was driven by the relatively few big-ticket products with large deep-pocket markets. This growth obscured the older market characteristics of sources to a significant degree.

By about 1986 (and again it is difficult to say precisely when), the electronic information industry had no more significant content to introduce, and content specificity became a structural business problem. Initially, of course, industry participants reacted by attempting to move beyond their historic niches. For example, vendors with precision software and abstract and index data loaded full text. Full-text vendors talked about improved indexing and added abstract and index files. At the same time, technical change permitted even small owners of specific content to distribute their own electronic value-added products via CD-ROM. One result was that the same data were suddenly available in numerous presentations which produced quite different results and which the vendors believed would penetrate new market segments.

Another development, which was not immediately apparent to them in those days, was the potential for price competition. With the recession, businesses began to deploy products tactically based upon price and functionality. Price competition became so intense that anyone of reasonable business maturity would fear for the viability of at least some vendors.

The maturation of the electronic information industry was now complete. Some signs of this—price competition and the small number of really new products—are obvious to anyone who attends trade shows or purchases products. However, others are not so aware of this maturation process. For example, some significant value-added resellers have been for sale for several years. And, after a ten-year focus on solutions, traditional scientific and technical textbook publishing may well be the most profitable and least risky part of the information business. For the industry, the lesson is the limits of the profit potential of technological innovation. Without significant new content, the old growth will be elusive.

For corporate libraries, the issue is a set of expectations based upon that rapid growth. Corporate library directors now spend significant time analyzing research activity, content, and arcane competing pricing schemes to achieve stable costs. They regularly change both their operations and suppliers in the process. They cost justify new services carefully. As for the companies as a whole, some major users of information products canceled 1992 advanced hardware purchases despite improved 1991 business results. Additional hardware systems are hard to come by without demonstrable cost savings.

Library Management Becomes Information Management

Increased library costs, the rise of financial management in libraries, and fierce industry competition gave human resources and

operations management—the old staples of library management—new significance because these functions, if managed properly, could reduce resource expense sufficiently to have favorable impact on business results. However, actually achieving this kind of impact required that library management integrate fiscal, staffing, operations, and systems management functions to an unprecedented degree. This required exceptional analytical and communications ability.

Suppose, for example, that a company needed to reduce its very substantial subscriptions expense in the current fiscal year to maintain profitability in the face of declining revenue. Suppose, too, that a protean top management recognized the need to sustain expense for materials critical to the day's work. To serve the company well, the library would require staff with the analytical skills to assess the structure of firm-wide subscriptions data at the employee and business unit levels. A closely related success factor would be the ability to evaluate a suitable database management system and use it to develop and implement an application that would support analysis of real dollar cost reduction opportunities. Given the complexity of vendors, publications, and business terms implied by this problem, these analyses would be challenging ones. Furthermore, the findings would likely have significant publisher contract ramifications. To act on these, the library would need sophisticated publishing industry knowledge; strong high-level industry relationships; and solid negotiating skills. From an internal operations perspective, the new system could reasonably be expected to change workflow not only in the library but also in the accounting area and front line business units as well. This would imply the use of highly developed communication skills to secure other managers' confidence and cooperation. All of this would have to be done very quickly at the lowest possible cost while maintaining existing services. Throughout, the library would have to demonstrate the intellectual agility to develop new solutions to the familiar problem of serials management and the willingness to restructure itself and its staff to meet new business conditions, no matter how difficult that might be.

At this point, it is important to understand that corporate libraries were not the sole, or even the principal, areas to confront challenges of this type. There is much evidence to support this. Whole data centers were outsourced or sold. Others were downsized or decentralized. Systems support staff were cut back. Marketing, strategic planning, corporate communications, public affairs, legal, and other functional areas which used value-added information products not typically found in libraries sharply curtailed their information spending and still suffered subsequent staff reduction and even elimination. Thousands of professionals—many of whom

had built their careers, at least in part, around specialized information systems—lost their jobs.

EDUCATION AND PROFESSIONAL PRACTICE

It is a fair statement that overall corporate library management did not respond well to the challenges of the early 1990s. The clearest indication of this was, and continues to be, the profession's sense that top management's cost concerns are somehow unreasonable and directed at the library. Closely related is a preoccupation with information retrieval issues and relative lack of serious interest in the fiscal implications of information transfer and use. Fear of end-users, reservations about new distributed databases, and the anxieties about acceptance (which lie beneath the surface of the emphasis on image that has pervaded the Special Libraries Association for years now) are additional symptoms of deeper staff and management development problems. This situation is caused by a lack of substance in three broad areas—professional knowledge, analytical ability, and leadership. This has significant implications for not only education and subsequent professional development but also for corporate library management and the libraries themselves.

Professional knowledge required to manage a large corporate library has four basic components: (1) information retrieval and reference work, (2) library automation and technical services, (3) information science, and (4) information management. Information retrieval and reference work necessarily includes detailed knowledge of at least one body of sources but also involves a much broader understanding of how published information is created, priced, and incorporated into business research. Library automation and technical services imply not only the ability to create bibliographic data but to evaluate alternative development systems tools and construct successful project work plans. Information science suggests awareness of, and the ability to evaluate advances in, the application of technology to manipulating text. Information management implies knowledge of how to integrate human resources, operations, systems, and financial management processes to produce a quality cost-effective service. Overall, this is a potent body of knowledge. However, it is seriously undermined by the lack of attention to cost accounting and statistics. The relatively weak quantitative skills of most library students intensifies this problem. Another serious problem is the attempt to produce task-oriented people ready to do the first job in a specific setting. The fluidity of the settings themselves renders this tactic futile. Fluid situations clearly require individuals with the ability to use a core of professional knowledge—plus a strong sense of research approaches and methods—to solve basic problems and expand their knowledge base while doing so.

Analytical ability in corporate libraries is precisely the application of fundamental learning to solve what is essentially a single macro-level problem—managing client expectations with reference to the strengths and weaknesses of sources and delivery systems as well as their associated costs. This intellectual activity is the basic requirement of every library job. Naturally, the library staff's response to this problem can be more or less intricate depending upon the client's incidental requirement. Paraprofessional staff are required to solve defined problems by exercising judgment within sets of procedural guidelines. New professional staff are expected to resolve more complex problems by exercising judgment within a core of professional knowledge, supplemented by fewer simpler procedures and training. Staff with more experience are expected to develop complex work plans, estimate costs, and alert users to faulty approaches thus saving them time and money. These basic project management skills are the foundation of unit management. Consequently, at the supervisory level, good analytics permit professionals to integrate these project management skills with professional knowledge in order to judge which procedures, people, staff training, and project management systems create consistent quality services that can be delivered at an acceptable price.

Top jobs require financial judgments based upon integrated analyses of all library functions, which necessarily incorporate top management concerns, company objectives, and industry issues. The impact of potential misjudgments can be measured at every level. Given the increased costs of corporate libraries, the costs associated with misjudgments are substantial. Misjudgments at the top can result in one-time nonrecoverable errors costing literally hundreds of thousands of dollars. However, entry-level and paraprofessional staff misjudgments can have not only substantial cumulative impact but also surprisingly high costs on an individual basis. Annual cumulative error in the $150,000 to $300,000 range is not inconceivable given high work volumes. Individual and incidental misjudgments costing as much as $15,000 can occur, too. In addition to cost, misjudgments can have extremely serious ethical implications and legal con-sequences, particularly in regulated industries. The same technology which increases resource expense and the ability to add value, also greatly accelerates the pace at which we work. This means that individuals are making judgments related to simultaneous requests in a real time, round-the-clock work environment. Added to this is pressure associated with client chargeback. In many settings, library time and expense is charged directly to clients. Clients, quite naturally

and correctly, expect not only accurate results but fair charges. Under these circumstances, library staff judgments are exposed in a way similar to those of professionals with direct client contact.

Relatively few library people are prepared to function this way. Many who try fail. Perhaps this situation is not surprising. Overall, the profession questions its impact—comparing its knowledge base and client influence unfavorably with accountancy, law, or medicine. Throughout this discussion runs a tacit desire for greater impact. Significant professional impact can only come from professional judgments which are recognized as significant. Unfortunately, library directors do relatively little to articulate the level of analytical ability and business outlook their staff require to make the kinds of judgments implicit in corporate library jobs. This is a very curious failing in a profession populated by individuals of above average native intelligence with a knowledge base that equips them to penetrate almost any problem.

We have seen that, from the perspective of analytical ability and judgment, the challenges confronting corporate library staff are different in magnitude from those faced by directors but that substantively are the same. In this context, those library directors who do choose to exercise leadership do so by strengthening staff awareness that they are on a career continuum which leads to a top job. They start by recruiting "A" players who want to excel. Subsequently, they support staff throughout this continuum with trenchant appraisals that isolate meaningful developmental needs; education and training; career counseling; plus raises and bonuses that recognize those who develop rapidly better than those who do excellent work but are content with the status quo. They also survey jobs periodically, seeking opportunities to introduce diverse job tasks and identify cross-training opportunities, thus giving staff a broader perspective on library operations. This staff development activity is the fundamental human resource process of the library.

Most library directors simply do not do this. The result is that it takes far too long to develop a small number of outstanding library managers. This is a very serious problem for the growth of the profession. Companies are always seeking managers with the analytical skills and knowledge base our education implies. To be sure, the assignment they contemplate may involve running what appears to be a small electronically oriented information utility of some kind which may not be called a "library." Nevertheless, the fact that these units are usually positioned within revenue generating areas of companies with complex secondary research requirements means high potential to add value, large expenditures, and exceptional compensation. Anyone who has received a call from an executive

seeking to create a function like this—and these calls are frequent—knows that the viable candidates are too few. Most library professionals lack the required combination of source knowledge, system skill, analytical ability, communications skill, business interest, and drive. The pool of strong candidates is even smaller if the assignment is to take over an established library. This usually occurs in a troubled company that requires its library to be reworked to suit new business circumstances. And, of course, there are many troubled companies today. Assignments like this require not only exceptional analytics but also a willingness to make difficult decisions and take risks.

The usual explanations for this failure of leadership are many and raise sensitive social issues with deep roots in the history of the library profession which greatly influence the present. However, there is also an important explanation in the context of business itself. Put bluntly, the career continuum described earlier used to be optional in most large companies—it is not any more. As late as 1980, most large U.S. companies still offered lifetime employment, which top management viewed as a social responsibility. For the forty years after World War II, corporate employees enjoyed annual raises just above the inflation rate, strong benefits packages, and good job security. The "fast track" usually meant "paying your dues" while earning a series of modest internal promotions over a period of many years. Large twenty-five and thirty-five year service clubs abounded because almost no one left a company for a competing organization. Leaving an industry was practically unheard of. There were, of course, exceptions. Accounting, consultancy, and law were "up or out" businesses. Here the assumption was that employees would either become partners of the firm over a six- to ten-year period or seek opportunity elsewhere. In fact, those who were counseled to leave (or opted to leave) usually found secure and lucrative positions in the larger more static full employment companies with whose executives they had developed client relationships. And the "up or out" industries were comprised of relatively small firms with relatively few highly select people.

Open the human resources handbook in most companies today, and it will still suggest that staff retention is important. But even a cursory reading of layoff stories in the newspaper suggests that the full employment economy is in fact gone for many people for the foreseeable future. Companies still want to retain those staff who can develop new solutions to old problems; however, those who cannot (or will not) do this are, in fact, dispensable—at all levels. "Up or out"—once so unusual—has become a sort of de facto general practice, which intensifies during business slumps. A corollary is that

companies demand much more of the rank and file, pushing-decision making authority down into the organization while trimming middle management layers (Byrne, et al., 1988, pp. 80 ff). Given the fact that most corporate library directors have long tenure with one company and grew up in the old full employment days, it is not surprising that they do not understand or accept this "up or out" continuum of growth and movement for themselves or seek to develop library staff who are equipped to function within it.

The needs described here—financial skills, strong analytical ability, and leadership—will not go away because increased published data costs are a fact of life. Companies need published data to accomplish many kinds of client assignments and will pay well for it. However, they will also demand that data expense and cost of service be reasonable and defensible. They need and will reward people of sound judgment who produce accurate cost-effective client work. But they can no longer afford large numbers of people who depend on others to micro manage them. They will seek to retain staff—but only so long as they continue to grow and contribute more. The most successful and secure people will be those who excel by seeking opportunities to solve problems and learning from this experience. For better or worse, the corporate library is inextricably linked to this dynamic.

CHANGING THE EDUCATION

The halls of academe and corridors of public power are littered with the discarded recommendations of business people. There are two reasons for this. First, business people usually have no direct sustained exposure to the operations and pressures of the nonprofit arena. This leads them to recommend management methods which are successful in industry but may not work in the public and academic realms. It also causes them to expect results in unreasonable timeframes. On the other hand, nonprofit institutions sometimes encourage this. This occurs because boards and top administrative ranks often include people with business experience who believe that business management approaches will solve institutional problems. The institution's professional staffs, on the other hand, often have little business exposure and tend not to share this view. One result is business-oriented management studies, which are sponsored by the upper echelons and involve extensive participation by the institutions' professionals and outside business people. The tendency in these situations is for the executives to advance "solutions" which the institution's professional staff then demonstrate to have consequences inappropriate to their mission. That may, in fact, be true. Naturally, control is also at stake here. However, this process

masks that fact because it appears objective and permits all parties to fulfill their objectives. After all, the institution's administration is able to say that it has exercised its duty to probe the organization, looking for opportunities to make it operate more effectively and efficiently. The professional staff, on the other hand, are able to say that they were receptive to change but could find no way to improve the institution without violating its unique values. Everyone is able to claim that a consensus, based on those values, has been reaffirmed. And the institution goes on as before. Constructive evolutionary change is deferred. However, the problems which beset the organization may remain and even grow more vexing. After a sufficient period, they can sometimes cause management to take negative actions which are swift and appear unreasonable.

This article has many implications for education. None of these implications are comforting, given the history of the profession and its schools. All will be unpopular. However, they do not constitute a blueprint of any kind. Rather, they are illustrations of the kinds of changes which would strengthen the field over time. The best way to understand these changes is to examine some ancient dualisms—theoretical versus practical, core versus types of libraries, and active versus passive learning. These dualisms define an old debate about what library education should be. Events have made the debate obsolete.

The education must be theoretical. The profession should simply accept this. Universities are quite properly the temples of the intellect. Their unique role is to enrich bodies of theory by creating new increments of knowledge. As a result, university faculty are basically evaluated on the ideas they produce. Faculty who are not productive intellectually will always have a more difficult time obtaining institutional support than those who do substantive research. For the most part, what is substantive is defined by consensus among professional scholarly communities. This means that successful schools and their research will always be somewhat loosely linked to the world of work. This should be accepted as a good thing for corporate libraries, which badly need technical and managerial innovations but are not primarily in the business of creating the new intellectual constructs which precede innovation. It is foolish to expect universities to function like corporate training programs for the same reason that it would be unreasonable to expect corporate training units to function like universities. The schools will serve the profession best by being theoretical. In fact, they cannot serve it in any other way and survive. Many faculty, particularly those in outstanding universities, will fail if we pressure them to do otherwise and they relent.

The faculty and the field can, however, interact fruitfully with reference to the core professional knowledge of librarianship. This is because the core is rich with research hypotheses. In fact, the core,

driven by technology, has expanded in recent years. This article, for example, incorporates observations and reflections on a number of corporate libraries in diverse settings over fifteen years. In this sense, it is essentially a set of generalizations which could be made into hypotheses and subjected to the rigorous testing that characterizes good university research. Studies of the relationship of technology to costs—the cost impact of misjudgments, the related matter of liability, and the broader issue of professional impact; the maturation of the electronic information industry and its relationship to publishing, all of which are presented here—could conceivably yield new insights important to information management. Another hypothesis might be that academic, public, and school library management changes in ways similar to corporate library management once expense becomes some meaningful percentage of the host institution's budget. The core's ampleness is fortunate for the schools because, practically speaking, they are not large enough to do the excellent job of expanding the core that the universities demand and that the profession really requires, while sustaining the effort of training students for their first jobs in every conceivable setting in which they may work. Given the fact that so many of our best people choose library school after exposure to a particular type of library, the core's objective should be to integrate that experience into the broader issues that govern professional practice in various applications. The core should, in fact, be the education.

To make the core function as it should within the existing time and resource constraints (and it is not realistic to expect these to vanish), the schools will have to better integrate core components by emphasizing more rigorous and active learning. This does not imply either abandoning lectures or adopting vocationalism. However, it absolutely means that all activities should be explicitly related to fundamental core concepts. For example, basic cataloging, central to the profession, could be introduced using flexible microcomputer third-party text database management systems. This would permit faculty to simultaneously teach bibliographic control, reinforce the notion that the catalog is but one of many textual databases people may have the opportunity to create, and introduce the fundamental characteristics of at least one typical systems solution. It would also provide a foundation for broader subsequent discussion of data administration, software evaluation, project management, and systems thinking.

Similarly, reference work—also fundamental—should be made media interdependent and tied to research as a problem-solving activity. This suggests a case study approach. What follows is a business example. Students might be presented with a business

problem—should a bank establish operations in a given country? They would also be given major related topics—the political, social, and business climate in the host nation; other financial institutions already operating there; potential customer demographics; and so on. The students would be asked to specify which key sources they would select to help the user attack the problem and comment on the strengths and weaknesses of each using an established set of evaluative criteria—coverage, consistency, data integrity, timeliness, and cost, for example. Other cases could be developed for the humanities and social sciences; applied sciences; and perhaps law, medicine, and children's literature. It would be good to expose students to all the cases. The oral recitation of sources in lectures which characterizes many reference courses should be discarded. Instead, students might be given lists of these, instructed to study specific key characteristics, and tested on those. Those familiar with rigorous graduate programs in the humanities will recognize this approach to introducing the significance of large bodies of material in a short timeframe. This approach would expose students to the nature of rationalist inquiry—which explains so much of user behavior in libraries—and its impact on service, as well as the strengths and weaknesses of the various presentations of sources and related costs. It would also provide a foundation for the subsequent discussion of the structure of the industry segments which generate the secondary sources libraries use and determines their cost, the deeply imbedded social issues and legal framework which infuse that structure, and the library's unique place within it.

Management courses should build upon these components, which are critical to fiscal management, and integrate them with standard topics. Library automation could be discussed in terms of its impact on human resources, operations, and costs. The vendor pricing and contracting issues implicit in reference work could be incorporated in the broader context of financial control and budgeting. Government and business management environments should be compared dispassionately by faculty familiar with both.

In general, papers should be written only to develop analytical ability. This means that they should explore alternative potential solutions to meaningful problems and draw conclusions. The exploration of the professional literature, always integral to this process, needs to become the application of the literature to problem solving. This implies the intellectual activities of reading, generalizing, developing hypotheses, discarding those which are obviously false, and testing those which seem potentially valid. The ability to evaluate an article or book—placing it in the context of related works and assessing professional consensus about it using

footnotes, bibliographies, and reviews—is vital and should be made much more rigorous. However, mere description of what the literature says should be less important. Internships, particularly, should be better structured to develop the analytical ability both by integrating the knowledge components and developing crisp conclusive reports of the type that could reasonably support management decision making regarding significant problems. The keeping of internship diaries and other descriptive nonanalytic exercises should be abandoned.

Acceptance of theory, focus on the core, and an active integrated pedagogical approach should strengthen an awareness of the problems and opportunities different types of libraries have in common. The sense that different types of libraries confront fundamentally different management issues needs to be systematically reassessed from a top-down perspective. This is important not only because it is a valid research effort, but because it will improve the ability to attract excellent people. Dynamic committed individuals tend to require choices and mobility because they are motivated to develop an array of strong skills which will enable them to make new contributions in different settings at various stages of their careers. At present, we tend to restrict career choices via functional division of the field whose usefulness, from a broad management perspective, has not been rigorously tested for many years, if ever (M. E. D. Koenig, personal communication, October 1985). Anyone bright and ambitious enough to do a top corporate library job will sense this. They may look to other information-related areas, or they may take the first job only to leave the profession before they have matured, never having found the types of challenges and opportunities they really need. When these things occur, all libraries suffer.

Those of us with sustained exposure to even a few library schools, the students, and the field itself will recognize the many obstacles to this type of approach. For the schools, it implies not only reallocation of resources but also, in many cases, faculty with a different outlook, research interests, and skills. The nature of faculty governance makes this type of change slow at best and, in some cases, impossible. Deans will observe that this approach is difficult to administer. Many people, including some students, will complain that this approach is too sophisticated for individuals who have been exposed to libraries mostly as users and paraprofessionals. And many library managers will say they "do not have time" to develop the types of people this approach would tend to produce. More schools must take ownership of the intellectual issues imbedded in the core and confront the profession with them whether the field likes it or not. The students need a rigorous education if they are to reinvent

libraries and themselves over long and fruitful careers. Those who do not want to be challenged intellectually should seek opportunity elsewhere. Library managers need to make time for staff development. Practically speaking, they will have no choice. Not to do these things will mean an increasing lack of substantive library managers and an institutional inability to innovate which will limit the number of libraries, their fiscal support, and broader impact. Public administrators may wait for the profession to act but corporate executives will not.

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Industrial Information Service Managers: Expectations of, and Support of, the Educational Process

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ABSTRACT

TWO INDUSTRIAL LIBRARY managers state the qualities they look for in library school graduates to fill positions in their organizations and the key skills that they expect to be included in the curricula of library schools. Library employers are consumers of library school products and library schools should be aware of their consumers' needs. Special libraries have special requirements in addition to subject specialization such as determining the priority of requests, appreciating the impact of information on the business, and the timeliness of replies to the requests. At the same time, they are often small departments where each member must be a generalist, and there is not much time to take on outside duties. Nevertheless, they recommend several steps that special librarians can take to bring special library concerns and needs to the formal education program.

INTRODUCTION

The industrial sector today is intensely involved with programs to improve the quality of its products and/or services. Whether the program is called quality management, total quality management, total quality control, quality design, or whatever, all these programs place a great deal of emphasis on the roles of customer and producer. How does this relate to library schools and industrial information service managers? There are at least two links between the two:

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- Industry, as consumer or customer, hires library school graduates, the "product" of library schools.
- Industry, as consumer, must communicate to library schools the types of knowledge and skills that students need to acquire during their time in school. Library schools, as producers, need to be aware of consumer requirements and adjust curricula accordingly so as to produce graduates with competencies appropriate for the current job marketplace.

INDUSTRY AS CONSUMER: RECRUITING AND HIRING LIBRARY SCHOOL GRADUATES

When library managers in the industrial sector have a staff vacancy that can be filled by a recent library school graduate, they approach the task of recruiting and hiring with essentially two questions in mind:

1. How can I hire a person who requires a minimum amount of time and training to become a productive contributing member of my staff? That is to say, how will a new library school graduate help my department be successful today?
2. How can I hire a person who has the "basic" competencies— both professional/technical and interpersonal—and who can successfully adapt to a rapidly changing business and technology environment? That is to say, how will a new graduate help my department be successful in the future?

These two questions have a practical basis, because resources— especially time—are always limited. The best solution is to hire a new employee who can "get up to speed" quickly so that the library manager has the flexibility to allocate resources to the other tasks or responsibilities at hand.

These questions also pose a recruitment challenge for library managers in the industrial sector. Typically, these managers work in a department of no more than ten people and they have few, if any, professional peers within their company. Consequently, their corporate personnel department usually can only give them general assistance in the recruitment process when there is a staff vacancy. When it comes to recruiting and selecting individuals for staff vacancies, industrial library managers are usually essentially on their own.

Library schools can assist industrial library managers in finding suitable candidates for a staff vacancy by providing a placement service for their current students. Whether the placement service will be helpful to the industrial library manager depends in part on the curriculum taught at the school and the type of people the library school recruits or attracts as students. For example, the library school

that concentrates on recruiting generalists for training as academic or public librarians will probably not have too many viable candidates for positions as reference librarians/online searchers in an industrial (e.g., chemical or food) manufacturing company. In addition to using library school placement services, industrial library managers will probably supplement their candidate search by using advertising, placement agencies, professional associations, or ad hoc arrangements such as the Industry-University Partnership between a group of industrial information managers known as the Industrial Technical Information Managers Group (ITIMG) and the library schools at Pittsburgh, Syracuse, Rutgers, and Drexel.

Once viable candidates have been determined, evaluating them and making a hiring decision is based on a combination of general expectations of the educational process, the specific needs of the position being filled, and specific local practices. In our opinion, employers evaluate potential candidates in at least six areas:

1. What are the professional/technical knowledge and skills of the candidates? For example:
   - What kind of knowledge, experience, and/or expertise do they have in online literature searching, and how well do they understand the databases my company uses most often?
   - How well can they conduct a reference interview?
   - Do they know the standard reference tools and/or the literature in my company's areas of interest?
   - What kind of cataloging or indexing knowledge do they have and what knowledge or experience do they have about MARC, OCLC, and so on?
   - What kind of computer skills do they have?
   - How well do they understand information and its use from the end-user's perspective—i.e., what is their understanding of how library customers create, disseminate, evaluate, and use information?
2. What kind of interpersonal skills and personal characteristics do the candidates have? For example:
   - How well do they communicate with others?
   - How well do they work in teams or groups?
   - What kind of attitude do they have about customer service?
   - How adaptable are they to new situations, technologies, change, and so on?
   - What challenges them? What annoys them?
   - What interests them in the position?
3. What kind of personal or professional experiences do they bring to this position? Such as:

- Did they do an internship, practicum, or similar work?
- Were they working in a library before or during their library school experience?
- What kinds of community service or professional association activities have they participated in? What did they accomplish, achieve, or learn during these activities?

4. What kind of management or leadership skills or capabilities do the candidates have? For example:
   - Where have they shown leadership?
   - Have they planned, sold, and/or managed a budget?
   - Have they supervised other people?
   - What do they know about marketing?
5. What kind of subject background do the candidates have in addition to their library school education (if required for the position)?
   - If they have it, how well versed are they in the subject? Do they have practical experience in the subject? Why do they want a career in the library/information profession?
6. Other factors:
   - How well does the candidate "fit" the position? the department? the company?
   - What else does the candidate bring to the position?

All of these factors—and probably some others—are at play as corporate library employers evaluate candidates. What do we expect of library schools as they educate potential candidates for corporate library positions? Ideally, library schools will always give us perfect candidates for positions, but that is not always a reasonable expectation.

INDUSTRY AS CONSUMER: EXPECTATIONS ABOUT COMPETENCIES

Much has been written about the competencies expected by special library employers of library school graduates (for example, Culnan, 1986; Cortez, 1986; Hill, 1990; Koenig, 1983; Paris & White, 1986; Schulte, 1991; and Tees, 1986), and, undoubtedly, much more will be written in the future. Suffice it to say that expectations of graduates will change and evolve as the profession evolves. The core competencies appear to fall into three areas:

1. basic technical knowledge and skills—e.g., knowledge of standard reference sources, ability to conduct a reference interview, ability to develop a search strategy, and so on;
2. interpersonal knowledge and skills—e.g., ability to communicate orally and in writing, ability to work with other people, and so on, and;

3. management knowledge and skills—e.g., decision-making ability, communicating with staff, budgeting, personnel practices, supervision, and so on.

The specific competencies expected in each area are open for argument, and indeed, the literature is full of articles talking about competencies and curriculum content for special library education. In a special library context, the key to this is not so much what the specific competencies include, but rather in what differentiates "special" library education from "other" library education. For example, a reference librarian will require the same basic reference interview skills or a cataloger will require the same basic cataloging skills regardless of whether they work in a public, school, university, or special library.

What differentiates special libraries from other types of libraries is more than the obvious relatively narrow business or subject focus. Special library programs at library schools need to point out that special libraries—especially those in the industrial sector—are distinctly different from public, school, or university libraries. Corporate special librarians will recognize that:

- all requests are not equal:
  —some have higher priority than others (one works on the vice president's request first before handling the ten routine reference questions that are pending);
  —some requests have more impact on the business (an ingredient shipment being held in customs that will delay your manufacturing and delivery schedule for a major client's order because the customs agent does not know how to analyze for a suspected contaminant is far more important than processing the journals received today);
  —some requests require more resources than others (reviewing the literature on a new technology that can provide the company with a competitive edge will require more resources than that required for a typical literature search);
- information has value and can measurably affect the company if communicated to the right person in a timely fashion in order to impact corporate decision making (telling the project leader, who is negotiating with a supplier for manufacture of a key product component, that a competitor has just patented similar technology allows the project leader to have the supplier indemnify the company against potential patent infringement);
- the management of information generated within the company— e.g., research reports, lab notebooks, and so on—is of equal or greater importance than the management of externally generated information, such as books and journals; and

- industrial library managers, like managers in the operating divisions of their companies, must "do more with less" as budgets are continually examined for their contributions to "bottom line value."

Library schools need to include these elements into their special library curriculum and then provide their students with:

- the basic technical skills;
- a service attitude and customer focus;
- opportunities to combine classroom learning with "real world" experience in some way, be it "actual" or "simulated"; and
- a basic understanding of library operations and the general principles of business and management.

Given candidates with these basic skills, practicing librarians can easily train them—once they are hired—in "local practices" and whatever other special knowledge or skills are required in order for newly hired graduates to become productive contributing employees.

In order to discuss required competencies, we need a forum or mechanism for this purpose. Some of this takes place today in the dialogue between practitioners and faculty on a formal or informal basis, but most of these discussions are ad hoc.

INDUSTRY AS PARTNER: OPPORTUNITIES
FOR COOPERATION

How can practicing industrial librarians assist library school faculty in teaching special library students about these topics? This is a sticky question, especially since most corporate libraries have a small staff, and it is hard enough to handle daily operations, much less take on responsibilities outside the library. However, the answer to this question is essentially the same today as outlined by Clough and Galvin in 1984, namely:

- assisting in curriculum design or development;
- supervising a student doing a practicum, internship, or other type of field experience;
- serving as an adjunct member of a library school faculty; or
- assisting in recruiting students into the profession.

Internships

Not too much is written about internships in corporate libraries (Coplen & Regan, 1981). However, many companies have internship programs—such as summer internships—and their libraries may also participate just like any other company department or division. Virtually all of the companies represented in the ITIMG have some

type of internship program, although only about one-quarter of the libraries have participated to date. The internship serves at least three purposes:

1. It provides a learning experience for students where they can begin to make the connection and/or transition between classroom learning and real-world experience, as well as providing the company with labor to accomplish a specific task or project.
2. It provides the industrial librarian with a disinterested viewpoint of library practices and operations and a method of learning some of the newer topics being taught in library schools.
3. It provides both intern and employer with a low-risk preview of a potentially longer term relationship.

Participating in an internship program often requires defining a project or task, obtaining the necessary organizational approvals, allocating the necessary resources, obtaining the interest and cooperation of the involved library staff members, and so on, as well as recruiting and selecting the intern. If the internship is a formal part of a library school curriculum, arrangements must be made to assure that the planned internship experience is appropriate for curriculum requirements. Once "hired," suitable training, guidance, support, and supervision must be provided for the intern in order for the internship to be a mutually beneficial experience.

Recruiting interns, like recruiting for staff vacancies, can be a problem, especially when the library staff is small and/or the area does not have a library school. Here, personal professional networks, as well as the sources outlined earlier, can help make the contacts and find the candidates.

Other Educational Roles

Participating in the educational process can also be an option for practicing librarians. Some library schools have practicing library professionals involved in the educational process in some way, such as:

● serving as an adjunct professor who teaches a special library course;
● serving as guest speaker during the school year on a specific topic for the special library class or as a speaker at a formal or informal library school program;
● hosting a field trip or a visit by a special library class to their library for a tour, demonstration of a special capability, or to "see" how a real library operates;
● participating in curriculum design or development, especially as related to special library concerns, by serving on an advisory committee or as a library school trustee;

● hosting a library faculty member to do a sabbatical within an industrial organization, such as AT&T's Bell Laboratories Library System has done. This is useful in providing faculty members with "real world" experiences that they can pass on to their students.

The extent to which any of these occurs depends on the skills, knowledge, and abilities of the practicing librarian—and the extent of involvement they desire or can afford to spend—as well as the needs and opportunities within the library school.

CONCLUSION

Industry's current emphasis on quality in all aspects of its operations—including its libraries—means that industrial library managers must carefully select, train, and develop their staff in order to provide their respective organizations with the appropriate information services and products. The key to an effective library is its staff, and the key to the staff is their skills, knowledge, attitudes, and abilities. In order for us to be successful in the field, we need a more active partnership with library schools in the educational process so that once library school graduates are hired, they can quickly be integrated into our organizations and become contributing members of our staffs.

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The Emergent Market for Information Professionals: Educational Opportunities and Implications

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ABSTRACT
THE SCALE AND SCOPE of the emergent market for information professionals are outlined. National and state-level data are used to define employment opportunities and educational requirements. The data were derived from: (1) content analysis of job advertisements, (2) survey responses from library school graduates, and (3) field interviews with information specialists. Market opportunities and constraints are identified. Repositioning strategies for schools of library and information science are proposed.

BACKGROUND

Machlup's (1962) and Porat's (1977) landmark analyses of the U.S. economy highlighted the growing importance of the information and knowledge industries. Today, the primary and secondary information sectors account for a significant proportion of the GDP (Gross Domestic Product) and the GNP (Gross National Product) in many developed economies. The labor market implications of such rapid economic transformations are likely to be profound, and they raise a host of questions relating to educational strategy and responsiveness, not least for the library and information science (LIS) community (e.g., Angell, 1987; Brinberg, 1986; Brittain, 1989; Turner & Bray, 1989). Despite persistent terminological and scholarly

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wrangling about the exact nature of an information society, certain common assumptions seem to hold true (Locksley, 1990):

> Each construct gives particular emphasis to one set of characteristics of the transforming economy and society. The status of information workers and information occupations are usually central within these paradigms. (p. 3)

In 1981, Debons et al. estimated the total information professional workforce—"those who were indisputably in the 'hard core' of professional information work" (p. 5)—in the United States at 1.64 million, a substantial refinement of the earlier global estimates. Yet only 19 percent of this group belonged to the category "library and information services." Other studies speak confidently of the "invisible job market" (Harmon, 1987), "hidden job market" (Spivack, 1982), "emerging employment market for librarians and information workers" (Moore, 1987), "new intermediaries" (Arnold, 1987), "employment market for information professionals" (Moore, 1988), and "hinterland" (Cronin, 1993). This kind of thinking is not restricted to the United States and United Kingdom. Seeger (1987) made similar observations in the late 1980s relating to the situation in Germany and stressed the importance of moving beyond qualification profiles which were "almost exclusively directed towards typical job descriptions in one type of institution" (p. 170).

HEARTLAND, HINTERLAND, HORIZON

At the risk of oversimplifying, the market for information professionals is three-layered: the heartland, the hinterland, and the horizon. The heartland can be defined in terms of traditional library or information units, largely staffed and managed by graduates of library and information science programs. The contexts and opportunities which characterize the hinterland are not defined in an institutional sense. This is the world of libraries-without-walls and distributed information systems, where disciplinary pedigree and professional affiliation matter less than perceived competence and adaptability. Here, diverse groups, ranging from information systems analysts through information scientists to communications specialists, happily co-exist and inhabit a wide array of occupational niches (e.g., marketing information specialist, database coordinator, information manager). The third layer, the horizon, is the natural habitat of software engineers, business computing specialists, and telecommunications managers, whose focus tends to be the hardware or systems component, rather than information content and packaging.

A WINDOW OF OPPORTUNITY

The emergent market constitutes a potential growth opportunity for library and information science schools (Slater, 1986; Cronin &

Davenport, 1988; Schipper & Cunningham, 1991). This fact is already reflected in the expansion and diversification of the programs offered by many LIS schools in the last decade, notably those at Rutgers, Pittsburgh, Syracuse, and Drexel in the United States; Toronto in Canada; and Sheffield, Loughborough, and Strathclyde universities in the United Kingdom. It is not, however, a captive or guaranteed market, as competition from other suppliers and skepticism about the ability of LIS schools to adapt, pedagogically and culturally, to the dynamics of a changing marketplace feature strongly. Nevertheless, *The Occupational Outlook Handbook 1990-1991* (1991) is guardedly bullish in at least some of its forecasts:

> Employment of librarians is expected to grow more slowly than the average for all occupations through the year 2000. Slow employment growth in school libraries reflects the slow growth of enrollments. Public library employment will also grow slowly, due to slow population growth and limited budgets. Little growth is likely in colleges and universities, since college enrollments will decline.... Employment in special libraries is expected to grow faster than average, as the number of managerial and professional specialty workers they serve grows rapidly.... Employment of library school graduates outside traditional library settings is expected to grow. Nontraditional library settings include bibliographic cooperatives, regional information networks, and information search services. These settings employ systems analysts, data base specialists, managers, and researchers. Some of these jobs require a knowledge of both libraries and computers; others, only a knowledge of libraries.... Information management outside the traditional library setting, a rapidly developing field, is also expected to offer many employment opportunities for library school graduates with backgrounds in information science and library automation. Employers include private corporations, consulting firms, and information brokers.

OBJECTIVES AND METHODS

The purpose of the study was to produce a sketch map of the emergent market in both the state of Indiana and nationally. What sort of environment exists for graduates of Indiana University (IU) School of Library and Information Science (SLIS), and for comparable institutions, in contexts outside the traditional library setting of public, school, and academic libraries and what sorts of personal, technical, and professional attributes does the market demand? What are the dimensions of the emergent market in Indiana and nationally, and in which industrial sectors are opportunities most likely to arise? The aim was to develop an impressionistic profile of the emergent market for information professionals locally and nationally. Three approaches were used: an examination of published job advertisements, interviews with employees and employers in the hinterland, and a mail survey of Indiana SLIS graduates.

Ad Tracking

We tracked and classified nontraditional (i.e., essentially noninstitutionally defined) position announcements from a sample

of the local, national, and professional press. For an eighteen month period (September 1990—March 1992) advertisements were culled from the *Indianapolis Star* (Sunday), *The New York Times* (Sunday—every third month), *ASIS JobLine* (American Society for Information Science), *Information Today, Library Journal,* and *SpecialList* (Special Libraries Association). The approach was both labor-intensive and, of necessity, partial: many eligible positions are not advertised publicly but filled through either an internal search process or intramural transfer.

More important than either enumerative precision or statistical reliability, however, is developing a broad sense of the market's primary characteristics. We categorized position announcements in terms of:

1. standard industrial classification (SIC) code,
2. job title,
3. experience required/preferred,
4. qualifications required/preferred, and
5. desirable attributes.

Our data are indicative of the opportunities which exist, but inevitably they under-represent the size and scope of the market—locally and nationally. They are like blurred photographs.

Field Interviews

In order to define career opportunities and trajectories, and to put some flesh on the published information, we interviewed thirty-three individuals in Indiana who either held positions lying just beyond the traditional (heartland) setting or who hired or placed individuals in such settings. Twenty-seven of the interviews were conducted with people who would be considered information intermediaries within the organization in which they worked, or who operated as independent information brokers. Generally, the expertise that these individuals bring to any client is the ability to query and/ or organize access to recorded information on the client's behalf rather than concentrating on collection development.

We wanted to establish whether SLIS graduates could credibly apply for, or develop, similar positions, and what sort of adjustments the school would have to make in order to best serve this market in addition to its established core constituencies. The *Burwell Directory of Information Brokers 1991* (1991) and the *American Library Directory 1990-1991* (1990) were used to identify possible interviewees, along with personal knowledge of individuals operating in the area.

A starting assumption was that specialized information units provide services which are very different from those provided by the traditional libraries of academia, schools, and the public library

system. What differentiates these nontraditional from traditional library/information operations is the way in which both the collection and the client are viewed. Traditional settings tend to emphasize their collections and offer services that enhance access to central stores of information located within the institution. It is certainly true that traditional libraries are quite advanced at networking their collections so that users can have remote access, but the emphasis is still on locating materials in the belief that library users will be able to derive relevant information from the materials while working on their own. The special librarian in the organizational setting, the information analyst, or independent information broker will generally utilize the access tools on behalf of the client and compile needed information in a form appropriate for the client to review for decision making. They might also create the access tools specifically for a particular client or employer. The keys are customization and value-added integration, coupled with a recognition that: "No one source is right. The integrated fabric is reality" (Sharer, 1991, p. 5).

We also allowed respondents to suggest the names of other information practitioners who might have something to add. Interviews were carried out at Bloomington, Columbus, East Chicago, Elkhart, Fort Wayne, Franklin, Indianapolis, Kokomo, Lafayette, South Bend, Terre Haute, Warsaw, and Westfield. An interview was also conducted with a New York employment agency with experience of placing individuals in the emergent market. Interviewees were drawn from a wide variety of environments, including the insurance, defense, transportation, chemical, banking, pharmaceutical, consulting, government, electronics, medical instrumentation, publishing, and independent brokerage sectors.

Cohort Tracking

The advertisement tracking survey and professional interviews were supplemented with a brief mail survey of 1985 and 1988 SLIS graduates in an effort to identify individuals who might be utilizing skills and knowledge gained at SLIS but operating outside traditional settings. Forty-six of the 256 questionnaires were returned. Given the school's historic emphasis on a humanistic model of public sector librarianship, a pattern which is clearly reflected in its placement record, it was not at all surprising that this approach generated few productive leads or insights. Most respondents continue to work in classical heartland positions, with little evidence of migration from one sector to the other.

FINDINGS

Overview

We identified 360 positions nationally from scanning selected professional and general media sources. It is impossible to estimate

what proportion of the emergent market that constitutes for the timeframe covered. However, a number of generalizations can be permitted:

1. There is a measurable market for information professionals who have the requisite mix of talents, know-how, and experience.
2. The market is diffuse.
3. This nascent market does not owe allegiance to any established professional body or disciplinary track.
4. The opportunities are scattered across a wide range of industrial sectors, though some evidence of concentration exists.
5. Job titles and functions are extremely variegated.
6. Subject expertise and business savvy matter most.
7. Traditional LIS education, as embodied in the MLS (Master of Library Science) degree, is perceived by many practitioners to be out of sync with the demands of the emergent market.
8. The market in Indiana is embryonic and likely to show only incremental growth in the near-term future.
9. LIS schools will need to revise not only their curricula but also their culture if they are to become successful players in this market.
10. Information consciousness raising will be an important component of any repositioning strategy favored by LIS schools with an eye on this market.

Analyzing the Ads

Market Indicators. Of the 360 posts included in our final analysis, 59 were Indiana-based, which suggests that we have probably underestimated the national count. All advertised positions were grouped by SIC code to identify areas of concentration. Likely areas of opportunity seem to be associated with the following sectors (the number of positions located in Indiana is mentioned first, followed by the total for the rest of the country):

- Educational Services (SIC #82) = 10 + 46 = 56
- Business Services (SIC #73) = 6 + 47 = 53
- Engineering, Automotive, R&D Industries (SIC #87) = 4 + 31 = 35
- Human Resources Administration (SIC #94) = 9 + 18 = 27
- Chemical and Allied Products (SIC #28) = 4 + 14 = 18

The labels used to identify job opportunities in the information sector reveal a high degree of diversity. Taken out of context, some have no overt information orientation (e.g., sales representative and project manager); others are, however, highly explicit (e.g., technical online researcher). Some use traditional nomenclature but in the context of nontraditional settings. One of the most striking features

of the laundry list was the degree of specificity in job titles (e.g., drug information specialist; senior small network systems analyst; cancer information specialist; nursing audit information officer; marketing executive for electronic publications). The portmanteau labels of "librarian" and "information specialist " have splintered dramatically to reflect the pluralistic character of the marketplace.

Credentials and Experience. More than half the posts required, preferred, or considered desirable an accredited MLS or MLS-equivalent. In some cases, an MBA, either with, or instead of, the MLS, was specified. In many others, the MLS (or equivalent) had to be combined with a particular kind of academic background, such as a BS in physics, pharmacy, chemistry, biomedical sciences, business, or journalism. In others, an LIS qualification was not deemed relevant (e.g., "Ph.D. in Information or Computer Science, or equivalent with an additional subject degree in the biological sciences"; "M.D. and/or Ph.D.; ability to administer a major health care delivery institute involved in information science research, clinical epidemiology, clinical practice analysis and decision making, and health services research"). In yet others, particular skills, competencies, or work experience were preferred over paper qualifications (e.g., "Ability to manage complex technical planning procedures and implement large computer-based systems and telecommunications operations; Requires a working knowledge of Ethernet and X-25 communication, and of Decnet, TCP/IP, SNMP, IPSPX and OSI"; "BS degree, working knowledge of microcomputer technology, DOS, UNIX, and Xenix especially desired"). It is clear that the proliferation of job titles is a reflection of increasing specialization in the workplace.

In the great majority of cases, experience was a prerequisite of employment. Openings in the nontraditional sector do not appear to be targeted at entry-level professionals lacking experience (e.g., "5 to 8 years' experience in an academic health sciences environment; proven achievements in the introduction and development of innovative programs; continuing education experience desirable"; "4-5 years information systems experience, knowledge of systems development and implementation; proven ability to interview users and prepare systems documentation required; 1-2 years experience managing a systems design team highly preferred"; "Experience with online database searching especially with scientific, technical, business and legal databases is ideal"). Predictably, familiarity with information systems and technology, or extensive practical knowledge of database searching tools and techniques, feature prominently, though sometimes the list of desiderata goes well beyond technical competence to include specific kinds of organizational experience

(e.g., "Significant knowledge of or experience with automated library systems, microcomputers, networks, telecommunications, and common software packages needed. Prior teaching experience or familiarity with IAIMS, women's health, and associations desirable").

The following abbreviated list gives a flavor of the kinds of position titles we identified within Indiana alone: Data Specialist; Computer Network Specialist; Market Information Analyst; Information Center Analyst; Director of Management Information; Information Scientist; Media Systems Supervisor; Information Technology Specialist; Director/Developer of Information Systems; Research Coordinator/Archive Manager; Manager of Information Services; Programmer Analysts/DB Analysts; Medical Records Manager; Information Systems Manager; Market Information Coordinator; Coordinator of Information & Assistance; Communication Director; Legal Documents Indexers; Network Support Specialist; Director of Graphic Reproductions; Microfilm Specialist.

When background and qualifications are taken into account there were only eleven positions a minimally experienced liberal arts undergraduate MLS holder could credibly apply for within Indiana. Forty-two of the positions required experience beyond that which a student could obtain in school; many of these did not require a master's degree but did call for specific subject expertise or skills not necessarily taught in an MLS program. In only eight of these forty-two cases would the skills acquired in an MLS program be likely to confer a competitive edge, while, in thirty others, experience of programs such as business, computer science, and education would be advantageous. Only five positions expressly required a master's degree in library science.

Desiderata. Approximately half the advertisements specified particular traits or attributes which were deemed desirable, if not, in fact, essential for the job. Certain terms and phrases run like leitmotifs through the corpus—"dynamic," "excellent communication skills," "team players," "flexible," "self starter," "leadership skills," "enthusiastic." The message is inescapable— successful candidates will have first rate written and verbal communication skills; they will be able to operate independently, yet function effectively as members of a team; and they will be committed to developing user-centered services. Shrinking violets need not apply:

> Excellent communication skills; ability to work with other staff and clients to identify needs/opportunities. Analytical skill in developing solutions that are responsive to client needs and compatible with

[company] information strategy. Ability to take proactive approach to
client services and to exploit technology to improve records/information
management. Skilled in project planning and management.

The ability to envision change, and, at the same time, to act
as a persuasive advocate for change with key constituencies is also
at a premium: "Strong leadership skills; sophisticated oral and written
communication skills, including the ability to interpret technological
advancements and to articulate the OhioLINK vision to the user
community and funding sources; ability to work efficiently with
diverse client groups." And elsewhere: "Visionary ability to analyze
the informational needs of a large highly complex organization and
to develop/implement responsive informational systems; ability to
negotiate successfully innovative synergistic relationships with
information technology providers/users."

Face-to-Face Conversations

Cautious Optimism. The state-level interviews corroborated the
feeling that there is an expanding market for information
professionals. One independent information broker who had started
up a little over a year earlier was already planning to hire someone
or add a partner:

The potential for brokers is enormous, especially with small 5-10 people
companies. Any company with $20-30 million in sales should really have
"one of us" in the marketing department.

However, the sense of a market—in Indiana, at least, which is
not fully alert to the economic and commercial significance of
information—also comes across quite clearly:

We've only scratched the surface. I've just hired someone [with a high
school education only] to be a secretary and help with some of the
preliminary searching. We should be targeting consultants as clients
[everyone of them should be utilizing our services]. We are best at
[objectively] gathering the right information and then tell [clients] what
to do with it. (Independent information broker with an MBA & subject
expertise in biomedical instrumentation)

People don't realize the potential of information. Marketing now has
a database searcher who primarily searches the Commerce Business Daily
looking for government jobs to bid on and I can see that "our type
of person" could be used dealing with OSHA and NEC codes and
Training.... (Special librarian working for defense contractor, associate
degree)

Ninety percent of the questions are from small businesses with fewer
than 25 employees and there are about 4700 of these in the state. I've
only been here for a few months so I don't know but not many of those
4700 use us. If they did, well the work would be enough for many people.
(Nonprofit business organization, MLS)

We will need to innovate and get along with fewer people, but even
with innovation we will shortly be hiring another subject specialist just

> to cover the R&D area and we haven't really begun to tap the business areas even though I am beginning to plan that expansion. I also plan on being the primary supplier of information to our other two U.S. operations. I can envision needing four [people] in the intermediate term. (Biomedical instrumentation, information manager, MLS, MBA, graduate work in Computer Science)
>
> There are 3 "librarians" working for departments. One for medical devices and two for medicine. We are planning on adding a person and a subject specialist is needed. (Business library in pharmaceutical company)
>
> [The] information function [is] viewed as one of the more important critical factors to the company's success. We will add people as needed but I think a lot more can be gotten for now with present staff. (Manager of information services, pharmaceutical company, MBA)

But a word of caution is needed before equating the emergent market with one that can be filled automatically by LIS graduates. At the local level, there are significant structural, manpower, historical, and image problems that will have to be overcome for LIS schools, and SLIS in particular, to begin to place more than just a token number of graduates in this market in the near-term future.

> There is a danger of insisting on the MLS—this doesn't allow good people to come in. It is people who can get results that we need.
>
> The critical skills for success in what I am doing aren't taught in the MLS programs. The MBA and MLS have a different orientation. The MLS was job training whereas the MBA [teaches one how to be effective]. (Biomedical instrumentation, information manager, MLS, MBA, graduate work in Computer Science)

A Recessionary Cycle? Our field work also suggests that within Indiana the number of special library positions at this time may be contracting rather than expanding. The one independent information broker interviewed who held the MLS had his business fold while the study was being completed. A broker working for a company, also an MLS holder, was demoted from supplying information directly to senior management to working as a subject specialist within the library. A special library in one of the state's major companies had to cut staff in half and lose one of its two facilities. A major electronics firm laid off the professional librarian and kept the clerk. A defense firm employing 2,500 cut two positions from its library. This pattern may, of course, be linked to the recession: historically, special libraries have tended to suffer cutbacks or closure at times of retrenchment only to bounce back when the economy recovers.

Low Entry Barriers. There are few barriers to entry in the information brokerage business—having some subject expertise, business savvy, a computer with a modem, reliable sources for documents, and passwords to several online search services is basically all that is

needed to be an information broker either within an organization or as an independent operator. Since the market often does not recognize that special training is needed in the "information arts," there is little reason to obtain a master's degree. For instance, Indiana InfoNet, which is operated by the Industrial Research Liaison Program at Indiana University, did not hire MLS graduates to serve as information intermediaries; they, along with most of those interviewed, did not equate the MLS with information provision. Several interviewees had established quite credible information operations within their organizations, yet had taken no, or very few, college courses. One individual in particular, holding only the associate's degree, had created specialized files and retrieval methods in order to support technical documentation as well as a selective dissemination of information (SDI) system.

Two Thumbs Down for the MLS. Only one interviewee specifically set out to get an MLS with the thought of securing employment in the emergent market. She had worked for a small database company in Indianapolis and had decided to obtain an MLS so that she could start her own information brokerage business. Several brokers who were former librarians had advised her to obtain the MLS as preparation. She felt that, except for the two courses she took at the IU Business School, she had wasted her time, adding that pursuing the MBA would have been more appropriate—a view shared by other interviewees who had had some experience with an MLS program.

Dissatisfaction with the MLS, both by holders of the degree and those who supervise or hire such individuals, seems to stem in part from the values that are imparted in the early socialization process. These values are not those needed to operate in the emergent market outside the institution of a library. As the head of information services in a major Indiana firm, who holds both the MLS and the MBA, put it: "I will never, never again hire an academic librarian—they do not understand service." A special librarian for a major defense contractor stated that she had once had students from IU SLIS for an internship but would never repeat the mistake: the only thing these two individuals wanted to do was stand behind a desk and circulate books. What is needed in this arena is an active approach to finding out what information is necessary for the organization to excel. Many of the students who attend IU SLIS—and similar schools—make money and defray tuition costs by working in academic libraries; assignments are completed in an academic library, the school is housed in an academic library setting, and many of the students have academic backgrounds. The dominant culture to which many LIS students are exposed is not reflective of the world at large and certainly does not reflect the value system of the emergent job market:

> I had to reopen the job—we advertised first in the library rags and the regional papers and then in the *Journal of Higher Education*. I hired

> J. because of her qualities which the others didn't have even though
> she does not have an MLS. There is a problem with hiring people.
> All the people who responded to the ad had no experience. Perhaps
> the words "fee based" is the problem, it can have a negative connotation.
> Many in the field don't want to be in the corporate environment. Also
> this is not a tenure track job and this may be a concern.

Sine Qua Non

Perhaps our most important finding, and it is by no means peculiar to this study (e.g., Hill, 1990), is that both subject expertise and business savvy are considered essential, independently or conjointly, by employing agencies. A similar finding emerged from our mail survey of SLIS graduates. Many respondents who were working in an academic environment noted that, in order to be considered a colleague of faculty members, a librarian needs to obtain a second master's degree. In other words, the information practitioner needs to understand the problems of practitioners of the field in order to know what to collect—in the case of the academic librarian— or how to go about finding answers—in the case of information intermediaries. One pharmaceutical firm conducted a senior level assessment of the contribution made by information to the conduct of their business and concluded that it was crucial to long-term success and should be considered a top priority. They determined that business awareness and subject expertise were crucial elements of a successful information professional. Possession of an MLS or a Master's in Information Science, however, was considered by far the least important factor in an employee's on-the-job success.

One of the larger energy utilities decided to hire a professional information specialist and set about determining what might be entailed. The company had had a librarian for some time, but this individual's responsibility was merely to maintain a traditional library of documents that were important to the firm. They had recognized that, as access to timely and relevant information became more crucial to the success of the operation, they needed someone with appropriate skills to spearhead the effort. They concluded that the MLS was not important but that extensive experience in their field was. Herein lies the dilemma for IU SLIS—many firms in Indiana seem to recognize the need for information intermediaries, but SLIS students are not applying, and librarians are not being seen as viable candidates, either by employing agencies or by those with the MLS who happen to find themselves operating in the field.

A Preprofessional Market?

We had assumed that those in special library environments would either be in the process of taking on roles beyond the traditional domain of the library or would be able to tell us about the career

trajectories of others who had done so. Yet, many of those who are considered librarians in Indiana-based companies are not professionals in the sense that they do not hold a master's degree, often not even a bachelor's, nor do they maintain any sort of professional affiliation. They were often secretaries before their designation as a librarian and are often considered clerical; many are simply keepers of documents, though several have established quite adequate information operations without any sort of formal training. Of the fourteen heads of special libraries/information services we interviewed, eight did not have an MLS, and only one belonged to the Special Libraries Association. Information brokers often belonged to the Association of Independent Information Professionals, while other information intermediaries were members of professional organizations that reflected their particular subject specialty.

As more companies hire specialists to gather information from outside the firm, there is a fragmentation of the traditional functions carried out by special libraries, with the archival function staying in the room called the library and with database searching, committee work, and translation services being spun off to others. One major Indianapolis firm has a small archival library headed by a woman holding no degree who considered herself a library technician. About eight years ago, she realized the potential of information provision and convinced her boss to hire a database searcher, then a patent searcher, and finally a talented MLS/MBA who is now attempting to coordinate information provision company-wide. What is important here is that these new recruits do not operate within the library environment but operate out of the larger department of which the library is but a part. The library itself is simply the archive for the larger information operation, and the librarian's job is viewed as being within the archival space. If the individual occupying that space does not view his/her role as providing information in the larger context, then the provision of external information defaults to another who may well view the library in a very narrow sense.

An information manager—who was also a senior executive—was able to keep all of the information operations in his pharmaceutical concern under one umbrella, which, for the time being, is still labeled a library. He is, however, strongly considering changing the name because of the persistent association of a library with the notion of a collection, and he is attempting to position the operation as a supplier of all kinds of internal and external nonaccounting information. A growing challenge to establishing or maintaining a dominant supplier position by either the special library, or a larger information department, comes from research, marketing, and other operating departments that are hiring, or designating, their own information specialists.

The example of a major trucking company illustrates what happens when there is no strong internal supplier of information.

A special librarian working for a major defense (electronics) contractor was appointed to her position because she was a secretary who could "get the answers." She is presently helping a secretary in the trucking company establish a similar archival operation. The electronics firm library houses internal documents, standards, National Technical Information Service documents, journals, and several CD-ROM indexes, and the assumption is that the trucking firm library will be similar. Several online database searchers work in the shipping firm's marketing department supplying profiles of companies that the department has targeted as possible new business. One of the independent information brokers interviewed in this study also supplies services to individuals within the firm's marketing department who are not happy with the lists of citations that the online searchers provide. So here we have three species of information intermediaries within one organization.

Ignorance and Image

An obvious problem in attempting to supply professionals to the emergent market is the lack of a single or even a core group of organizations that might give focus and sanction to efforts to train practitioners. In fact, the only common link that could be found among the various information intermediaries and brokers was readership of *Online*. In their brochure on where to obtain schooling for the emerging "information market," the American Society for Information Science gives equal weight to schools of business, computing, and library and information science, recognizing that no one school as they are presently defined could possibly encompass all that is "information." The American Library Association's (1992) revised *Standards for Accreditation of Master's Programs in Library and Information Studies* also tacitly acknowledges the breadth of the marketplace for information professionals. The information market is wide open and is likely to be characterized by competitive diversity. Library and information science schools would have a difficult time establishing a monopoly as sole supplier to this market, not least since employers/practitioners do not presently look to them for leadership or to supply labor.

The case of the pharmaceutical company mentioned earlier illustrates the kind of obstacle LIS schools will face. After the company determined that its long-term survival depended upon enterprise-wide information flow, it sought a librarian to handle the library side of the information operation, but it proved

> difficult to find someone who can deal both with the scientific and business communities. I tried to hire a good business MLS—we advertised in the *New York Times, Chicago Tribune,* the library media—we spent

> $8,000 and two years and got nothing but junk and we pay very well.
> I finally took one of my inhouse people and trained him; he is just
> now coming up to speed.

This senior manager of one of the largest special libraries in the state, in one of the larger pharmaceutical concerns, was not even aware that SLIS had a Chemical Information Specialization track in its MLS program.

The head of an employment agency in Manhattan that operates exclusively in supplying special librarians/information specialists, highlighted some of the manpower issues. This agency has many more positions open than can possibly be filled by viable candidates. Pay for these jobs, even for entry-level candidates, can run close to twice the norm for a comparable public, university, or school position. The problem is that the three feeder library and information science schools in New York cannot supply even a fraction of the qualified candidates she could place—qualified in her mind means an MLS coupled with business experience. The problem, as she sees it, is that LIS schools cannot attract candidates with business experience or interest.

Business Savvy and Client Centeredness

The historic inability of LIS schools to recruit individuals who have backgrounds, or at least an active interest, in business, engineering, science, and technology will hamper efforts to open up this emerging market because the subject expertise of the candidate is seen as extremely important, and, unless suitable individuals can be recruited, there is little hope of succeeding in creating a viable pool of candidates from which employers can choose. According to Heim (1991), only 11.5 percent of all students in accredited MLS programs have an academic background in the physical or biological sciences, law, business, medicine, or engineering. Given that the last few years have seen the closure of several major library schools, there will more than likely be increasing competition for those few graduates with business, engineering, and the sciences backgrounds from academic libraries.

There are some image problems that may not be easily changed, as Slater (1979) documented more than a decade ago. An information intermediary working for the management team of an animal products company said that an MLS without extensive background in the subject area could not do his job. Repeatedly, those operating in this area talked about the inability of everyday librarians to provide what their clients really needed:

> Clients want us to read everything on *x* and tell them what it says—
> they don't want a long list of citations like librarian searchers give them.

> Librarians don't understand the value of information to their business clients—don't understand the cost of people's time, or of opportunity cost.
>
> There is some resentment by librarians, the keepers [of the materials]—we supply what people really need. People depend on me for something [I don't just point to a source].
>
> Librarians need to cultivate an image of professional respect—they should be running a business and not a library.

There are also perceived difficulties in supplying information to senior management in large organizations:

> [There is a] problem with getting senior management to utilize you effectively. They tend to rely on their own networks. An example...my predicting a competitor would sell off a division we needed and because management could not verify this with their own personal contacts they didn't believe my analysis. Three months later another competitor purchased that very division and we certainly could have used it. Managers want answers not printouts. They want information shaped and formed. Strategic thinkers are generally home grown. A lot of them are hitting think tanks or the large consulting organizations like Arthur Anderson. They have vast resources. It's the middle and lower level managers that are not taken care of and that is where my market is.

In order to plug into personal or strategic networks, one must be able to share experiences and values. One of the problems in attempting to move LIS graduates into a position of trust with senior management is that the experiences and values of librarians are so different from those of management, or even those of the operational departments. Librarians are often seen by others—and sometimes by themselves—as separate and aloof. An advantage of an independent information gatherer who is not part of the personal network is that there is a greater chance of getting an unbiased assessment of assumptions made by both senior and line managers. Success in this employment arena depends to a large degree upon how well an individual can take on the problems and confidences of target clients and be relied upon for accurate reliable assessments. The trick is to be independent, yet able to tap into, and be part of, the personal networks of managers, researchers, and operatives at all levels of the organization.

CONCLUSION

Coordinates of the Market

Though difficult to quantify accurately, there is ample evidence of an emergent job market for information professionals. However, a diachronic study would be needed to establish precise dimensions and annual growth rates. Nonetheless, the kinds of positions we have identified in our eighteen-month content analysis of published job advertisements—an approach used by both Cronin (1982) and Moore

(1987) in their mapping of the emerging market for information professionals in the United Kingdom—give a reasonably clear sense of the trend. Opportunities are opening up both within and beyond the heartland market for suitably qualified information professionals. Within traditional library environments, there is a growing demand for specialists with nontraditional skills and attitudes, while, outside such environments, demand for suitably qualified information professionals seems set to grow. There is some evidence of a similar trend at the local level, though Indiana is hardly a bellwether state as far as information careers are concerned—the local hinterland market is relatively small and underdeveloped.

Repositioning Strategies

Some schools of library and information science have already begun to target this sector, but it is by no means a captive or potential monopoly market. Competition can be expected from other academic players (e.g., communication/media studies; journalism; computer science; business administration; information systems) as the territory "belongs" to no one professional or disciplinary tribe. This point has been made forcefully by Abbott (1988) in his systems-based analysis of the evolution of the information (and other) professions:

> The information professions are in some sense specialists in diagnosis...many other varieties of information professionals besides librarians have tried to expand into their clients' work, similarly claiming an increasing jurisdiction over action itself because information is prior to action.

Although many of the advertisements we analyzed specified an MLS or equivalent, many others sought different qualifications, and our local interviews reinforced the feeling that the MLS degree is far from being the ideal qualification—indeed, it is clearly perceived by some to be a disadvantage. It is not, therefore, surprising that the LIS schools which have been most successful thus far at targeting the emergent market are those which offer alternatives to the MLS. Syracuse offers a master's in Information Resources Management; Pittsburgh, SUNY Albany, Toronto and City University offer a master's in Information Science; Sheffield and Strathclyde both offer a master's in Information Management; Florida State is about to bring on stream a master's in Information Studies, and Rutgers' portfolio includes a master's in Communication and Information Studies. Some schools have also moved down the undergraduate track—for example, Drexel with its BS in Information Systems.

Given the repeated emphasis on subject background and business savvy, some LIS schools might well consider positioning themselves aggressively as providers of capstone courses in information studies. The ideal preparation for the emerging market would be a subject

specialty such as engineering, business, or the life sciences, combined with courses that stress the principles and practice of information management beyond the walls of a library, but such is the variegated nature of the marketplace that students with backgrounds from anthropology to zoology will undoubtedly find a niche.

In the great majority of cases, IU SLIS graduates have not found their way into this arena, in part because of the relatively small number of positions being advertised within the state and partly because of the school's highly traditional focus during the 1980s— as reflected in its recruitment and placement record. Actions that SLIS could take to attempt to become a significant supplier to this area in the medium- or longer-term cluster around issues of recruitment, curriculum change, and socialization. In order to work as a professional information intermediary in any of the industries looked at in this study, a practitioner should ideally have significant training or experience in the industry or some knowledge of the culture of the employing organization. SLIS should position itself so that students in disciplines who would not normally migrate to, or minor in library and information science programs, will think of SLIS as a viable option for furthering their careers.

It is abundantly clear that LIS schools will have to provide programs and courses that take a broader look at the provision of information than that provided within the context of a library (e.g., Harter, 1982). In particular, Taylor (1979) has long since made the point that once librarians "cut their umbilical cord to libraries and similar document-based systems, they then become very interesting professionals indeed, for they have unique and significant knowledge, skills and attitudes" (p. 1873). And, in fact, Learned's (1924) exhortation of almost seventy years ago has lost little of its pertinence: "Mere grubbers in books according to professional tradition or a prevalent conception of a public librarian will not do" (p. 17). Students and instructors should recognize the needs of the client as being the rationale for providing services rather than concentrating on the needs of the institution. The information professional's job is to filter, organize, and synthesize information on behalf of clients. Experiences and values other than those of academia need to be instilled in students who are considering working in the emerging market—that means encouraging information entrepreneurs rather than those seeking tenure, risk-taking rather than safety.

ACKNOWLEDGMENT

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Educational Requirements for a Library-Oriented Career in Information Management

MICHAEL E. D. KOENIG

ABSTRACT

A NUMBER OF FACTORS have converged to compel a substantial reassessment of the educational requirements for library-oriented careers in information management. These factors include: the role of technology and the convergence of domains that it has produced, the growth of special library and corporate employment, the growth of information industry employment, and the increased mobility of information professionals. The convergence phenomenon has eroded the boundaries between library and information science, and also the boundaries with business education; communications, journalism, and media; and computer science. One of the major consequences is a very dramatic, and, in many quarters, difficult to accept, polarity reversal for the field—i.e., a change in value systems in which a field that was perceived and perceived itself as primarily a service profession is now very much a part of the entrepreneurial market economy. The educational ramifications of these changes are considerable; there needs to be more orientation toward the corporate and information industry constituency; more emphasis on data and information structuring and the design of information systems; development of a more entrepreneurial and market orientation; development of a more international orientation; and the development of a core component that is general to the information professions and not specific to librarianship, in recognition of the great mobility among information professionals.

INTRODUCTION
    The central thesis of this article is that the educational
requirements for a library-oriented career in information
management have changed dramatically in the last decade, not only
in the for-profit environment but across the board. This change has,
however, been driven to a large degree by developments in the for-
profit domain. Library managers and operators can no longer assume,
as they have previously, that knowledge of how to operate information
systems constitutes virtually the entirety of their required skill set.
Now they must know how to create such systems as well. This change
in requirements derives from:

- an increasing proportion of library-oriented jobs being created
  in the corporate and for-profit environment, where creating
  information systems for the organization is a fundamental
  component of the job function;
- the increasing integration of academic, then public, and finally
  school libraries into networks is, in fact, the beginning of an
  entirely new paradigm of librarianship—the era of library service
  as access to the network and the end of the era of the library
  as a location. This requires that we build a whole new generation
  of systems;
- the beginning of the transition from meta-information in electronic
  form (the "database" that informed one that there was a print-on-
  paper article on the topic) to the information itself, full text, in
  electronic form, and increasingly image as well as text data; and
- an increasing fluidity and flexibility in career paths.

    The consequence of these factors is that education aimed at the
design and creation of information systems is now an integral part
of the education for librarianship as it never was before.
    For a number of converging reasons, the basic educational
requirements for a library-oriented career in information
management have expanded dramatically. The change can be
summarized simply—it is no longer sufficient for such education
to focus on the operation of libraries and the provision of information
services; it is now requisite that there also be a focus on the design
and creation of information systems. This is a dramatic change.
Furthermore, that change represents far more than just a major
increase in scope; it also represents a culture change, a culture change
so profound that it can be described as a true polarity reversal—
a polarity reversal from a service orientation to an orientation that
is at least as much entrepreneurial as it is service oriented.

THE ROLE OF TECHNOLOGY
    The developments driving this change are several. First, and
ultimately the most important, is that the transition from print-on-

paper to electronic information tools and systems has fundamentally changed what librarians do. In the print-on-paper world, librarians administered libraries, cataloged books, and provided public service. Library education had to prepare librarians for those functions. Their world was relatively static, and it was one with great duplication of effort, the same item being cataloged nearly simultaneously at many different sites.

With electronic information systems, that situation has changed. Bibliographic utilities have reduced the need for that duplicative cataloging, and librarians' efforts have therefore been able to shift more toward providing access to, and the creation of, new systems.

A more fundamental component of that change from print-on-paper to electronic information systems is that, in the print-on-paper world, the structure and design of an information system, typically a book, was relatively straightforward; one had merely to be exposed to it and one knew about it, tables of contents, back of the book indexes, etc. In "library school," one learned the subtleties of that structure and the rules and techniques of cataloging and indexing.

Now the domain of electronic information systems is both far more complex and extraordinarily more dynamic. How one constructs a CD-ROM database product is a considerably more complex undertaking than designing and planning a book. There are numerous options in terms of data entry or data conversion, data structuring, search engines, and user interface options, for example, plus numerous vendors whose services overlap, complement, and compete with each other in a far more complex environment than that of printing and binding. In addition, those options and those possibilities are all in rapid flux, and the rate of change is only accelerating.

This complexity and this stunning rate of change has important ramifications for education. We can only dimly predict what we will be educating people to cope with only a relatively short period beyond graduation. We are now entering into a third stage of information systems development, a stage which promises to be even more exciting with far more rapid change than what we have been used to for the last twenty years in stage two (Koenig, 1992). The one thing that we can say for certain is that there will be dramatic change. Stage three, characterized by experimental growth of communication capability, has the potential to radically reshape the world of information services to a degree far beyond even the fairly dramatic—at least to our eyes now—changes wrought in stage two by online databases and CD-ROM. The obvious consequence is that we must educate students broadly and conceptually for information about which we can only guess its shape.

THE GROWTH OF SPECIAL LIBRARY AND
CORPORATE EMPLOYMENT

One of the major employment changes has been the increase in the proportion of library education program graduates taking jobs in "special," typically corporate, libraries. Koenig (1983) pointed out that this change was marked, and made the intriguing discovery that this change correlated quite significantly with the perceived quality of library education programs—that is, the more highly rated the program, the greater had been the shift toward special library employment. He noted further that the shift was independent of the urban or nonurban location of the program.

A major distinguishing characteristic of the special or corporate library is that it typically deals with information internal to or created by the organization it supports. The typical "traditional" library—public, academic, or school—is centrally concerned with organizing information that is created externally. To do that, it either purchases tools (for example, indexes) or catalogs items in a standard format. The special or corporate library by contrast is often centrally, or at least very much, concerned with organizing information created by the organization, and the format is often very specific. Pfizer Pharmaceuticals, for example, may create a database and a data structure for beta-lactam and cephalosporin antibiotics that is unique and is used nowhere else, while Shearson-Lehman may create a similarly unique database for mergers and acquisitions. Even when the information is not unique—for example, external patent information relating to beta-lactam and cephalosporin antibiotics in the Pfizer example—the level of detail that may be needed and appropriate for that organization's use may often exceed that which is available from conventional information services and thus requires that an expanded and enriched database be created within the organization.

The consequence of that characteristic is that special or corporate libraries must frequently create information systems to handle that internal data or to enrich or expand access to external data. Precisely because it frequently is internal data which is often unique to the organization, there is no ready made information service that can be purchased; an information system must be created. This, of course, requires people who can create information systems. At the very least, they must be able to choose among various software packages and build an information system based upon one of them. To do that, one must understand the capabilities and limitations of the different systems. The best way to be able to do that is to have a thorough grounding in information systems technology, particularly a knowledge of the various methodologies for structuring data in an

electronic environment, since that sets the constraints on the performance of the system.

Furthermore, it is increasingly the case that academic librarians create information systems rather than just use them. In the case of academic libraries, there is a new movement calling for return to the academic world of the distribution of the information created by that world, rather than letting commercial service monopolize that distribution role, and, some would say, parasitize the academic community.

THE GROWTH OF INFORMATION INDUSTRY EMPLOYMENT

A parallel development is the increasing role of library and information science education in preparing for employment in the information industry. In the era of print-on-paper, the world of publishing, as the information industry was then known, required no formal training or education. A good belles-lettres degree was all that was expected. Books or journals were items with which all were familiar, and the parameters and economics of their production could be quickly learned. With current and future information technology, that is no longer the case. Putting together a CD-ROM product is not easy or straightforward. There are numerous decisions to be made about vendors, data conversion, search engines, and display formats, some of which require, and all of which are made easier by, a knowledge of information technology and data design. Furthermore, the technology is changing rapidly, and the new technology and its applications and capabilities can be understood and appreciated far more rapidly by those who also possess a solid grounding in the area of information technology.

The consequence of these developments is that the traditional route of entry into what has become the information industry is no longer very satisfactory. The products of schools of library and information science are far better educated and trained to step into jobs where they will have to be dealing with the sorts of issues hinted at earlier.

The industry has discovered the utility of hiring graduates of schools of library and information science. This education has stretched, not without some complaint from the traditionalists, to accommodate this new role of serving as a special purpose graduate school of business to the information industry. The stretch, however, has not in fact been that large. What is needed for information industry jobs, in fact, overlaps greatly with what is needed in modern libraries and information centers, particularly libraries and information centers in the corporate world.

One result of this development is to impel library and information science education toward a more international orientation, for the information industry is inherently international, which in turn derives from the fact that information, the commodity, is inherently international. With conventional manufactured economic goods, there is a trade-off point at which it is cheaper to build—e.g., automobiles—locally than it is to pay the costs of shipping them. With information goods, the cost of creation is high (what the publishing industry refers to as the "first copy cost"), and the cost of duplication and distribution is very modest, almost trivial by comparison. Once one has a *Chemical Abstracts* database in Columbus, Ohio, it is sold worldwide; it makes no sense (economically speaking) to duplicate it in Europe or Japan. Similarly, the Derwent database in the United Kingdom or the Beilstein database in Germany are sold internationally and not duplicated elsewhere. There is a spectrum of economic goods, from low value and high shipping/transmission costs per unit (such as cement) at one end, to high value and low shipping/transmission costs (such as microelectronic devices and printed information products). As information products move increasingly from print-on-paper to electronic media, they are moving even more to the latter end of the spectrum, indeed even extending that end of the spectrum.

At the same time, the world economy is itself becoming both far more international and more information oriented. This in turn creates far more interest in information and information products that are not merely local or regional in their coverage but international.

The consequence of these trends is that the information industry seeks candidates who not only have the requisite technical and operational skills, but who also have the language skills, the interpersonal and communications skills, and the breadth of background and knowledge that allows them to operate effectively in the new international marketplace. Library and information science education programs must consciously prepare themselves to educate students to work in that marketplace.

THE MOBILITY OF INFORMATION PROFESSIONALS

A related development is that of the increased job mobility within the library and information field. Traditionally, library careers were somewhat constricted. Librarians tended to have a career within their particular specialty area. This was particularly true and remains so to a considerable degree within academic librarianship (Koenig & Safford, 1984). However, the growth of both corporate librarianship and the information industry, areas which are very much interwoven in terms of career paths, has brought an unprecedented flexibility to library careers.

In addition, the electronic information age has changed the nature of traditional librarianship by moving library and information operations to the "buy" end of the "create versus buy" spectrum. A fundamental decision in running any enterprise is what to create yourself and what to buy—e.g., if you are a manufacturer of window air conditioners, do you make your own compressors or do you buy them?

The era of electronic information has moved traditional libraries and information services increasingly to the buy end of the spectrum. The first phase of the shift was buying central cataloging from an agency such as OCLC rather than doing (making) it oneself. The second phase was online databases, and the third phase is represented by the shift from collection-based to access-based services. Of course, libraries always bought books and services, but librarianship and publishing were perceived to be two quite separate fields and quite separate career paths. Now, however, with the development and extension of the publishing industry to converge with computation, networks, and other players into the information industry, it is increasingly the case that those entering librarianship and those entering the information industry share common training and common friendships. Furthermore, that shift from "create to buy" has been accompanied by, or, perhaps more accurately, has been enabled by the development of a host of library agencies from national and international agencies (such as OCLC) to state and within-state library networks of various kinds. These agencies are developed and staffed principally by librarians, yet their function and their operation is very similar to that of components of the information industry. Indeed, the distinction between what is and what should be the functions of not-for-profit agencies versus what should be the functions of for-profit information organizations is murky, problematical, and contentious. The consequence is that there is no longer an information world with just two very separate domains— libraries and publishing—the new world is much richer and far more complex, and the domains are far less clearly delineated. Furthermore, the new domain of the library agency represents more than simply the addition of a new domain; it is also a bridge and a migration route between the old domains.

Thus mobility within the field has increased substantially. In fact, not only has mobility increased in terms of changing domains during one's career path, it has also increased in terms of initial job selection. White and Mort (1990) pointed out that nearly half (46 percent) of recent graduates of library and information science programs took their first jobs in areas other than what they thought they were preparing for during their course work. This is a surprising

statistic. It is hard to imagine such a high figure in most other fields. Coupling this statistic with Griffiths and King's (1986) data on job changes indicates that, within a half a dozen years of graduation, more than two out of three graduates of schools of library and information science will have worked in an area substantially different from what they thought they were focusing on in their course work.

CONVERGENCE AND THE CRUMBLING OF BOUNDARIES

Another phenomenon referred to earlier is the convergence of fields and disciplines relating to library and information work and the crumbling of the boundaries between them.

LIS and Business Education

As described earlier, schools of library and information science have become, through default, special purpose business schools for the information industry. In addition, however, business schools are themselves becoming far more conscious of the need to address the management of information and information technology. For a spate of reasons, which are too lengthy to review here (but which are well reviewed by Broadbent & Koenig [1988]), the 1980s saw a dramatic burgeoning of interest in information management (a fivefold increase in five years as indicated by articles in the *Harvard Business Review* and the *Sloan Management Review* [cited in Broadbent & Koenig, 1988]). More and more business schools are initiating programs in information management. The area is ripe for collaboration between schools of library and information science and graduate schools of business. In some cases—for example, Rosary College—that has already happened; at other places, like Western Ontario, it is in the works.

There is also another dimension to this convergence—a technology-driven dimension. As presented by Willner (1991), what a corporate library employer is looking for in new hires has changed and the essence of that change is that the employer now looks for someone not only with technical and professional skills but also with managerial skills. A decade ago, he points out, salary accounted for most of a corporate library's budget. Now, in many libraries, salary is a comparatively small proportion of the budget; the major component is external services and databases. In the case of Shearson-Lehman, he points out, each library employee is, on average, deploying several hundred thousand dollars of the company's resources each year. Those new hires are managing and deploying considerable resources, whether or not they ever thought of themselves as training for a management job.

LIS and Communications, Journalism, and Media

Historically, there has been a logical distinction among the cluster of library science, information science, and information retrieval, and the cluster of communication, journalism, and media. The latter cluster was interested in systems information in which the user was comparatively passive. For example, we all get newspapers delivered in the morning and some of us may have looked at the business section before the sports section, and others may have reversed the order, but our degree of involvement was comparatively minor. In the library/information retrieval cluster, by contrast, the users come to the library and search the card catalog or sit at a microcomputer and do a database search. The user was comparatively active. Now, however, with a device on one's desk, one can be running a profile against a newswire one moment, reading e-mail the next, and then commence a database search. Of those activities, which are library and information science and which are communication or media? The distinction has grown very fuzzy and porous. Indeed, at some institutions (Rutgers and Kentucky, for example), these disciplines have been folded into one school of communication, information, and library studies.

Library and Information Science and Computer Science

As information systems have been automated, there has, of course, been great interaction with computer systems. Furthermore, since computer systems are information handling systems pure and simple, the overlap, in principle, with library and information science is obvious. That overlap, long apparent to those in the "information science" community, is now becoming more apparent to the "computer science" community as well.

It is becoming increasingly recognized in the computer science community that a very major strand in the development of computing and software technology has been to separate and distinguish data from procedure or process (Abbott, 1987). In early programming practice, data were buried and often unrecognized as data in the procedural code. Most of the major developments in software in the 1960s from table-driven software to expert systems, and much of artificial intelligence in the 1980s and 1990s, can now be recognized as steps in structuring data independent from procedure. Thus the structuring of data, the representation of knowledge, is coming to be recognized as increasingly central to computer science, and the convergence of interest with library and information science is clear.

THE POLARITY REVERSAL

The consequences of the four trends discussed earlier are:

- an increase in special library and corporate employment;
- an increase in information industry employment;

- an increase in job mobility; and
- the loss of clear demarcation between fields and disciplines

These are more than just a dramatic increase in the scope and the boundaries of that field. It is, in fact, a true polarity reversal of the value system of much of the field of library and information science.

Librarianship was justifiably proud of its service orientation. It defined itself to a degree by that orientation and took pride in the fact that it was not a business school. Now library schools are being required by the changes in employment opportunities to not only serve the traditional community, but to serve as a special purpose business school as well. For many, this is a bitter pill to swallow. In one case, it would not be much of an exaggeration to say that one school of library and information science even chose to treat it as a suicide pill (Haywood, 1991).

The author was made personally aware of how dramatic that change has been when, a few years ago, he served on an eight member search committee for the dean of the School of Library Service at Columbia University. The experience can perhaps best be described as closely akin to serving on a search committee for the dean of a divinity school—but a completely schizophrenic search committee in which half of the members thought they were looking for the dean of an aggressively nondenominational divinity school—e.g., Yale, and whose important selection criteria were a candidate's commitment to open scholarly inquiry and the marketplace of ideas, the candidate's own research and scholarly merit, and the candidate's administrative and fund-raising skills—and where the denomination of the candidate, whether Congregationalist, or Shiite, or Dominican, or Reformed was largely immaterial. By contrast, the other half of the members of the search committee thought that they were looking for the dean of a rigidly sectarian divinity school—perhaps one like Oral Roberts University—and that the candidacy of no one but a demonstrated true believing member of that sect could be entertained. A candidate with a background in the information industry was absolute anathema to that half of the committee.

Indeed, the demise of the School of Library Science at Columbia can be quite simply described as the conflict between a university administration who had given the school a mandate to become a Yale and a tenured faculty who were committed to retaining the school as the Oral Roberts of schools of library and information science, supported, or at least not challenged, by their dean.

The point made is that it is proving to be very difficult to change the cultures of schools of library and information science—so difficult that the School of Library Science of Columbia committed what

Haywood (1991, p. 48) described as "communal Hari-Kari" rather than adapt to that polarity reversal. The senior faculty preferred to fly the old flag of "service orientation" in solitary splendor on the masthead and go down with the ship rather than run up alongside it the new flag of "entrepreneurship and the international marketplace" and be assured of smooth sailing.

RAMIFICATIONS

The ramifications for library and information science education are generally rather clear, but they are not so easily implemented—as the case of the School of Library Science at Columbia University illustrates.

Library and information science education needs to:

- become more oriented toward its corporate information center and its information industry constituency;
- emphasize data and information structuring and the design of information systems;
- develop a more entrepreneurial and market orientation;
- develop a more international orientation; and
- recognize the great mobility among information professionals, and design curricula that have a core component that is general to the information professions and not specific to librarianship.

The changes required are, however, likely to be more profound than this list implies. The difficulties caused by the polarity reversal of the field have already been discussed. There is no point repeating what has already been stated, but this issue is visceral and deep, very difficult to deal with, and the difficulties it raises color all of the discussion in this section. Its importance should not be underestimated.

The convergence phenomenon implies that, at the very least, schools of library and information science will need to be building joint and interdisciplinary programs with other programs, departments, and schools. This is not easy to accomplish in an academic environment; it requires cooperation and the sharing of power. Furthermore, it calls into question a basic and long-standing assumption of library education—the stand-alone "library school." Library science has long been very concerned about its image and acceptance as a profession, and to bolster that image and acceptance it has very consciously adapted a pattern of education for the profession that mimicked that of the more unambiguously recognized professions—medicine and law. That mimicry had two key components: library science education would be at the graduate level only and that education would be purveyed in a discipline-specific

stand-alone school. Haywood (1991, p. 35), in his study of U.K. and U.S. library education programs, noted the U.S. penchant for stand-alone schools as contrasted with the United Kingdom. He commented on the "dichotomy" this creates between the desire for stand-alone status versus the fear of isolation and its consequences and the ability to develop innovative new programs and curricula.

Joint and interdisciplinary programs can and are seen as a threat to that model. The more such programs there are, the more obvious becomes the question "Why not place those various programs in one umbrella organization that awards a number of degrees, including, but hardly limited to, the American Library Association-accredited degree in library and information science?" The only logical answer is "why not indeed." As mentioned earlier, this has already happened at Rutgers and Kentucky, and it is increasingly being discussed at other institutions. At Syracuse University, for example, there has been serious discussion about merging the School of Information Studies with the School of Business Administration. Given the options provided by the degrees of overlap and convergence, there is likely to be no one standard solution. What shape the larger organization takes will be largely a function of the potential partners and the peculiar campus politics of each parent organization. It is likely, however, that the day of the stand-alone library school or school of library and information science is numbered. This is for many library and information science faculty members a very threatening and unwelcome development. It implies at the very least a sharing of power, and since library and information science faculties are not very large (the modal and mean faculty sizes are in the range from seven to nine), it typically will mean sharing a much larger pond already populated with larger frogs. To many, this is an unappetizing scenario to be avoided at all costs.

These necessary and largely unavoidable changes have ramifications for, among other things, accreditation. The old standards, or at least the interpretation of them, actively discouraged collaboration and joint programs. The new standards which encourage such initiatives are a major step in the right direction. Now we need to set up an implementation procedure which, in fact, does encourage them.

We cannot avoid the coming convergence; we must adapt to it. The best way to adapt to it—best both in terms of serving our constituencies well and best in terms of the self interest of the survival of library and information science programs, albeit within a larger pond—is to undertake the steps discussed earlier and to develop joint

programs with other players in the information area. The best defense is often a good offense. Better to occupy the terrain jointly than to be dispossessed or shut out entirely.

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Professional Development for Special Librarians: Formal Education and Continuing Education for Excellence

WILLIAM FISHER AND JAMES M. MATARAZZO

ABSTRACT
THIS ARTICLE EXPLORES recent developments and future prospects in the area of professional development for special librarians/information service professionals. Both formal education programs and continuing education are discussed. A review of the factors in the case studies presented in *Corporate Library Excellence* provides the basis for emphasizing the importance of continuous education for librarians working in corporate environments.

INTRODUCTION

As we think about professions, preparing people to work as professionals, and professional development, one factor is indisputably clear: the educational foundations of a profession are of paramount importance. Through educational processes, the body of principles, issues, skills, and attitudes that anyone entering the profession needs to know are transmitted. This is one reason why the accreditation of professional educational programs exists; to ensure that the core concepts of the profession are taught so that graduates of accredited programs enter the profession equipped with this body of knowledge and with professional standards. But this is just the beginning. Continuing education is important in every profession and it is absolutely essential in a professional environment where rapid change alters the scope, knowledge base, and methodologies of that profession. This is certainly the case with

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librarianship in general and with special librarianship as practiced in the corporate environment in particular.

FORMAL EDUCATION

Many have expressed their views on formal graduate programs in librarianship. They include recent graduates, potential employers, and library educators themselves (for example, Hill, 1990; Rothstein, 1985; Tees, 1986). The general conclusion that many authors draw is that the basic MLS curriculum, especially a one-year program, cannot prepare a new graduate for all of the demands of the first professional job. While most programs give their students the opportunity to "specialize" in some aspect of the field, by and large the most any school can do is give students both a philosophical and practical foundation upon which to begin their careers.

Furthermore, when you look at what it takes to be successful in the corporate information environment, many of the traits that have been found to be important are not the kinds of things that can be taught in the classroom. In Matarazzo's (1990) recent study on corporate library excellence, a set of characteristics were found among a group of special libraries that were recognized as being excellent. These factors included support from corporate management; the efforts and leadership ability of the library manager; a library staff that was willing to follow the manager's lead; and a real service orientation toward clients, which in turn resulted in a great deal of loyalty and support for the library/information center. These characteristics are not very surprising, and we would hope that the attitudes involved—hard work, dedication, and a strong service orientation (among others)—are developed within every library school student. Having the students respond and put those attitudes into practice in the workplace is another matter.

This reinforces what Miriam Tees (1986) found when she asked practicing special librarians what knowledge and skills were important for new library school graduates. Of the top ten listed, only four were specifically library related, the kinds of things a student would/should get out of his/her MLS education. Those four are:

1. knowledge of basic reference sources;
2. ability to conduct a reference interview;
3. ability to develop a search strategy; and
4. knowledge of subject sources particular to your library.

Of the remaining six listed, three involve communication skills:

5. ability to communicate orally;
6. ability to write well;

7. ability to communicate with staff;
8. an attitude of service;
9. ability to make decisions; and
10. ability to state a problem.

As Matarazzo found later, many of these last six traits are not taught as basics in an MLS curriculum and certainly not as separate courses. Most, if not all, of the six nonlibrary-related traits, however, should be covered in a basic management course. Management, once a highly neglected area in library education, is now found as part of virtually all library school curricula and it is required at many schools. Furthermore, these traits can be enhanced through other courses found in library school. Communication skills and decision-making skills should be enhanced by *every* course a graduate library school student takes.

The question that arises from this viewpoint is whether library schools should be involved at all in teaching what amounts to personality traits to their students. The assumption is someone either has a strong work orientation or they do not. While we feel that this article is not the best forum for that debate, we also feel that library schools do have an obligation to inform their students about the realities of the workplace. And, if that workplace is the corporate library environment, then those students better be ready to work and work hard as both Tees and Matarazzo found.

The usual outcome of such studies is a call for curriculum reform. The response on the part of library schools has either been to defend their current course offerings or actually add a new course or two. Curriculum reform is easy to call for and, for most schools, it is also easy to provide. However, curriculum reform may not be the best solution to the problem. As Mary Culnan (1986) wrote, "massive curriculum reform is not the answer to providing the skills needed to effectively serve corporate information needs in the future. Rather, educational programs at all levels should focus on adapting the traditional skills to the new environment brought about by technological and external environment changes" (p. 214). In other words, it is not the set of course offerings but rather the content and teaching methods and access to current technologies that is crucial.

SPECIAL LIBRARIES ASSOCIATION

Rather than prepare their students for careers as special or academic or public librarians, MLS programs should be providing their graduates with certain knowledge, skills, and attitudes to compete in the job market in the twenty-first century. The Special Libraries Association (SLA) has recognized this in putting together

its *Position Statement on Graduate Education* (provided in full in the Appendix). In the statement's original construction in 1988, and in a recent revision in 1992, five broad areas were presented as those requiring special knowledge and/or skills to be successful in the overall special library environment, regardless of the specific type of special library (Special Libraries Association, Professional Development Committee, 1988, 1992). These areas include: (1) provision of information services, (2) technology, (3) management, (4) information resources, and (5) information service/product evaluation. The statement does not prescribe certain courses that a library school should offer, rather it outlines various competencies that any special librarian should have. This allows library schools to look at their course offerings as a whole and use this total package to address the areas mentioned in the statement.

While the competencies offered in the statement are felt to be crucial to success in the special library environment, they are also important in other libraries. For example, the technology section provides a "laundry list" of computer/electronic technologies that any librarian should know. The management section stresses awareness of the political process and structure within the parent organization, again something all librarians should know regardless of the size or type of organization in which they work.

This approach addresses the content of courses, which is where the emphasis should be. Just because a particular course is "on the books," doesn't say anything about how often it is taught or how well it is taught. By taking a more competency-based approach, library schools can ensure that elements of these various competencies are spread throughout the curriculum. This is in contrast to an approach whereby specific courses are offered covering particular types of libraries—e.g., a special libraries course. When specific courses such as this are part of the curriculum, schools are under pressure to offer it constantly, and students struggle to fit it into their schedules and beat the rush to get into it. There is another benefit that should result from this approach. Students should feel capable and have the self-confidence to go into most any information environment and know they can make a contribution to that organization rather than think that lack of one specific course prevents them from being successful in that kind of environment.

The *Position Statement on Graduate Education* is but one example of the contributions professional associations and societies can make in the educational arena. During his term as president of the Special Libraries Association (1991-1992), Guy St. Clair appointed a special commission on Professional Recruitment, Ethics and Professional Standards (the PREPS Commission). A relationship

between these issues and professional education was clearly seen by the commission. Seven of the commission's recommendations deal with formal educational programs, while other recommendations are concerned with SLA's role in continuing education (Special Libraries Association. Presidential Study Commission on Professional Recruitment, Ethics and Professional Standards, 1992). These recommendations cover a wide range of activities, from keeping the *Position Statement on Graduate Education* updated to creating a list of questions applicants can ask a library school to determine how strongly the school supports education for special librarianship. Other recommendations include continuing to work with ALA and other appropriate groups in the area of accreditation, working with programs offering special library courses and/or sponsoring SLA student chapters, providing some type of recognition for these schools, working with those schools not providing a curriculum conducive to special librarianship to change that situation, and helping local chapters establish liaisons with schools providing library education. In the area of continuing education, recommendations included working with other groups to identify and deliver continuing education opportunities and developing a directory of continuing education opportunities of potential interest to SLA members.

All of these recommendations were seen as positive actions that the Special Libraries Association could take to demonstrate its concern about the educational preparation of people coming into the field of special librarianship. At the time this article was written, SLA's Board of Directors had not taken any official action on these recommendations beyond asking for a timetable as to how they would be implemented. If SLA adopts all the education-related recommendations, it will be a strong statement regarding their concern and involvement in the issue.

CONTINUING EDUCATION

The new graduate really begins to "specialize" on the job. Unless someone starts library school with a very specific interest and with working experience, then takes the requisite courses to support that interest, and finds a position in that specific area after graduation, initial on-the-job training is necessary and continuing education to mature professionally and to maintain currency is necessary. In fact, the need for education never disappears. Continuing education in the form of professional reading, conferences, vendor demonstrations, workshops, seminars, and formal courses must be a continuing component of professional life.

One response to this on the part of schools of library and information science is to open their advanced courses to practicing

professionals and allow them to take these courses along with their MLS students. While this may meet the needs of a few practitioners, it really only helps those that live in the vicinity of a library school and those that have the time to take either a quarter- (10 weeks) or a semester- (15-16 weeks) long course. In his study of continuing education among special librarians, Fisher (1987) found that taking a full-term course was the least often used method among five options presented. The four most used options (in order of preference) were: workshops sponsored by commercial groups (e.g., vendors), workshops sponsored by professional groups (e.g., SLA or ALA), in-house training offered by the individual's organization, and workshops sponsored by academic institutions.

The significance of professional continuing education programs was recognized by SLA members themselves, as they rated their association's professional development programs and services very highly in a recent survey of membership needs (Special Libraries Association, 1991). This included rating the association's professional development programs second in value behind the annual conference and indicating an increased interest in participating in professional development activities sponsored by SLA. Furthermore, the results of this 1991 survey were very close to the findings of a similar survey in 1986 conducted by the association.

The role of continuing education and its relationship to excellence in the provision of service became even clearer with the results presented in *Corporate Library Excellence* (Matarazzo, 1990). In this book, library managers at thirteen libraries were most articulate when addressing the continuing programs of education and training made available to, and taken advantage of by, staff members. Interviews conducted with library staff members, in turn, also document the relationship between continued learning and meeting client needs.

In a review of the findings in this study, it is clear that successful library managers have staff members who are sensitive to the demands of clients, know the industry of which they are a part, and are close to client needs. What may be less clear is that library managers have planned programs of continuing education, often with staff input, to develop these staff competencies through continuing education. The aim of the managers has been to contribute to the ability of staff to meet the demands of clients, partly through providing for staff education and professional growth.

The important point is that managers plan opportunities for staff continuing education as part of their managerial roles. The opportunities include vendor-provided programs, participation in professional associations, access to courses offered at firms, and courses

offered by other sponsors. Along with the requirement that managers be aware of opportunities for continuing education, these same individuals must be concerned with the cost of these programs and the needs of the staff. The cost extends not only to the dollar cost of the course, but to the staff member's time away from his or her position.

It is usually at budget time that a plan for continuing education must be developed. This will ensure, as far as possible, that the funds will be available as the need and opportunity arise. The existence of a budget for continuing education also provides a sense that this aspect of professional life is a continuous process.

From the data in *Corporate Library Excellence*, it is clear that the library managers in this study actually plan for staff development through continuing education from the point a staff member is hired. The library managers, ever vigilant to ensure quality service, are mindful that the provision of continuing education is a good investment. This is not to suggest that all staff requests for continuing education are honored. Indeed, the needs of the library staff team and the particular responsibilities of the staff members at that time are all taken into consideration.

When planning for staff continuing education, Miller (1987) states that there are three factors to consider as a manager: (1) need and level of interest, (2) awareness of course availability, and (3) cost in time and dollars. She further notes that planning jointly with a staff member for continuing education can add to the morale of staff, while making them aware of their organization's support for their activities.

The librarians at the firms included in *Corporate Library Excellence* share the following characteristics as a group: a dedication to provide an extraordinary level of service to clients, a determination to deliver whatever is asked for in a timely manner, a feeling that they are part of the organization they serve, a sense that they are well treated, and an appreciation of the many opportunities made available to them. Among these opportunities is the availability of continuing education.

At each of the libraries visited, it is clear that continued learning is expected and is accorded a high priority. For the individual, this may indeed be the most important factor: to work in an environment which encourages this activity. It is perhaps even an atmosphere where continuing education is a firm goal or part of the corporate culture and is expected of each and every professional. Thus, the library professional, by participating in this activity, may mirror what other professionals at the firm are doing on a regular basis.

Novack (1987) points out the five reasons continuing education is important when she states that it affects the quality of search service, it plays a role in career development, it serves as a factor in employee

negotiation, it instills self confidence, and it results in greater productivity.

Thus, continuing education contributes not only to a sense of being well prepared to meet user needs, it also plays a role in how much the librarians at these thirteen libraries like their jobs and how much they strive to carry out their roles at the highest level of client expectations daily. Indeed, we are convinced that the sustained interest in their positions, in their company, and in their industry stems in part from a rigorous and cooperative program of continued learning.

Those interviewed for *Corporate Library Excellence* turn to vendors, in-house company seminars, and to other formal programs of continuing education. The best source, or most appropriate source, is often determined by the course content. Fisher (1986) provides convincing evidence that the Special Libraries Association is in the best position to provide access to continuing education for special librarians. As has already been pointed out, he found special librarians very active and very pleased with the continuing education experiences afforded to them by the SLA.

Schools of library and information science also provide continuing education programs for their own alumni and for those employed in the immediate region. Tees (1989), however, has documented a nearly complete lack of library school involvement with the Special Libraries Association. Few faculty members were even members of SLA, few have served as officers at any level of the association, few have served on an SLA committee, few have spoken at an SLA conference, or written for an SLA publication. "SLA has not been blessed with a close relationship with library school faculty," she concluded (p. 300). So, while schools of library and information science provide continuing education opportunities, it is usually by chance rather than by design that these opportunities are relevant to special librarians. If we accept the premise that special librarians have unique continuing education needs, then library schools' response to those needs will be haphazard at best without increased communication between the schools and special librarians. Tees's point is that the best way for this to happen is through increased faculty involvement with SLA.

On the other hand, SLA has a vigorous program of continuing education. In 1991, at the Winter Education Conference, Annual Conference, Middle Management Institute, and via co-sponsored courses, 1,521 members and nonmembers participated. With better than 10 percent of the membership actively involved as participants, SLA can and should claim enormous credit for meeting member needs through its continuing education programs.

CONCLUSION

Formal education programs and continuing education providers each have important roles to play in keeping the special library community prepared to meet the demands of the workplace. Although not the only provider of continuing education in this area, SLA has recognized its educational role and taken the lead in providing continuing education activities. In some respects, organizations like SLA or commercial vendors are better positioned to provide more focused services because they do not have to serve such a diverse clientele as library schools must do. The schools, especially those that are publicly funded, must respond to the educational needs of the entire library community. This applies to both their basic curricula as well as any continuing education programs the schools may offer. This allows other providers of professional development, such as associations, vendors, state or local agencies, and the like to sponsor very specific programs/workshops. These offerings can either "fill in the gaps" of someone's library school education or respond to new problems and issues more rapidly than the schools are able to get new courses through the curriculum review process.

As the knowledge base that is necessary to remain competitive broadens and the resources available to obtain this knowledge shrink, the current providers of professional development (both formal education and continuing education) need to work cooperatively to provide the best overall package of educational opportunities for the special library community. Through this kind of effort, special librarians will be able to achieve corporate library excellence.

APPENDIX

GRADUATE EDUCATION POSITION STATEMENT*
Professional Development Committee
Special Libraries Association
Revision—Spring 1992

Introduction

Special librarians must meet a set of professional demands requiring competencies and skills that are not required in other library settings. The Special Libraries Association agrees that the competencies, skills, and attitudes derived from an accredited MLS program are important in any information environment. However, SLA is concerned that many library schools' curricula do not offer the type or the range of educational experiences necessary to prepare students for careers in special librarianship.

Education for special librarianship falls into two distinct categories:

1) subject-specific
2) library/information related

Although subject-specific knowledge is critical in most special library environments, the Association recognizes that in-depth subject education is outside the realm of library education and must be acquired through other degree programs. This does not, however, rule out knowledge of core information resources in a variety of subject areas. This is well within the arena of library education and vital in all special libraries for the provision of information services.

This statement is concerned with library/information education only, specifically those areas of current curriculum which require expansion, or modification to meet the educational needs of potential special librarians.

Areas of concern include:

1) Provision of Information Services
2) Technology
3) Management
4) Information Resources
5) Information Service/Product Evaluation

While these broad subjects are included in the typical library school curriculum, instruction may not include, or sufficiently emphasize, the components of these subjects that are critical to special librarianship.

Provision of Information Services

The ultimate goal of special librarianship, and perhaps the key distinguishing factor between special libraries and other library settings, is the provision of customized information services that meet the requirements of the parent organization in the most cost-effective and efficient manner possible. In special libraries there is less emphasis on functions, such as acquisitions, cataloging and collection development, and greater emphasis on the provision of active services in immediate response to client needs.

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*"Graduate Education Position Statement," unpublished document of the SLA Board of Directors, revision, Spring 1992

Typical special library services that are not usually performed by traditional librarians include:

a) packaging of information to meet specific demands

b) selective dissemination of information

c) analysis and interpretation of information

d) selection, configuration and evaluation of individual systems to meet client needs

e) development and delivery of new services as client and external demands require

f) design and development of information "products"

g) exhaustive database searching

h) database development

i) thesaurus and index construction

Technology

The impact of computer and telecommunications technology on the information environment has dramatically changed the way special librarians work. As clients have increasingly emphasized the need for immediate response to information requests, special librarians have optimized the use of advanced technologies.

To a greater extent than other librarians, special librarians rely heavily upon various computer and electronic technologies, such as online/telecommunications systems, artificial intelligence and expert systems, multimedia systems, desk-top publishing systems, national and international information networks, magnetic disk and tape, video disk and laser optical disk to capture, store, and deliver information.

Knowledge of the variety of systems available, the capabilities and limitations of each, and the compatibility among different systems is essential. Competency in systems analysis and design, and advanced knowledge of computer applications are critical, as today's special librarian must be able to plan and implement technological solutions to the information problems of the parent organization.

Management

To a greater extent than other librarians, special librarians are placed in management positions early in their careers. In these positions, they must excel in both general business management and in management of the information activities and resources of the parent organization.

The theories and principles of general business management and organizational behavior are key knowledge areas for special librarians, as they must develop a comprehensive understanding of the parent organization, including its business mission, goals, policies and procedures, overall structure and key personnel. They must also be able to communicate and work with other managerial personnel in various functional areas of the organization and at different levels in the organizational hierarchy. In order to do this, they must be aware of the political process and structure within the organization.

The current trend toward decentralization of information functions may require the special librarian to control the flow of information on an organization-wide basis. This type of information management includes

coordination of both internal and external information resources and provision of continuous support to all functional units within the parent organization.

To prepare special librarians for general management and information management roles, library schools must place greater emphasis on communications, human resources issues, planning, budgeting and finance, marketing, cost effective performance, productivity, profitability, organizational behavior and politics, and leadership.

Information Resources

Special librarians are concerned with the identification, selection, and acquisition of the information resources needed by the library's clients. They need to be sensitive to the parent organization, have knowledge of the current collection, know how to assess its strengths and weaknesses and develop it to insure its usefulness. Special librarians must also be aware of opportunities for resource sharing and cooperation with other libraries.

Once the necessary information has been identified and obtained, it needs to be as accessible as possible. Methods of classification and organization of information may differ from one special library to another due to the specific nature of the collection and degree of automation in use. Increasingly, information is being stored and accessed through the use of electronic formats. For this reason, database design/construction and thesaurus development have become important skills.

Because special librarians still collect, organize and classify traditional information resources in addition to the electronic formats mentioned above, knowledge of current cataloging, classification, indexing and abstracting methods is also important.

Information Service/Product Evaluation

Special libraries are user-driven. Immediate response to clients' requests is the norm. Accurate evaluation of all aspects of the provision of information services is critical. Continual assessment of client needs and the quality of the information service/product is vital. This requires use of non-traditional information sources and the packaging or repackaging of that information based upon clients' needs. Value-added services such as information product analysis as well as evaluation must also be considered basic tools.

The various methods of measurement and evaluation, particularly those related to cost/benefit, are essential knowledge for special librarians. Evaluation will become an increasingly important tool as corporate and other information specialists are confronted with the need to justify the library's existence and are charged with recovering costs and producing profits from the information resources of the parent organization.

Conclusion

These five subject areas are key components in the education for special librarians. To prepare students for special libraries careers, greater emphasis must be placed on knowledge of management, technology, provision of information services and evaluation techniques, as indicated above. Without greater proficiency in these areas, graduates of accredited MLS programs

will not be adequately prepared for the professional demands of special librarianship.

As submitted by: Professional Development Committee
Chair: Judy Macfarlane
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Special Library Education and Continuing Education in Canada

JUDY MACFARLANE AND MIRIAM TEES

ABSTRACT

THE BUSINESS OF PROVIDING and managing information in today's changing economy is in a state of constant flux. This is as true for special librarians in Canada as it is for those in the United States. This article will take a comprehensive look at special library education and continuing education within the accredited library school programs in Canada. The state of special library education in light of changes in the profession and in the marketplace will be assessed. What does an employer expect from a newly graduated special librarian? How should special librarians continue to expand their capabilities and skills to include the broad education and training needs required in most information systems and services today? Finally, the article will conclude with some speculation on educational preparation for careers in special libraries for the future.

INTRODUCTION

To discuss education for special librarianship in Canada is no easy task, since there is no standard throughout the nation, and, like many things in this country, it varies from province to province, city to city, school to school, association to association. As in the United States, special libraries have been an important aspect of the field of librarianship for about a hundred years, and courses have been geared to the special librarian for nearly as long, whether by the library associations or by the schools of librarianship.

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For many years, courses called "Special Libraries" were part and parcel of the curricula of the two original library schools (McGill University and University of Toronto) and, when new schools were formed, they followed suit. These were usually elective courses, often taught by practitioners who worked as special librarians themselves. Students were usually required to choose one or more "type of library" course: public, college, university, children's, special, or a variant of these.

There was, of course, no guarantee that if a student took the course in special librarianship he or she would actually work in a special library. Then, as now, most organizations employing special librarians are looking simply for someone with a library or information science degree, if in fact they know enough to employ a librarian with professional education at all. A course in "special libraries" may be the perfect preparation for work in a special library, but the graduate may well find himself or herself in another type of library while the person working in the special library may never have taken such a course. Nonetheless, education for special librarianship is still available in one way or another in all the schools in Canada.

There are at present seven accredited schools of librarianship and a number of institutions which give training for library technicians. We shall deal here only with the former, since the latter rarely cover special librarianship in any specific way. The seven accredited schools are: School of Library and Information Studies at Dalhousie University, Halifax, Nova Scotia; Graduate School of Library and Information Studies, McGill University, Montreal, Quebec; École de bibliothéconomie et des sciences de l'information, Université de Montreal, Montreal, Quebec; Faculty of Library and Information Science, University of Toronto, Toronto, Ontario; School of Library and Information Science, University of Western Ontario, London, Ontario; School of Library and Information Studies, University of Alberta, Edmonton, Alberta; and School of Library, Archival and Information Studies, University of British Columbia, Vancouver, British Columbia (see Appendix A for information about these school and Appendix B for course content of the Canadian special library courses). Each of these schools has different emphases, different strengths, and a different approach to education for librarianship.

With the exception of the University of Western Ontario, which has a three-semester program, all the Canadian schools have two-year programs. This means that students spend the first year learning basics of librarianship, and there is usually a required core which probably includes cataloging, classification, bibliography, reference,

library automation in its various aspects, collection development, management, or some variation of these. The content of a course in special librarianship would depend on how much the students would already know in any one area and where emphasis would be needed. In one school, for example, time is spent discussing appropriate databases and how to evaluate and choose them. In another, such a topic is not touched upon.

COURSES

Of the seven schools of library and information studies/science in Canada, six have specific courses in special librarianship, and the seventh, Dalhousie, provides a variety of options for students who wish to explore this type of library. Several schools report discussions about abandoning such a course along with other "type of library" courses, but, on the other hand, the Université de Montréal, which did abandon it in a revision of the curriculum some years ago, has recently reinstated it. The courses are taught either by sessional faculty who work in special libraries or faculty members with special library experience. There is a range of titles for these courses from a bald "Special Libraries" to "Management of Corporate and other Special Information Centres."

The methods of teaching are fairly standard and vary little from school to school. All emphasize reading and discussion, site visits, and interviews with special librarians. Most invite special librarians to speak to their classes. In most schools, the students have some form of project or paper. One school, Toronto, has a well-established practicum; students are assigned to a special library where they work on a special project as well as taking part in the activities of the library and reporting on them. At McGill and the Université de Montréal, students take part in a six-week simulation of the establishment of a new special library in a pharmacological firm. At Western Ontario, students use a seminar method using specific problems to prepare, solve, and discuss at each class.

Content of the courses is also relatively standard. All dwell on the philosophy of tailored service in the special library and the differences between special and other libraries. They all describe the importance of networking within the special library community, and the importance of associations and continuing education.

All courses stress the importance of a knowledge of management in the special library and the ability to fit into the organization of which the library is a part. They cover aspects of management such as staff: job descriptions, salaries, hiring, interviewing, performance appraisal; finance: budgeting, records, funding methods, chargeback; planning and evaluation: the why and how. Most examine

the environment in which the special library exists, studying the place of the library in the organization, the people to be served, analysis of needs, resources available within organizations, and internal networking. All deal in some way with services offered and how to market them. Some cover the automation of the library in some detail, and discuss hardware, software, databases available, and how to choose them. Some concentrate on collection development. A number discuss special services provided by some libraries: translation, archives, records management, publications, and so on. Some cover planning and selecting space, furniture, and equipment. Some discuss alternatives to special librarianship such as free-lancing, entrepreneurship, and so on.

The course descriptions, though detailed, do not, of course, show all the detail of the courses. Much is covered through observation of the work of the special libraries visited, through lectures by special librarians, and by the opportunity to ask them questions. Much more is learned in projects, papers, and activities such as case studies or games. What is special about special libraries is more an attitude than a collection of techniques, and this is what students need to learn from a course in special librarianship.

OTHER APPROACHES

Dalhousie's School of Library and Information Studies has no course in special librarianship as such. Mary Dykstra, the director, describes the many ways in which a student can concentrate on special librarianship in his or her program at Dalhousie. They may choose a special library for their projects in such courses as "Collections Management," "Systems Analysis," "Database Management Systems," "Library Automation and Networking," "Library Promotion and Public Relations," and so on. They may specialize in a reading course on a topic such as prison libraries, bibliotherapy, or map librarianship. They may take one or two specialized courses on law libraries or health science libraries. They may take a combined MLIS/LLB—a combined degree of the library school and the law faculty. They may take up to four graduate courses in other departments thus fitting themselves for specialized library service in such fields as education, business administration, or environmental studies. They may take a course in management information systems in the School of Business Administration. They also have an opportunity to use the "Work Experience Programme" of 100 hours, a requirement for the degree, in a special library.

The earlier mentioned approaches are not, of course, confined to Dalhousie. Many other schools offer some or all of the mentioned opportunities in addition to their specific course in special

librarianship. These are all valid and valuable educational experiences for students who are interested in special librarianship.

In many aspects, the education of special librarians north of the forty-ninth parallel is no different from that of our neighbors to the south. In a general sense, it is true that the two-year master's program common in Canada is more supportive of developing many of the competencies that we have come to view as essential than a one-year program. The essence of the issue, however, whether one is north or south of that forty-ninth parallel, still remains the identification and encouragement of the knowledge, skills, and attitudes required to do the job in a special library.

This has not been a neglected area of library literature. Over the years, many highly qualified and well-respected practitioners and educators have addressed the issue of developments in special library education. In terms of what special librarians expect from and are looking for in recent graduates, however, there are some landmark works that deserve particular attention. Any discussion of library education must also take into account the impact of the recently revised American Library Association *Standards for Accreditation of Master's Programs in Library and Information Studies* (American Library Association, 1992). In the special library field, we should also look at the Special Libraries Association's input into the process of developing the accreditation standards and the status of the final product. Finally, new initiatives such as SLA's *Report from the Presidential Study Commission on Professional Recruitment, Ethics and Professional Standards* (Special Libraries Association, 1992) will help point the way toward the future.

In 1986, Miriam Tees surveyed over 400 special librarians in order to determine and identify what these librarians required new graduates to know. The results of the study were not particularly surprising. Over 98 percent of respondents felt that the "ability to communicate orally" was an essential skill. Communication skills and reference skills ranked very high on the scale of the new graduate's needs, lending further credence to the current preoccupation with marketing skills. Management skills were also considered very important by respondents, along with knowledge of computer capabilities, research skills, professional ethics, and an "attitude of service." Certainly these are attributes that will always remain essential. However, it is also interesting to note that financial management—identifying costs, developing a budget, controlling expenditures, accounting—was judged only moderately important as were human resource management skills. Perhaps the intervening years and new economic realities have conspired to shift some focus toward how we manage people and money. Other concerns enunciated in Tees's study remain

current. Many people were interested in the area of recruitment into the profession and, indeed, felt that the type of person is more important than the skills and knowledge that individuals learn in school. Another issue was the desirability of an internship/practicum as an essential part of the education of the special librarian, either as a requirement or as an option for those with no working experience in information work.

Further to the Tees survey, SLA published another study dealing with competencies unique to the information professional within a special library (Special Libraries Association, 1991a). In contrast to the previous work, this publication compared the competencies that may be needed in special libraries of different sizes. While it is evident that a professional in a one-person library will probably need different skills from the manager of a large facility, it is remarkable to note that there were more similarities in the librarian competencies reported here than differences. Four different-sized types of libraries were examined: the one-person/one-professional library, the mid-sized special library, large corporate information centers, and branch libraries. The attributes or characteristics held in common by all to be desirable were the oft-mentioned "attitude of service," enthusiasm, learning the techniques that lead to excellence, the ability to set and maintain high standards, marketing and "salesmanship" skills, and, of course, high-level communication skills. Interestingly enough, it is in this study that the concept of information professionals requiring the ability to analyze, assess, and package an information product is stated in more than one instance. Financial management and human resource skills are judged to be of more importance than in the earlier Tees survey. Each of the four authors within the study appears to assume that, since the task of the special librarian is to provide information, the competencies required are focused on this activity. Information or knowledge skills at a very high level are therefore an absolute necessity and an accepted base upon which all other competencies and skills will be built. Many library managers in larger settings do very little "information" work and find themselves spending all their time in management and marketing functions. However, in one-professional and mid-sized libraries, managers also participate in the actual access and provision of information to the clients as well as interpreting the information function to the organization. Librarians, therefore, must have three "areas" of competencies:

1. "Information"-related and technological skills:

   These skills include the so-called "traditional" abilities of selecting, acquiring, controlling, and disseminating, as well as the ability

to carry out a reference interview, to develop search strategies, and to do online searching. The librarian must also have knowledge of information sources and either in-depth subject expertise or the willingness to acquire subject specialization. The knowledge and use of new technologies in acquiring, organizing, and providing information is essential, as is the ability to develop new and appropriate information systems within a given organization;

2. Management skills:

The librarian must be able to manage in circumstances that may vary due to size of the parent organization, number of information professionals employed, economic strictures and realities, or any other environmental change. Included within the management functions are the abilities to plan, organize, supervise, budget, and market or sell not only the information function, but the abilities of librarians to control that function. For if others outside the information center control its management, there probably will be little corporate support for its continuance;

3. "Attitude" skills:

It is in this area that we find the competencies most often referred to in surveys and studies. A professional attitude, commitment to service, enthusiasm, the ability to communicate, idealism, vision, flexibility, dedication, motivation—these characteristics or attributes have variously been identified as leading to success in librarianship. As Guy St. Clair, a former president of the Special Libraries Association, has suggested, there are "those characteristics—excellence in the service we provide, efficiency in the management of our operations, and enthusiasm in our organization and delivery of information—which will define us in the future (1991, p. 2).

All of these competencies, characteristics, and skills must be obtained and demonstrated at the highest possible level. Service to users should be the first and only consideration for a special library. Consequently, it still holds true that perfect answers to questions will always be the best marketing tool.

There is, therefore, a certain amount of unanimity within the profession in North America as to what competencies a special librarian should possess. How should this consensus of opinion be translated into reality? Apart from what is being taught in the present, what must be taught in the future? The recent revision of ALA's *Standards for Accreditation of Master's Programs in Library and Information Studies* (American Library Association, 1992) is a necessary starting point for any consideration of graduate programs of education. The four-year (1988-1992) revision process gave ample

opportunity for interested and involved individuals and associations to provide input into particular areas of concern. The Special Libraries Association submitted responses to both the first and final drafts of the revised standards. The standards themselves apply to the evaluation of graduate programs of library and information studies that lead to a master's degree and are organized around six topics: (1) mission, goals, and objectives; (2) curriculum; (3) faculty; (4) students; (5) administration and financial support; and (6) physical resources and facilities. SLA's concerns centered around the first three areas of the standards and reflect many special librarian's educational interests. In general, the SLA responses to ALA indicated that the standards should try to ensure that the basic skills and competencies of the information professionals as they emerge from the graduate program will enable them to approach the job market with enthusiasm and confidence. In particular, SLA was pleased to see that the standards recognize as essential the educational policy statements of relevant associations. In fact, SLA's *Graduate Education Position Statement* (Special Libraries Association, 1992) clearly outlines areas of study that should be included in each library school's curriculum. The revised standards also recognize the principles of specialization and a greater awareness of the importance of other disciplines. The addition of an emphasis on the analysis, interpretation, evaluation, and synthesis of information (within Standard II) also represents an important change. The inclusion of assertiveness in the delivery of service is another change to Standard II (curriculum) that is welcome to special librarians. However, SLA's response included the comment that "we recommend that this be expanded to address assertiveness in anticipating and evaluating services as well. It is in anticipating the needs of users, and delivering appropriate services and value added data that the library can make the greatest impression on users and parent organizations" (Special Libraries Association, 1991c, p. 1).

The standards, therefore, suggest and encourage library schools in both Canada and the United States to make use of statements of knowledge and competencies developed by relevant professional organizations in the study of services and activities in specialized fields. Clearly, those schools offering courses in special librarianship should be consulting SLA's *Graduate Education Position Statement* that was developed in 1988 and revised in 1992. SLA has also, however, begun a much more comprehensive analysis of the relationship among recruitment, ethics, standards, and professional education. This Presidential Study Commission (PREPS Commission), begun by Guy St. Clair in his presidential year (1991-92), encourages SLA to become much more proactive in its connections with library schools. The

PREPS Commission report includes nine recommendations specifically addressed to educational concerns and includes efforts aimed at schools that currently do not offer courses in special librarianship. The impression given by the PREPS report is that, if SLA cooperates more fully with ALA in the field of accreditation, it will be able to capitalize on its position as an active participant in the education of information professionals. SLA would also like to be able to provide more visible support to those programs that do offer exemplary "special libraries" courses. In these days of library school closures, perhaps being able to demonstrate the value of a worthwhile program will be of use to library schools. Of course, SLA has a natural interest in attracting and, more importantly, retaining students as members in the association, as well as having more substantial input into the education process of all potential librarians. As noted in a previous study (Tees, 1986), special librarians have been concerned with recruitment into the profession for some time. Indeed, some employers have gone as far as to say that the type of person recruited into the profession is as important as the skills and competencies they acquire along the way. The PREPS Commission also views the area of attracting what is referred to as "the best and the brightest" into special librarianship as a high priority. It is hoped that, apart from the expanded visibility among a variety of employers, career and guidance counselors, teachers and academics, regarding what a special library is and what special librarians do, active recruitment policies will encourage students entering library school with an established awareness of special librarianship to demand courses geared specifically to this subject. Schools which already offer such courses will be encouraged to expand them, while schools which do not offer them will face the choice of instituting such courses or losing potential students.

LIFELONG LEARNING

Continuous education, both within the confines of the library schools and without, is another increasingly important area of concern for information professionals. Special librarians in particular have a need for professional development opportunities in librarianship as well as in management, technology, and other subject-specific areas of interest. Philosophically, it is apparent that the shift to a global economy will require a well-educated, technically literate workforce. In order to gear ourselves to this new "intellect-intensive" economy, education and training—especially continuous education and retraining—have to be included in our "shopping list" of educational requirements for future information professionals. This process of continuous improvement is perhaps even more critical, if possible,

in times of economic hardship. Effecting change in education and attitudes to education is not a short-term or "good times" project. Learning must be accepted as a lifelong process. Effective continuous education should be the norm rather than the exception. Should we as a society be fortunate enough to succeed in making education and training an ongoing activity, we will be helping to create a culture that accepts change as the norm—a culture that will be able to move quickly to meet the challenges of the 1990s and beyond.

In a more practical vein, how should special librarians contribute to the creation of a workforce ready and able to deal with future (and imminent) economic realities? Do special librarians appreciate the need for never-ending professional growth and development? Do special librarians want to participate in continuous education programs and courses? The answer to this last question is that, according to SLA membership participation rates as well as formal responses to needs assessment surveys and evaluations, special librarians do indeed recognize the crucial need for up-to-date effective educational services. The results of the Special Libraries Association "Super Surveys" of 1986 and 1991 (Special Libraries Association, 1991b) indicate that the top priority of the membership is continuing education, both at the annual conference and through ongoing professional development. Generally speaking, approximately 25 percent of SLA's over 14,000 members participates in a professional development offering in any given year, and the awareness factor of continuing education courses, again as measured by the 1991 "Super Survey," is over 80 percent of the entire membership. It is evident that SLA's membership both participates in and requires a vital and innovative professional development program. The growth of our profession will result from efforts to constantly improve ourselves. We must continue to foster the gains we have made in the area of professional development and to nurture our considerable investment in the education and continuous improvement of the profession. The PREPS Commission also focuses on continuous education as an area for further effort and expansion, and it is interesting to note that cooperation with library schools is also a suggested avenue for future growth. Certainly in Canada, there is no unanimity regarding library school participation in ongoing professional development. Some schools carry on extensive continuous education programs and others do not offer anything. This perhaps is an area that potential special librarians could pay attention to when looking for an appropriate graduate program. The very fact that many special librarians find themselves in a one-person/one-professional situation makes it imperative for them to have access to other educational opportunities.

THE FUTURE

Education for special librarians in Canada and the United States is very similar. Perhaps the two-year master's program lends itself to more in-depth and extensive "type-of-library" courses, but this is not a certainty. It is, however, a certainty that education for special librarians must continue to keep pace with advances in technology and management. We need information professionals who are assertive and forward-looking. The educational process must be more responsive to changing issues in higher education, as well as the constantly shifting realities of the marketplace. A recent report from the ALA Special Committee on Library School Closings (American Library Association, 1991, p. 2) echoes these concerns. The report identifies the "perception that librarianship has not established a niche in the information marketplace amidst the rapidly growing numbers and kinds of information agencies" (p. 2). The profession must begin to address the problem by ensuring that our basic skills and competencies are not merely adequate but are excellent and, indeed, superior. Accredited library schools must be contemporary forward-looking institutions with an awareness of changing employment markets that will consequently be translated into the creation of courses of study that will prepare graduates for new roles, as well as existing ones. A market-driven orientation within the library schools could create a competitive advantage for future information professionals. Effective ties should also be made with related key disciplines such as management and computer science. These relationships with other areas of academic institutions will not only lead to a more proactive monitoring of changes in the information environment, they will also enable library schools to maintain more central roles within their institutions and will possibly help them avoid some of the pitfalls that potentially lead to closure. The educational process in both Canada and the United States must begin to respond to the evolving needs of those institutions and organizations that will hopefully employ future graduates. This is especially valid for special librarians and the future of special libraries.

APPENDIX A

THE SCHOOLS AND COURSES

Dalhousie University. School of Library and Information Studies.
  Mary Dykstra, Director
  No course in Special Librarianship
McGill University. Graduate School of Library and Information Studies.
  J. A. Large, Director
  Miriam Tees, Instructor. Lorna Rees-Potter to teach it in 1993/94
  Course: Special Libraries
Université de Montréal. École de bibliothéconomie et des sciences de l'information.
  Marcel Lajeunesse, directeur
  Céline Armette, responsable
  Course: Création, organisation et évaluation de bibliothèques spécialisées
University of Toronto. Faculty of Library and Information Science
  Adele Fasick, Dean
  Joanne G. Marshall, Instructor
  Course: Management of Corporate and Other Special Information Centres.
University of Western Ontario. School of Library and Information Science.
  Catherine Ross, Acting Dean
  Instructor: n/a
  Course: Management of Special Libraries and Information Services
University of Alberta. School of Library and Information Studies.
  Sheila Bertram, Director
  Robin Minion, Instructor
  Course: Special Libraries and Information Centres.
University of British Columbia. School of Library, Archival and Information Studies.
  Peter Simmons, Acting Director
  Diana Broome, Instructor
  Course: Special Libraries and Information Centres.

APPENDIX B

CONTENT OF COURSES IN SPECIAL LIBRARIANSHIP

	McGill	Montréal	Toronto	Western Ontario	Alberta	British Columbia
Special Librarianship						
Philosophy	✓	✓	✓	✓	✓	✓
Diversity	✓	✓	✓	✓	✓	✓
Networking	✓	✓	✓	✓	✓	✓
Associations	✓	✓	✓	✓	✓	
Publications	✓			✓		
Freelance	✓	✓			✓	✓
History					✓	
Canadian status			✓			
Organization served						
Needs assessment	✓	✓		✓		✓
Resources available	✓	✓	✓	✓		✓
Place of library	✓	✓	✓	✓		✓
Internal networks			✓			✓
Services						
Assessment of need	✓	✓				✓
Priorities	✓	✓				✓
Reference/ Searching			✓	✓		✓
Collections						
Needs assessment	✓	✓		✓		✓
Organization			✓	✓	✓	✓
Proprietary material	✓			✓		✓
Storage, weeding						✓
Computerized aspects						
Type needed	✓	✓	✓	✓		✓
Future			✓			
Online databases			✓			✓
Management						
Duties of managers			✓	✓		
Status of librarian	✓	✓	✓	✓		
Staff:						
Types and levels	✓	✓	✓	✓	✓	✓
Job descriptions	✓	✓	✓	✓	✓	✓
Salaries	✓	✓		✓		✓
Hiring/Firing	✓	✓	✓	✓		

	McGill	Montréal	Toronto	Western Ontario	Alberta	British Columbia
Interviewing	✓	✓	✓			
Relation to org.	✓	✓		✓		
Finance:						
Funding methods	✓	✓	✓	✓		✓
Budget	✓	✓	✓	✓		✓
Records	✓	✓				
Cost of information					✓	✓
Chargeback	✓	✓	✓	✓		
Evaluation:						
Why evaluate			✓	✓		
Reports	✓	✓	✓			
How to evaluate	✓	✓	✓			
Marketing						
Why	✓	✓	✓	✓	✓	✓
Tools and techniques	✓	✓	✓	✓	✓	✓
Space management	✓	✓	✓	✓		
Special services						
Archives				✓	✓	✓
Records management			✓	✓		✓
Translation						✓
Publications			✓			✓
Training support						

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Law Libraries as Special Libraries:
An Educational Model

PENNY A. HAZELTON

ABSTRACT

THIS ARTICLE SUMMARIZES the history of the law library profession
and the development of the educational model for law librarians.
The American Association of Law Libraries' (AALL) *Guidelines for
Graduate Programs in Law Librarianship* is analyzed in light of the
current education model in law librarianship. The key characteristics
that define law library careers in the private sector are scrutinized
with reference to the current educational environment and the AALL
policy. Trends and their impact on these characteristics point to the
nature of law library education in the foreseeable future.

INTRODUCTION

The purpose of this article is to examine the broad educational
environment of law librarianship in light of the particular demands
and needs of the law librarian employed by the nation's corporations
and law firms. This exploration can best be done by looking at the
history of the profession of law librarianship and the educational
model derived from that history. Then, the most recent policy
statement of the profession that defines law librarian competencies
will be analyzed. Key characteristics of private sector law librarianship
are analyzed in light of the current educational model. Finally, this
article will note trends that will influence the shape and direction
of the educational model for law librarians in the future.

The first law libraries were private collections of law books owned
by practicing lawyers and judges. As the body of American law began

to grow in the early 1800s, bar libraries were organized. These subscription libraries required membership in the bar association or club in order to use the collections. This type of law library was dominant in the nineteenth century, though some academic law libraries existed.

By the dawn of the twentieth century, the concept of public law libraries had firmly taken hold. Most of these libraries were formed to give judges, state officials, attorneys (who were not members of a bar library), and private citizens access to legal materials. Founded as court, county, and state law libraries, these public law libraries were organized and structured in a myriad of ways. Some were part of the court system, some served legislative bodies, some were established as independent county entities, some were departments within the state library system, and some were created as independent state law libraries.

The law schools founded in the early 1800s relied on the goodwill of local practitioners and their alumni to provide access to the law. Most law libraries in academic institutions got their start through a gift of an attorney's private law book collection. This tradition continued until the early 1900s, when a huge increase in the number of law books published and an increased demand for research materials forced law schools to devote more time, attention, and financial resources to their law library collections (Brock, 1974).

Corporate and private law firm libraries were in their infancy in the early twentieth century. In fact, the first law firm librarian was elected president of the American Association of Law Libraries in 1961. Elizabeth Finley joined AALL in 1939, when only one other law firm librarian was listed on the membership rolls (Houdek, 1983, p. 8). Some growth in the number of private law libraries was experienced beginning in the 1950s, but the unprecedented growth in the number of private and corporate law libraries occurred in the mid-1970s and continues today.

This historical development of law libraries has significantly influenced the educational model for law librarianship by emphasizing the importance of a legal education over any other.

But the mere existence of law libraries did not create the profession of law librarianship. A profession requires people—in this case, law librarians. Since the development of the earliest of the bar libraries precedes, by nearly 100 years, the development of library science education programs, who were the custodians of these first law libraries? Some early law librarians were actually custodians or janitors, and some were lawyers interested in developing collections of legal materials to support their areas of practice. These practitioners had the knowledge base and a very practical interest in assuring that

early law libraries contained collections of the law books needed for their work. Still other early law librarians were connected with state law libraries and responsible for distribution—sometimes publication—of primary legal materials such as court reports and state laws.

This lack of educational requirements posed no problem since the management and administration of the law library of the nineteenth century was a relatively straightforward task, often merely a custodial one. Where subject expertise was needed, lawyers were its providers.

It was not until the first information explosion in legal publishing in the late 1800s and early 1900s that the administration and management of law libraries started to become a more complex and time-consuming task. Larger law library collections, increasing competition among legal publishers, and poor access to this larger body of legal information caused law librarians to band together to try to cooperatively solve some of their problems.

In his article on "AALL History and the Law Library Professional," Frank Houdek (1991) postulates that "[o]ne seeking to understand the role of the modern law library professional must examine the beginnings of the American Association of Law Libraries (AALL) because its history is so intertwined with the development of the profession" (p. 19). Indeed, most would acknowledge the beginning of the profession of law librarianship as coterminous with the formation of AALL.

The perception of those who gathered in 1906 to discuss the possibility of forming a new association was that there was "no other organization then existing whose principles fitted our particular branch of library work..." (Small, 1931, p. 12). These pioneers were firmly convinced that they needed to find a way to make "[law] librarianship a profession rather than simply holding a job" and that a new "organization was necessary for the advancement of the libraries and cooperative work among the law librarians" (Small, 1931, p.12). AALL was created on July 2, 1906 as an independent organization separate from the American Library Association (ALA).

From a membership of twenty-five librarians representing twenty-five different law libraries (ten state law libraries, seven bar law libraries, seven academic law libraries, and one corporate law library) in 1906, AALL has grown to an organization of over 5,000 law librarians representing more than 1,600 law libraries. Rapid growth in the private sector in the last fifteen years has changed the demography of the association permanently. The proportion of academic law librarians between 1906 and 1992 has remained relatively constant (28 percent and 30 percent respectively), while the number

of law librarians in the private sector has increased from 4 percent to 44 percent. Just as staggering is the decrease of bar, county, court, and state law librarians from 68 percent in 1906 to 26 percent of the total membership of AALL in 1992.

The fact that many of the first law librarians were lawyers has significantly affected the educational credentials of law librarians past and present. This, in turn, has shaped the educational model in law librarianship.

A SHORT HISTORY OF EDUCATION FOR LAW LIBRARIANS

The educational model in law librarianship has both formal and informal components. The formal education is represented primarily by the educational degrees acquired by law librarians. Informal education occurs at many levels, including on the job and in professional development workshops, seminars, and other educational programs.

Historically, higher education of any kind was not required, although degrees in law and other disciplines were common in law librarianship. Gradually, the library science degree has become the predominant postgraduate degree earned by law librarians and required by employers, though many law librarians also have a law degree.

The development of formal education in law librarianship needs to be seen on a continuum. In the beginning, people with degrees in law or some experience with legal materials were the norm. Gradually the profession began to think that graduate educational programs should play a more important role in preparing people for careers in law librarianship. With the increasing complexity of the law and legal materials, many began to understand that the education provided in law schools could not provide a librarian with basic competencies, except what was learned about the law itself. The logical place to insert this educational goal was in the growing library science programs and not in law schools. Thus the formal education of law librarians really begins in the courses and programs developed as part of schools of library science.

One of the early proponents of the value of a library science education, Frederick Hicks (1926), said:

> It has always been my contention that the only important difference between law library work and other kinds of library work is that which results from a different subject matter and a different clientele. The underlying principles of library economy and technique are the same in all libraries....Training in the general principles of all these phases of library work is given in library schools, and should be the basis on which to build such knowledge as is peculiarly useful in the respective special libraries or departments. (p. 66)

By 1936, this view (the value of library science education for law librarians) was still being championed by such leaders in the field as Arthur Beardsley (1936) who argued that:

> Training in library science uncovers those latent powers which may be possessed by a librarian but which are not developed because of a lack of familiarity with the sources and materials of research. It aids him in applying "imagination to his law library problems." It systematizes the procedure used in rendition of service, fosters and increases the efficiency of library organization and administration. (p. 8)

The earliest formal independent course in law librarianship identified by Morris Cohen was a series of lectures given by Frederick D. Colson at the New York State Library School in Albany in 1913. Prerequisite to registering for this series: the student must have studied law. In 1937, Miles O. Price began to teach a course in law library administration, which covered legal bibliography and research in depth, at Columbia University School of Library Service. Prior law training was not required (Cohen, 1962, p. 194). In 1939, Arthur Beardsley started a new graduate program leading to the degree of Bachelor of Arts in Law Librarianship at the University of Washington School of Librarianship. This program, which required four special law librarianship courses and practical experience in a law library in addition to the normal library science curriculum, continues today. A law degree has always been required for admission to the program, but any library science student may take the specialized courses offered (Goldsmith, 1990).

From these beginnings, the profession of law librarianship begins to emerge. As of 1990, "over 32 (62 percent) of the 52 ALA-accredited library schools offer at least one course in law librarianship. Moreover, there are eight law schools and library schools offering joint degrees (JD and MLS) and 13 library schools that offer a specialization or concentration in law librarianship" (Hazelton, 1990, p. 278).

Growth in the number of law libraries in the private sector (1970s-1980s), as well as the academic sector (1960s-1970s), resulted in a shortage of qualified law librarians. The increase in law librarianship courses and concentrations, as well as the creation of joint JD/MLS degrees, began to respond to this market demand. In recent years, the number of students going to law school has markedly increased, while job opportunities for the practice of law have increased only slightly. This situation has encouraged many students and practicing lawyers to consider alternative careers. Some choose to get a library degree and enter law librarianship. The result is that an employer can often hire a law librarian with both degrees, even when the employer may have been satisfied with only the library degree.

Formal education in law librarianship is a part of many graduate programs in library science today. Opportunities for graduate education on a full-time or part-time basis are available, and the

prospective student may choose from a wide array of programs that offer one to five specialized law librarianship courses as part of the curriculum. Many programs also have a practicum or fieldwork component to give students some experience in a law library setting. Development and availability of these special courses in law librarianship were stimulated by the realization that a legal education alone did not properly prepare a student for a career in law librarianship.

Many who worked in the law libraries of the early twentieth century had no library science training and were reluctant to embrace the notion that appropriate education for law librarianship required library science course work. But, in the end, library science has been embraced by the law librarianship profession. The debate now is similar to that of the early years—the necessity of the standard three-year law degree for the practicing law librarian (Hambleton, 1991; Oakley, 1989).

Law librarians have always been profoundly concerned about the definition of the law librarian in educational terms. An effort to formulate some professionwide educational standards began as early as 1935, but it was not until 1965 that AALL created a voluntary certification program (Brock, 1974, p. 358). These standards permitted nearly any combination of education and experience to qualify a person as a Certified Law Librarian (American Association of Law Libraries [AALL], 1967). The certification program was abandoned in 1983 due to a concern over AALL's tax-exempt status (Price, 1984, p. 124).

Because of the scarcity of formal law librarianship programs in the late 1800s and early 1900s, most law librarians learned what they needed to know on the job. As the law library environment became more complex, as law libraries grew rapidly in size, and as users demanded more sophisticated services, some law librarians realized that formal educational programs were necessary. But even though the association could not agree on the educational standards of its profession, law librarians did not hesitate to create a network of informal educational opportunities to fill the void. This educational function was one of the primary reasons that the American Association of Law Libraries was founded.

The annual meeting of AALL created the opportunity to educate the members on issues of mutual interest and concern. From the early meetings, where one or two programs were planned, each AALL annual meeting now boasts over seventy different educational offerings, including panel discussions, roundtables, town meetings, keynote speakers, and workshops. In 1937, AALL held its first institute, a one-day meeting on law library administration, thus

providing another forum for informal education. Today, at least two institutes, lasting three to four days, are held in conjunction with the annual meeting, and an additional institute is held each winter.

Another important development occurred in the late 1930s which has given law librarians even more opportunities for continued education. In 1937, ten law librarians met at the University of North Carolina and agreed to organize the North Carolina Law Librarians. This group became the first chapter of AALL in 1939. Membership in AALL is not required for chapter members, and these local and regional groups have become important forums for the exchange of ideas, cooperation, and education. There are now thirty chapters of AALL, most of which meet several times a year for educational purposes.

Many cities have informal local groups of law librarians that are not yet official chapters of AALL. These groups also sponsor educational programs and other cooperative ventures. And, in many locales, the local chapter of the Special Libraries Association (SLA) has provided local educational programming for law librarians.

The early educational model in law librarianship emphasized a legal education as the primary qualification for careers in law libraries. This is not to say that all law librarians had law degrees, only that when talking of standards or qualifications, the law degree was considered the primary postgraduate degree. Those law librarians without degrees learned what they needed on the job. The model, then, had a possible formal component, the law degree, and informal components through learning in educational programs or on the job.

The model today has a clear formal component—the library science degree is nearly always required, while the law degree, except in academic and some court and bar libraries, is not considered as important. Most employers are not interested in a person with a law degree alone, although some are hired with the assumption that a library degree will be earned. In addition to these formal educational requirements, a substantial network of informal educational opportunities through AALL, its chapters, SLA, and other professional library organizations, as well as on-the-job learning, complete the educational model in law librarianship.

As the number of law librarians in the private sector increased (primarily in the 1970s), they began to demand more relevant educational programming. The formation of many of the local city and state groups of law librarians, some of which have become chapters of AALL, was a direct result of the need for a forum to share concerns, work cooperatively to solve problems, and provide educational experiences. The creation by AALL of special interest sections in 1976 was a direct response to criticism that AALL did

not meet the educational needs of special groups of law librarians, particularly the private law librarian group.

Many of the changes we see in the educational model are a direct result of the growth and importance of the private sector in our profession. Many law firms and corporations used untrained secretaries and paralegals to manage their law libraries. As the world of information became increasingly important and more complex (especially with the addition of computerized databases and systems), law firms recognized the need to hire better qualified managers. These private organizations were looking primarily for managers of growing departments and saw graduate library training (or substantial law library experience) as an essential qualification.

Legal education was not necessarily sought since the firm or corporation presumably had a host of law-trained employees at its fingertips. In fact, legal training was often considered a detriment (why would someone choose to be a librarian instead of a lawyer unless they were not good enough to practice law?). Fortunately, not all firms and corporations were so narrow minded, and many of the law librarians in the private sector have law degrees, some with the financial and administrative assistance of their employers.

AALL GUIDELINES FOR GRADUATE PROGRAMS IN LAW LIBRARIANSHIP

The American Association of Law Libraries has recently grappled once again with the question of educational standards for the law librarianship profession. In 1987, the American Library Association, as part of its review of library school accreditation standards, asked professional organizations representing specialized library interests to formulate guidelines that could be used in the accreditation process. Although ALA was not willing to accredit specializations and concentrations in various library school programs, ALA felt that individual organizations representing their profession could draft guidelines that would assist administrators and curriculum planning.

The result of this request was the creation of a Special AALL Educational Policy Committee, chaired by Judith Wright, director of the University of Chicago Law Library. The committee was composed of law librarians from all types of law libraries, and the result was the creation of the "Guidelines for Graduate Programs in Law Librarianship" which was approved by the AALL Executive Board in November 1988 (see Appendix).

Although these guidelines apply only within the framework of law librarianship courses and programs in graduate schools of library and information science, they do represent the profession's most recent attempt to articulate the educational standards for all law librarians,

regardless of the type of law library in which they are employed.
In addition, the guidelines are a good checklist of what a librarian
should attempt to acquire in an educational program.

It is fair to say that many law librarians learned these general
and subject competencies in informal ways, through educational
programs, as well as on the job. In that sense, these guidelines
represent the ideal. To what extent teachers of law librarianship
courses or deans of library schools have actually used these standards
to plan courses and specialization tracks is unknown.

Because of the purposes for which these guidelines were drafted,
the committee was able to sidestep the question of whether a law
degree is required for the practicing law librarian. The committee
tried to articulate what competencies were important for law librarians
but did not dictate how these competencies should be acquired. Thus,
the implication is that if the student (without a law degree) wishes
to go into law librarianship and enters a library school program which
has few or no courses in legal bibliography or law librarianship, that
student should consider other avenues for acquiring subject
competency in the law. These alternatives may include law school,
AALL and chapter programs on substantive law and legal research,
on-the-job training, and selected law school courses.

The guidelines are divided into two parts—general competencies
and subject competencies. General competencies include reference
and research services, library management, collection management,
and organization and classification. Subject competencies recognize
the critical role played by the origins and development of the law
by requiring knowledge of the U.S. legal system, the legal profession
and its terminology, the literature of the law, and law and ethics.

The guidelines purposely do not recommend that a specific
number of law librarianship or other classes be offered in a library
school program. There was no intention to prescribe a program for
those schools offering a concentration or specialization in law
librarianship. The guidelines were written to be as flexible as possible,
since they need to be applied to a wide variety of institutions and
programs. The committee also wanted these guidelines to articulate
standards for librarians practicing in all types of law libraries.

Interestingly, the general competencies appear first in the
guidelines document. This arrangement could be seen as a
commentary on the relative importance of library science vis-à-vis
the law. Or this order could be a mere acceptance of the fact that
library science education is now a clearly accepted qualification for
the practice of law librarianship. This arrangement certainly reflects
a recognition that the guidelines themselves were being drafted to
aid the ALA and library schools in evaluating the quality of law

librarianship offerings. Thus the quality of law librarianship courses is measured first against the purposes that graduate library education seeks to achieve.

As suggested earlier, the actual use of the guidelines adopted by AALL is unknown. At least two commentators have analyzed these guidelines, particularly in light of the balance which must be struck between sound library science education and appropriate knowledge of the law for those who wish to practice law librarianship.

In his article, Robert Oakley (1989), director of the Law Library and Professor of Law at Georgetown University Law Center, argues that law library educational programs need to be enriched. "In my judgment, library education should endeavor, not just to teach competencies and methodologies, it should also develop habits of mind, ways of reasoning and problem solving, and a skill in working and living in the constantly shifting information environment" (p. 149).

His four goals are:

1. To develop high level thinking skills, including analytical skills, systematic problem solving, and critical evaluation of alternatives....
2. To develop an understanding of library techniques on the practical and—more importantly—the theoretical level....
3. To cultivate an understanding of legal systems, legal methods, and the language and issues of the law....
4. To give the student some real world experience with the practice of librarianship (p. 150).

Oakley's analysis raises two issues that are not directly addressed by the guidelines. His goals of developing high-level thinking skills, as well as an understanding of library techniques on a more theoretical level, could easily be emphasized in the guidelines. Oakley's admonition that some substantial practical experience in a library be added to library science programs is a laudable one. In fact, many library schools have a practicum or fieldwork requirement as part of their program, though it may be of relatively short duration. Ultimately, Oakley concludes that his goals could not be met without increasing the length of time students were in library school. And he correctly notes that increasing the length of time it takes to get a degree in librarianship, especially for those interested in law librarianship, will be very difficult unless the salary and prestige of the profession greatly improves.

Jim Hambleton explores in his article the question, Does a law librarian need a law degree (1991)? He argues that even the first three general competencies imply an understanding or knowledge of the literature of the law. He goes on to analyze the subject competencies outlined in the guidelines and concludes that there are many ways to gain the knowledge needed for law librarianship. He rejects on-the-job-training, paralegal education, and the traditional three-year

education leading to a JD. By implication, he also rejects the joint
JD/MLS programs since they usually do not shorten the number
of hours required for the JD and are not tailored to emphasize the
subject competencies of the guidelines.

The model Hambleton prefers is one year of education in the
law, the kind some schools (University of Nebraska and Duke
University) call a Master of Legal Studies. This degree combined
with a graduate degree in library and information science "would
provide the solid education needed for the competent practice of law
librarianship" (Hambleton, 1991, p. 43).

It is clear from Hambleton's discussion of the general
competencies that he does not believe that specialized law
librarianship courses in library schools would be necessary, at least
for the student aiming for a career in law librarianship, if the Master
of Legal Studies were a recognized and viable degree. This conclusion
does not suggest that Hambleton would support the elimination of
all law librarianship courses in library school. He would simply move
the responsibility for teaching the necessary subject competencies
(law) from the library school to the law school.

These analyses bring the debate full circle. At this time, the JD
is still the recommended way to obtain the competencies of the subject
of law for the practicing law librarian. This is true because anything
less is not recognized or valued in the eyes of most law librarians'
primary patrons—lawyers and judges. For example, academic law
librarians helped develop standards for the accreditation of law
schools which required certain educational credentials for law library
directors. Although the library or law degree is required for
accreditation by the American Bar Association (AALS, 1992), the more
rigorous Association of American Law Schools requires that the
director have both law and library degrees (*Standards for Approval
of Law School and Interpretations,* 1992). No such clear educational
requirements exist for the other 4,800 law librarians, so the debate
continues. We may argue with the logic of the relative importance
of the law degree, but it is a reality we must face.

At the present time the educational model for law librarianship
embraces education in graduate programs of library and information
science to help satisfy the general competencies of the guidelines.
In addition, professional development in continuing education
programs and on-the-job learning contribute where library schools
fail to provide the depth and breadth of education needed.

And, while law librarians may have finally agreed that its
professionals are librarians and should be trained and educated as
other librarians, the fact remains that the legal competencies must
be achieved as well. There is no consensus as to how this education

should best be acquired. So we will continue to see specialization
in library schools, three-year JD programs, joint degree programs,
perhaps the acceptance of the Master in Legal Studies degree, and
a great deal of informal education through continuing education
and on-the-job learning.

KEY CHARACTERISTICS OF THE
PRIVATE SECTOR LAW LIBRARIAN

Not all law librarians are the same. Already established is the
notion that the type of law library may well affect the educational
credentials and experience needed by the librarians who work in
it. However, just as law librarianship has many of the same
characteristics as librarianship, private sector law librarianship shares
many key attributes with law librarians in other types of law libraries.
The differences are more in degree.

Private sector law librarians are responsible for the management
and administration of a department of an organization operating
in the for-profit environment. Law librarians in these libraries must
manage people, budgets, collections, services, and space so as to
provide access to the information needed by the organization and
its members. Management issues which tend to be heightened in this
environment are in marketing and public relations, use of technology
to improve service, and networking and cooperative arrangements.

Law librarians in the for-profit sector must also have a thorough
grasp of the literature of the law and related disciplines, as well as
of the legal system and legal profession. This subject competency
permits extensive reference and research work to be done, including
teaching in group settings when appropriate. A great deal of nonlegal
research occurs in the private sector as well, depending on the areas
of practice in the firm or corporation and business development
handled by the library.

The for-profit environment requires increased awareness of the
need for marketing the services of the law library or legal information
center to the organization. In the dynamic economic environment
of today, the law library without a strong public relations position
within the organization disappears. The parent organization must
know what the library staff do and must be convinced of the
importance of those activities. Professional librarians moving into
this environment must be advocates and must recognize that silence
can be deadly.

Most private sector law librarians were early users of technology,
whether to access increasing amounts of information or to bring the
efficiencies of computer technology to bear on library records and
procedures. Many law librarians were the driving force in their

organizations for the consolidation and management of all of the firms' information needs, including creating databases containing firm work products (brief banks), conflict management, other records management, continuing education programs, and more traditional library activities such as database searching, research, and selective dissemination of information. Capturing the power of the new technologies to provide information is one of the most important roles played today by the private sector law librarian.

The very nature of law libraries in the profit sector requires close networking and cooperation. Unlike their academic colleagues, law firm and corporate law libraries rarely have the option of owning large collections of legal information (regardless of the format). Instead, law libraries in the private sector tend to be small and provide the basic information required. However, the vast array of information needs of the average law firm today are often not met by what is actually owned by the firm. This reality has forced law firm librarians to develop sophisticated and often expensive retrieval and document delivery systems. Their use of messengers and information brokers is commonplace. Also as a matter of course, these librarians need to work with other librarians—public, special, law—in order to meet the information needs of their clientele. Professional organizations, both formal and informal, become an obvious source of support.

Law libraries of all types face these same issues, although the degree of their importance may vary now and in the future. For example, in the past, academic law libraries were presumed to receive their budgets from the law school. Revenue generation by the library itself was rarely considered. In these more stringent times, fund-raising and services for a fee are more common, with tremendous pressure on many academic libraries to find sources of revenue. This requires academic law librarians to market their library and products, essentially engaging in public relations campaigns like their private sector colleagues.

In another example, academic institutions were often content to sit by the road and wait to be dragged into automation and use of technology, while the private sector left them in the dust. Now with a national network (the Internet), many academic institutions find themselves on the cutting edge of sharing resources and information using the new technology. Or one could look at the role of education, which historically was the province of the academic law library. Recently, more and more organizations in the private sector are using the organizational skills and substantive knowledge of their law librarians to teach advanced research skills, computer-assisted legal research techniques, complex resources in specialized areas of law, and more.

The point here is that the differences exist, but there is a wide area of overlapping interests. The only real difference between private sector law librarianship and the rest of the profession is the fact that they are in a profit-making environment. This fact makes law librarians in law firms and corporations look more like special librarians than like law librarians found in academic, court, county, state, and government libraries.

Does the educational model for law librarianship currently in existence address the needs of the private law librarian? The answer is probably not. While the guidelines prepared by the AALL clearly address many of the key characteristics of the private sector, the educational model does not.

Many private sector law librarians lament the state of library education in that it does not provide the best possible preparation for the complex management tasks required of them. This concern simply echoes a refrain heard by many other special librarians. In fact, when drafting their "Policy Statement on Graduate Education," the Special Libraries Association purposely limited their statement to "library/information education only, specially those areas of current curriculum which require expansion or modification to meet the educational needs of potential special librarians" (Hill, 1990, p. 328). Both the Hambleton and Oakley articles mirror this concern, presumably not just from the perspective of the academic sector of law librarianship (Hambleton, 1991, pp. 39-40; Oakley, 1989). Thus one could argue that library school (with or without law librarianship courses) does not serve the needs of the private law librarian any more than it serves the needs of most special librarians.

In addition, how do private firm or corporate law librarians gain the competencies in law they clearly must have? If the law firm has a strong personal injury practice, where does the law librarian learn what he or she needs to know about medical and other related information sources? One obvious avenue is through specialized courses in law librarianship, of which there are quite a few. Another is for the librarian to get a law degree. Another is to learn on the job and learn through continuing education programs and courses offered by professional law or library organizations. There is no right path, but it is clear that the more opportunities for this kind of education, the more we can improve the competency level of the profession.

OUR CHANGING ENVIRONMENT

Predicting the future is always a dangerous business, but one thing is clear—everything around us is changing at a very rapid pace. No longer can we hope to use the substantive knowledge we gained last year to solve a problem this year. The personal computer that

managed everything we wanted this year will not have the capability to support the software, graphics, multimedia, and telecommunications needs of tomorrow, let alone the needs of next year or the next century. How will the events around us affect the educational requirements of the private sector law librarian? And how will our educational model change to accommodate these future trends?

These trends can be divided into external forces and those forces which are internally generated within the law librarianship profession. The external considerations can be categorized as those which affect libraries and those which affect the law. Internal trends include issues of salary, career development and educational qualifications, image, recruitment, and retention.

Changes in technology are here to stay. This dynamic environment has a direct impact on libraries of today as well as of the future. Many wonder if libraries as we know them will disappear. Articles and speakers talk about libraries without walls and emphasize access over ownership. No question that libraries will be different. Perhaps it is time for us to stop trying to answer the "what will libraries be like?" question, and instead try to cope with whatever the changes are and will be.

This view does not contemplate business as usual, or merely responding to technological advances. Librarians can and should help shape the application of technology to our situations. It is certainly important to know what is on the "bleeding edge," but librarians must also keep their eyes on the current information needs of their users as well as the records and procedures which support those needs most effectively. Despite the advances of computerized legal information, many lawyers and law professors prefer to use the physical books. We are working in a time of transition, and one of its challenges is to be able to respond effectively to the traditional user as well as to the high-tech user. Librarians must be willing to try new technologies, understanding how the application of those technologies will affect library services, staff, space, and collections. Our organizations must remain flexible and able to respond to ever-increasing workloads which technology seems to demand. Shifting of priorities, elimination of some previous work, and reassignment of staff as new needs emerge all help keep the work environment adaptable. Planning organizationally and spiritually for change is important and must be a high priority.

What can be said about the information explosion that has not been said before? Little except that it is real. The increasing number of publications and the variety of formats can make a collection development librarian or reference librarian or even a library user lose control.

Five years ago in the state of Washington, people who wanted access to the codified law of Washington could purchase one of two printed sources. Today, there are still two printed sources, but the people of this state can also find codified law in two commercial online databases, one commercial CD-ROM product (three more are rumored), and a local legal bulletin board service—no fewer than six separate sources. And while most of us are pleased with the diversity of access these products provide, when is there time for librarians to learn enough about them to help library users make choices? Are there quality differences in the products? What did not get purchased so the library could provide the necessary computer equipment and furniture for the workstations? Where did the space for the workstation come from? How is training in the use of these resources integrated into basic library services or into the curriculum? Does the basic legal research course increase in number of credit hours? Who had time to set up the new policies and procedures for the technical services handling of this special material?

No longer is more information exciting. More information brings a concomitant need for strategies to winnow the information to the most relevant and important. Those who have been overwhelmed and deluged by information know the importance of this task. Librarians are well suited by intellect, training, and personality to provide value-added information to their users.

Libraries could insulate themselves from this onslaught, and some have, by refusing to buy or access the new formats of material. But the world will pass those libraries by because they will not be able to justify their existence if they cannot respond to the demands of their users. Most librarians continue to try to be responsive to their clientele by adding the new or integrating it into their environment. The key here is integration—little of the traditional goes away or becomes less important. So this acceptance and integration of new materials requires a different conceptual framework and is a stressful process.

Few would argue with the proposition that the rapid changes in technology, coupled with the information explosion, have left most libraries and librarians gasping for breath. These external forces will not disappear. Librarians in this new age must like to be in a sea of constant change and must learn the analytical and problem-solving skills necessary to solve the challenges of today and the unknowns of tomorrow.

The trends outlined earlier affect all kinds of libraries and librarians, not just those in the private sector of law. In that sense, their impact on education for law librarians is much more broad based. Library schools, in particular, must reform to meet this

challenge, not just for the private sector law librarian, but for the profession of librarianship overall. Encouraging students to take courses outside of library science or adapting courses from other schools to the library environment is necessary. If library schools cannot reform, the prominent place enjoyed today by the library degree in the law librarianship educational model will disappear and be replaced by a more meaningful education.

There are external forces at work in the law, as well. Our world is more complex, and we are constantly inventing more and more complex structures to cope with these changing needs. Our legal system is a complicated series of interrelating branches of government operating at all levels—federal, state, and local. Gone are the days of locating the controlling statute or case. Enter the days when looking for state, federal, or tribal regulations may be required. The law is more complex, and the sources of the law have grown more complex as well.

With this complexity has come an interesting phenomenon. These days, the law is more related to things nonlegal. That is, the law has become more interdisciplinary. People who do legal research must often know how to find business, economic, statistical, medical, social science, technical, and humanities information. Law cannot be isolated into a totally separate field. Law is created and revised in response to the world around it. This external force also shapes the kind of educational preparation necessary for law librarianship.

Interestingly, these same observations have been made for years about the law. But today it is the pace of change which is hampering our ability to cope.

The third external force which will continue to affect our role and responsibilities as law librarians is the dramatic change which is taking place in the practice of law. More lawyers, larger and larger law firms and corporations, greater diversity, treating law as a business not a service industry, hourly billing, extremely high billable hour standards, and increased specialization have all contributed to a changing environment in law practice. Effects on law libraries in the private sector include librarians billing their time directly to clients, closer budget management, much more attention paid to the "bottom line," staff, materials and equipment cutbacks (down-sizing), pressure to produce more with less, taking on new responsibilities, and so on.

The last external consideration relates to the internationalization of the law—and of the world around us. More and more lawyers have a connection to other countries as the law changes to accept the global village concept—old legal systems, particularly in Europe and Asia, disintegrate and new legal systems and governments are

created—and as we recognize that many challenges facing the human race can only be solved by global action. These increasingly international contacts create a burden on private sector librarians to research in sources unfamiliar and often hard to obtain. Often knowledge of other languages becomes important in providing high level service to users. An ever-larger number of publications and databases are being created to enhance access to this new type of material and law librarians must have the resources to own and access this information.

The trends that impact the law will have a direct bearing on the educational model for law librarianship. While the increasing complexity of the law and the internationalization of the law all suggest the continued viability and importance of the subject competencies in the law, the growing interdisciplinary nature of the law and the far-reaching changes in the practice of law would seem to push in the opposite direction, away from subject competencies.

The profession of law librarianship is also concerning itself with issues which tend to be more driven by considerations internal to the profession. Salary levels are dreadfully low in most law libraries. Career development is limited. Concern about the ability to retain highly competent law librarians is real as we see our colleagues move into completely different careers and out of librarianship. The image of librarians is still low in the eyes of those who determine salaries and benefits.

Our ability to discuss and solve some of these problems will have an affect on the quality of law librarians of the future. And this, in turn, will affect the educational preparation for entry into the profession. Without prestige or salaries that recognize worth, professionally trained librarians will choose careers that avoid law librarianship. We can and must change this direction.

Today the model of education for law librarianship requires a library degree, in limited cases may require a law degree, and relies on educational programming through AALL and other professional organizations as well as on-the-job learning. The relative importance of these pieces, and how the competencies required will be achieved, will be shaped by the external and internal forces at work in libraries, the law, and the profession of law librarianship.

CONCLUSION
    Law librarianship is one branch of librarianship which has strong historical roots in its subject, the law. The educational model for law librarianship is strongly influenced even today by this history. Our profession has agreed on the competencies needed, as expressed in the guidelines, but has been unable to agree on how those

competencies can best be acquired. But perhaps this begs the question. As long as a variety of alternatives is available to attain those competencies, maintaining flexibility in today's changing environment may be of key importance.

Law librarianship today is primarily a profession of people who consider themselves librarians, even if they possess a law degree. This transformation is not complete but is broadly based. Library schools will need to work to reform their educational offerings to meet the needs in the management, technological, and marketing aspects of private sector law librarianship. More law schools should consider offering a degree of Master in Legal Studies, and employers must recognize the value of this alternative in meeting the educational competencies in law. Library schools will need to continue to exist and must have our support, for without library science graduates, the private sector may look elsewhere for the law librarians of the future.

And, fundamentally, law librarians must be educated in such a way that adaptability and flexibility are second nature. Our world has changed dramatically in the last decade, and law librarians must find a way to keep pace or be left out.

APPENDIX

ALA-ACCREDITED GRADUATE LIBRARY SCHOOLS

AALL GUIDELINES FOR GRADUATE PROGRAMS IN LAW LIBRARIANSHIP

This policy statement is for the American Library Association to use in its accreditation of graduate library school programs. Law librarians are employed in academic, court, private firm, corporate, government, bar and subscription libraries; the competencies this policy describes are needed by all law librarians. These guidelines are concerned with graduate library education only, specifically those areas that require expansion or modification of current curricula to meet the educational needs of future law librarians.

Library school curricula must include courses that create a high degree of competency at the general level as well as in the subject discipline—the law. Therefore, this document is divided into two sections: general competencies and subject competencies.

I. General Competencies

Although these general competencies are required by librarians employed in all types of libraries, library instruction must also include and emphasize the components of these areas that are specific to law librarianship.

Areas of general competency include: 1) Reference and Research Services; 2) Library Management; 3) Collection Management; 4) Organization and Classification.

1. Reference and Research Services

Law librarians provide reference and research services that meet the requirements of their organizations in the most efficient and cost-effective manner possible. An essential component of law library service includes teaching users how to identify and use sources for legal research. Because legal materials are the tools of the trade for lawyers and law students, effective law librarians are sophisticated users and finders of legal information. Further, law librarians are required to fulfill the non-legal information needs of their organization.

Research and reference may include, but are not limited to: a) provision of information to meet specific needs; b) selective dissemination of information; c) analysis and evaluation of sources and information; d) development and delivery of new services as needed by the organization; e) advice on the design and development of commercial information products and services; and f) expert use of all information media used for storage and retrieval of information. Education for law librarianship must teach research strategies and methods that are based on sound analytic and problem-solving skills.

2. Library Management

Principles of management and organizational behavior must be part of all graduate library school programs. Specifically, law librarians must learn techniques for managing library personnel and resources, measuring and evaluating library services and implementing technology-based solutions to library management problems. Library education must emphasize

communication skills, human resources, strategic planning, budgeting, marketing strategies, productivity, innovation and sound fiscal management, including cost recovery and profit-making.

3. Collection Management
Law librarians make decisions regarding the identification, selection and acquisition of the legal and non-legal resources needed by their organizations. In order to support the needs of their organizations, they must assess the strengths and weaknesses of their collections, develop appropriate collection policies, and employ the best methods to improve the power and scope of their collections, including resource sharing and interlibrary cooperation as appropriate. Knowledge of subject-specific selection tools and of acquisition procedures is essential.

Legal materials are increasingly created, stored, and retrieved in full-text electronic databases. Whole systems of national and state case law as well as statutory and regulatory materials have been published in full-text in online systems. Selection policy and purchasing decisions require not only critical evaluation of subject matter, but also consideration of the efficacy of particular formats (e.g., print, online, CD-ROM, microform, etc.), space limitations, user access, cost and other relevant factors. Knowledge and use of cost-benefit analysis techniques are essential to the collection management process.

4. Organization and Classification
All law libraries contain basic primary and secondary legal materials in a variety of formats which must be easily identified by and accessible to users. Methods and reasons for classification and organization of a library collection may differ from one law library to another because of size, organizational needs, and emphasis of the collection. Knowledge of cataloging and classification theory, serial publication patterns, government documents, database design and construction, and indexing and abstracting is essential, with the ability to apply this knowledge in context of organizational needs and national standards.

II. Subject Competencies
An understanding of the origins, development and present state of Anglo/ American law and legal literature is crucial to the work of the law librarian. Graduate library education for law librarianship must, at a minimum, provide basic competencies in: 1) the Legal System; 2) the Legal Profession and Its Terminology; 3) Literature of the Law; 4) Law and Ethics. In-depth knowledge of the law is outside of the realm of library education.

1. The Legal System
In order to locate pertinent materials and recognize their relative importance to the user, a law librarian must have a working knowledge of the judicial, executive, and legislative branches of the United States federal and state governments. Knowledge of the legislative history of statutes is also essential. The interplay of common law, precedent, statutes, regulations, and constitutions significantly affects the use of legal materials. Therefore, all law librarians need a thorough understanding of the processes by which law is created.

2. The Legal Profession and its Terminology
Law librarians must possess knowledge about the legal profession in order to understand the forces that drive its information needs. Specifically, law librarians need to know about the institutions and professional organizations of the legal profession and law librarianship.

Legal terminology is the professional language of those who are directly or indirectly involved in the legal profession. Thus, it is essential that law librarians have a working knowledge of legal vocabulary, including legal abbreviations and citation systems.

3. Literature of the Law
Knowledge of the literature of the law is a fundamental component of law librarianship. Legal literature includes primary and secondary sources, their accompanying finding tools, and adjunct publications in all media formats. Printed legal publishing continues, but new legal publishing formats such as full-text legal databases, microforms, and CD-ROM mean that library education must prepare law librarians to exploit the advantages as well as recognize the limitations of these new formats.

4. Law and Ethics
The use and dissemination of legal information is affected by legal and ethical considerations. Law librarians must understand the legal complexities that affect access to and use of information, including copyright, freedom of information, privacy, and issues related to unauthorized practice of law and/or malpractice. Law librarians must be familiar with and understand any legal requirements and ethical considerations of both the legal profession and librarianship.
                    —Approved by the AALL Executive Board, November 5, 1988

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Library and Information Science Education for the New Medical Environment and the Age of Integrated Information

ELLEN GAY DETLEFSEN

ABSTRACT

IN A REVIEW OF FACTORS that are changing the ways in which medical librarians and health information specialists are educated, the present scene is set and the current educational practice described. In particular, contemporary library and information science (LIS) schools and programs, their faculty, and current course work for medical librarianship are reviewed. Those LIS programs emphasizing doctoral research are indicated as models. Specific success factors for health sciences information education are identified. The impact of changes in medical education that are leading to new and changing roles for medical librarians and health information professionals is described, as is the effect of the emergence of the field of medical informatics on health information practice. Finally, suggestions for the reformation of medical library education are made.

THE PRESENT SCENE

The key sites for medical librarianship in the United States include not only traditional medical libraries in academic settings, but also those in hospital settings, corporate organizations, professional associations, and in public and specialized sites.

Professional positions at these sites may range from those of a traditional librarian to others such as an information management specialist, medical informaticist, or faculty member. The primary professional society affiliations for many of these individuals are the Medical Library Association (MLA), the Special Libraries Association

TABLE 1
EMPLOYMENT SITES FOR MEDICAL LIBRARIANS

Academic Settings

● in University-based and independent schools of medicine, nursing, allied health, dentistry, veterinary science, public health, and so on;
● subject to accreditation requirements of appropriate academic boards or societies (Association of American Medical Colleges, National League for Nursing, and so on);
● traditional academic library services for faculty, researchers, clinicians, and students;
● rapidly becoming high technology sites with widespread use of computing and telecommunications.

Hospital Settings

● in clinical care facilities: large teaching medical centers, university hospitals, general community hospitals, government hospitals, and occasional HMOs and skilled nursing care facilities;
● included in institutionwide accreditation by the Joint Commission on the Accreditation of Healthcare Organizations;
● traditional special library services to clinicians and sometimes to patients;
● some penetration by information technologies, especially personal computers with applications software, telecommunications, and CD-ROM products.

Corporate Settings

● Pharmaceutical companies, healthcare insurance companies, medical equipment manufacturers;
● subject to voluntary standards and corporate long-range planning concerns;
● traditional special library and information services for clinical medicine, basic science, and management information;
● high technology sites with business-based networked computing and telecommunications within and without the parent organization.

Public Settings

● in public libraries, storefront information centers, associations and community organizations, and clinics or hospitals;
● subject to public library standards, community boards, or plans of parent organizations;
● specialized services with consumer information and patient education materials;
● little evidence of technology beyond basic computing and some use of CD-ROM and microform technologies.

Specialized Settings

● drug information centers, poison control centers;
● information and referral centers within United Way agencies and community service organizations;
● telephone referral services for provider information and audiocassette health information services;
● information industry sites (indexing and abstracting services, medical publishers, vendors of library services).

(SLA), the American Society for Information Science (ASIS), the American Medical Informatics Association (AMIA), and the American Association of Health Science Library Directors (AAHSLD).

Despite their differences, these information professionals and organizations generally have an interest in the same three key issues:

1. the solution of information problems in health care,
2. the wider applications of information technology to medical concerns, and
3. the education and continuing education of health information professionals.

It has been apparent for some years, however, that the role and activities of the traditional medical librarian have been changing in response to major changes in the larger health care environment in which these professionals find themselves (Anderson, 1989).

PRESENT EDUCATIONAL PRACTICE

The most typical preparation for a career in medical librarianship is to earn a graduate degree from one of the library and information science programs accredited by the American Library Association and, preferably, but not exclusively, to do so in a program that offers a specialization or focused group of courses in medical library work.[1] This preparation is not different from the programs followed by someone seeking credentials for special librarianship in general, except that the elective portions of the Master's of Science[2] degree offer course work in the literatures of medicine and science. An internship or field experience in a medical information setting is also characteristic of this preparation, as few individuals come to the graduate programs in librarianship with much practical background in health sciences or health care. One obvious exception is the corps of experienced nurses who seek library and information science training as a means of making a career shift away from daily clinical care but not away from medicine or medical institutions. An occasional pharmacist, dentist, or even a physician, may also seek library and information science (LIS)[3] training but only rarely and then only when seeking a major career change. Nonprofessional staff members from medical libraries are also good candidates for graduate LIS education.

Among the most sophisticated approaches to education for health information professionals at present are programs in the "full-service" LIS schools which offer a complete range of teaching and research programs from undergraduate through doctoral study. These schools are able to combine their larger faculties, universitywide contacts, extensive technological resources, and large student bodies to form a critical mass for specialized education.

CURRENT FACULTY AND COURSE WORK

At present, only ten LIS programs in the United States and Canada claim a full-time faculty member with a specialization in

medicine (Association for Library and Information Science Education [ALISE], 1992). Four other academics can be identified as being active in this field by virtue of their publishing widely in the field, while several others have also been identified by those already practicing in the field of medical library education, to yield a total of only seventeen LIS academics with an interest in health sciences.[4] Of these, however, one is a professor emerita and two are deans, suggesting that there may be other professional activities which claim their attention. Of the remaining fourteen, only five are tenured faculty members, while nine are in the tenure stream. Typically, most other LIS programs rely on the adjunct services of local practitioners to teach a course or two which focuses on the bibliography of and/ or the management of medical libraries, while twenty-three of the fifty-seven accredited LIS programs simply do not offer any course work or specialization in health information at all.

Those programs which offer the opportunity for students to enroll in courses specifically focused on health sciences issues are likely to be the best places to pursue an MS in preparation to become a health information professional. Course work in health sciences bibliography, on electronic resources for science and medicine, on the management of biomedical information and libraries, coupled with an internship/practicum or field work opportunities in medical sites are most typical. Cooperative registration agreements which allow LIS students to take courses in health sciences schools are also a mark of excellence for programs.

DOCTORAL RESEARCH

Only eight schools with LIS doctoral programs claim one of the seventeen full-time faculty members specializing in medicine. Recent dissertations and dissertation proposals, however, show that additional schools are engaged in related research. As a search of *Dissertation Abstracts International* and other sources for the last ten years reveals, there were at least twenty-six recent dissertations on various aspects of biomedical/health sciences information work. Table 2 indicates the authors, subjects, and institutions for these research projects. A similar review of proposals accepted by LIS doctoral programs, from the list that appears periodically in the *Journal of Education for Library and Information Science Education* as well as more informal sources, indicates that a number of other projects are underway. A list of these dissertations in progress appears in Table 3.

TABLE 2.
LIS DISSERTATIONS COMPLETED ON HEALTH INFORMATION TOPICS 1983-1993

Case Western Reserve University[a]

Woelfl, Nancy N. (Ph.D., 1984). *Individual Differences in Online Search Behavior [in MEDLINE]: The Effect of Learning Styles and Cognitive Abilities on Process and Outcome*

Hocking-Keltner, Leila. (Ph.D., 1986). *Development of an Information Retrieval Methodology for Medicine*[b]

Landau, Lucille. (Ph.D., 1986). *Selecting Journals for Publication: A Bibliometric Approach*

Rashid, Haseeb Fadhel. (Ph.D., 1985). *Factors Affecting User Satisfaction in a Medical Library and a Comparison With Other Types of Libraries*

Columbia University[a]

Poisson, Ellen Hull. (DLS, 1983). *Libraries and the Provision of Health Information to the Public*

Panella, Nancy M. (DLS, 1992). *Patients' Libraries: An Exploratory Study of Cases in Selected Large Voluntary Teaching Hospitals in the Northeastern United States*

Florida State University

Paskoff, Beth M. (Ph.D., 1989). *Unobtrusive Evaluation of the Accuracy of Telephone Reference Services in Health Sciences Libraries*

Dee, Cheryl R. (Ph.D., 1990). *Information Needs of the Rural Physician: A Descriptive Study*

George Washington University[b]

Bader, Shelley A. (Ph.D., 1993). *Scholarly Recognition of Computer-Based Educational Materials Developed by Faculty in American Medical Colleges*

North Texas State University

Guenther, Johanna Trammell. (Ph.D., 1991). *A Descriptive Survey of Libraries Supporting Baccalaureate and Higher Degree Programs Accredited by the National League for Nursing and Doctoral Programs*

Rutgers The State University of New Jersey

Burden, Cassandra. (Ph.D., 1991). *Content Analysis of Computer Search Request Forms in a Teaching Hospital Medical Library from 1979 to 1986*

Tallau, Adeline. (Ph.D., 1988). *An Exploratory Comparison of Eight Collection Assessment Measures in a University Research Library* [collections included anatomy, pathology, pediatrics, and surgery]

Texas Woman's University

Mury, Mohammad Rajabalipour. (Ph.D., 1991). *South Central Regional Medical Library Program (TALON): An Evaluative Study*

Razzaghi, Farzaneh. (Ph.D., 1990). *How Selected Faculty in Seven Medical Schools in Texas Meet Their Information Needs*

Ruddy, Mary Karen. (Ph.D., 1990). *A Sociometric Analysis of Information Seeking Behavior, Information Sources, and Information Networks in Boards, Committees, and Commissions in a Small Rural Iowa Community*

University of Illinois at Urbana-Champaign

Self, Phyllis C. K. (Ph.D., 1990). *Formal and Informal Communication Patterns Among AIDS Researchers: An Investigation Based on Collaboration and Productivity*

TABLE 2. *(Cont.)*
LIS DISSERTATIONS COMPLETED ON HEALTH INFORMATION TOPICS 1983-1993

University of Michigan

Strong, Blondell McDonald. (Ph.D., 1983). *The Relationships of Socioeconomic Background, Occupational Characteristics and Educational Attainment to the Professional Activities of Medical School Librarians*

University of Pittsburgh

Gollop, Claudia J. [Ellen Detlefsen, Advisor]. *Health Information Seeking Behavior of Older, Urban, African American Women*
Huber, Jeffrey T. (Ph.D., 1991). *Assisting Persons with AIDS: A Content Analysis of Information Sources on Dying, Death, and Bereavement for Gay Males with AIDS*
Osiobe, Stephen A. (Ph.D., 1984). *Use of Information Resources by Faculty and Students in Nigerian Medical Schools*
Elayyan-Nimer, Ribhi M. (Ph.D., 1986). *An Investigation into the Uses of Sources of Medical Information by the Practicing Jordanian Physicians of Selected Hospitals in Jordan*

University of Sheffield

Soto, Susana. (Ph.D., 1992). *Information in Dentistry: Patterns of Communication or Use*

University of Texas-Austin

D'Auria, Jennifer Piersma. (Ph.D., 1992). *A Bibliometric Analysis of Published Maternal and Child Health Nursing Research from 1976 to 1990*

University of Southern California[a]

Fuller, Sherrilynne S. (Ph.D., 1984). *Schema Theory in the Representation and Analysis of Text [Clinical Trials]*

University of Wisconsin-Madison

Stavri, Zoe. (Ph.D., 1992). *Information Need in Medical Diagnosis: Urgency, Etiology, and Information Seeking Questions*

Georgia State University[b]

Rankin, Jocelyn Ann. (Ph.D., 1989). *The Use of Library Resources in Problem-Based Medical Education*

Northern Arizona University[b]

Wiesenthal, Diane. (Ed.D., 1991). *The Future Role of the Health Sciences Library in the Department of Veterans Affairs*

University of Nebraska, Lincoln[b]

Braude, Robert M. (Ph.D., 1987). *Environmental and Personal Factors in Secondary Career Choice of Graduates of Medical Informatics Training Programs*

University of Texas, Graduate School of Biomedical Science at Galveston[b]

Eaton, Elizabeth King. (Ph.D., 1986). *Evaluation and Model of a Clinical Librarian Program*

[a] LIS program no longer active
[b] Not an LIS program
Sources: *Dissertation Abstracts International;* personal communications; ELEASAI, DOCDIS, MEDLIB-L, LIBRES, and AAHSLD computer conferences.

TABLE 3.
LIS DISSERTATIONS IN PROGRESS ON HEALTH SCIENCES INFORMATION TOPICS 1992-1993

Rutgers The State University of New Jersey

Algon, Jackie [Nick Belkin, Advisor]. *Effect of Task on Information-Seeking Behaviors of Individuals in Working Groups in Pharmaceuticals*

University of Chicago[a]

Weller, Ann C. [Don Swanson, Advisor]. *Editorial Peer Review in U.S. Medical Journals*

University of Illinois

King, David N. [Linda Smith, Advisor]. *Clinical Search Effectiveness: An Assessment of the Contribution of the Computer-Assisted Information Services of Hospital Libraries to Clinical Decision-Making by Physicians*

University of Maryland (College Park)

Florance, Valerie [Gary Marchionini, Advisor]. *A Clinical Extract of Biomedical Literature for Patient-Care Problem Solving*

University of Michigan

McGaugh, Della Lee Ann [Miranda Pao, Advisor]. *Library Interrelationships: Electronic Trails on DOCLINE*

University of North Carolina-Chapel Hill

O'Neill, Ann [William M. Shaw, Advisor]. *Information Transfer in Professions: A Citation Analysis of Nursing Literature*
Byrd, Gary [William M. Shaw, Advisor]. *Do Clinical and Basic Sciences Research Faculty Make Productive Use of the Common Property Journal Resources Provided by Academic Health Sciences Libraries?*

University of Pittsburgh

Flynn, Ida [Margaret Kimmel, Advisor]. *Design and Development of an Interactive Multimedia Information System for Educators and Classmates of Young Cancer Patients*
Lindberg, Carolyn H. [Edie Rasmussen, Advisor]. *A Comparative Study of the Thesaurus of Biomedicine of the National Library of Medicine and the Language of Patient Charts at Presbyterian-University Hospital, Pittsburgh PA*
Scheetz, Mary D. [Ellen Detlefsen, Advisor]. *Scientific Misconduct and Publishing in the Biomedical Literature: A Content Analysis, 1966-1992*

University of Texas at Austin

Calisto, Beatrix [Brooke Sheldon & Sirkka Jarvenpaa, Advisors]. *Effects of Integrated Information Systems on the Power of Libraries as Subunits of Organizations*
Bowden, Virginia [Donald Davis, Advisor]. *Monograph Collections in Academic Health Science Center Libraries, 1980-1992: Patterns of Ownership and Use*

University of Western Ontario

Baker, Lynda [Roma Harris, Advisor]. *The Information Needs and Information-Seeking Patterns of Women Coping with and Adjusting to Multiple Sclerosis*

[a] LIS program being phased out
[b] Not an LIS program
Sources: personal communications; ELEASAI, DOCDIS, MEDLIB-L, LIBRES, and AAHSLD computer conferences.

The presence of these projects suggests that this research is being done in universities which offer LIS programs where teaching and research on issues in the health information professions is encouraged.

SUCCESS FACTORS FOR HEALTH SCIENCES INFORMATION EDUCATION

In a 1986 paper on the past, present, and future of medical library education, Detlefsen and Galvin (1986) argued that alliances with other professional schools was a necessary attribute for successful medical library education; in particular, they stressed the need for alliances with faculty in medical schools, especially those with programs in the then-new field of medical informatics. Subsequently, at an evening workshop at the 1989 Symposium on Computer Applications in Medical Care (SCAMC), the discussion was focused on issues in the educational preparation of the medical librarian for the new age of integrated medical information. At that workshop, Detlefsen identified five criteria which she labeled as success factors for an LIS program which sought to be a center of excellence in the preparation of health science information professionals. Table 4 lists these success factors.

TABLE 4.
SUCCESS FACTORS FOR A SPECIALIZED LIS PROGRAM IN HEALTH INFORMATION

- One or more full-time, tenured, faculty members in a doctoral-degree granting LIS program with a declared interest in health information.
- A group of associated medical or health sciences faculties and programs nearby, preferably within walking distance and preferably including a medical school.
- A large academic health science center library nearby, preferably within walking distance.
- Medical informatics research and training initiatives underway in the university of which the LIS program is a part.
- Personal, professional, and electronic links among the four groups (LIS faculty members, health sciences faculties, the academic health science center library, and the medical informatics researchers).

A recent review of existing programs and course offerings in medical librarianship[5] showed that only a few programs have met these criteria or are even very close to having all the success factors. Those closest to meeting the criteria are the LIS programs at the University of Pittsburgh, the Texas Woman's University, and the University of North Texas. There is also progress apparent toward achieving the success factors at the University of Illinois, University of Alabama, and University of Wisconsin—Milwaukee. Two of the Canadian schools—the University of Toronto and University of Western Ontario—also appear to be on the path to excellence for

health sciences information education, although the U.S.-based and National Library of Medicine-funded research initiatives are less likely to be present on their medical and LIS campuses. Other LIS programs with full-time faculty interested in medical information are limited by such factors as their small size, the absence of a research-centered doctoral program, and the inability to link conveniently to a university medical school.

Sadly, however, much of the innovative research work in medical informatics and many of the excellent academic health science center libraries are in universities without programs in LIS education[6] or in universities which have closed their LIS programs.[7] Still other universities have strong academic medical libraries and excellent LIS schools with doctoral programs, but their university LIS programs do not as yet focus on biomedical and health sciences information or do not have full-time faculty with strength in the field.[8] Other major universities are faced with the real dilemma of having a strong LIS program on one campus and excellent medical facilities (libraries, faculties, researchers) on another campus physically miles distant or institutionally separate from the LIS site.[9]

CHANGES IN MEDICAL EDUCATION
WHICH CAUSE CHANGE IN LIS EDUCATION

A major influence for change in the education of health information professionals is the move toward major curriculum reform in medical education itself; these changes in medical education often have immediate repercussions for medical librarians in practice and for medical library education. In particular, the trend toward *problem-based learning* (PBL)[10] in medicine has been a shift away from lockstep memorization of facts and rote learning to an increased emphasis on "learning how to learn," or independent self-directed learning, in order to become lifelong learners (Jonas et al., 1992). Medical students in a PBL curriculum are typically involved in clinical settings and hands-on patient interactions from their first days in medical school. There is increased attention to the need for doctor-patient communication ("Dartmouth Redesigns Medical Training...", 1992), to computer and science information literacy amid an avalanche of literature (Williamson, 1990), to oral and written communication skills, and to an awareness of ethical and social issues in the physician-patient relationship. Physicians in training are specifically being taught to use e-mail and telecommunications, bibliographic and full-text databases, expert systems, office automation programs, and personal file management software.

This need to be an active participant in a PBL curriculum is one of at least six changing roles for which LIS professionals will

now need to be educated.[11] Some academic health science center libraries have already responded to these changes in medical curriculum (Rankin, 1992) with library professional staff instructing medical, nursing, dental, and veterinary students in many of the basic skills of information management through expanded bibliographic instruction (BI) or information management education (IME) programs (Burrows et al., 1989; Schwartz, 1987). LIS professionals must, therefore, be comfortable in a new and expanded "teaching" role, and their professional education needs to include much more attention to issues such as learning styles, techniques for instruction, the use of instructional media, methods for evaluation, and adult learning.

Also of particular interest to health information professionals is the need to teach medical students and other health professionals the skills involved in the art of critical evaluation or "quality filtering" of the medical literature. The ability to judge critically and to assess the potential value of a reference to a particular clinical problem is a skill that reference professionals have honed over many years of providing services to health sciences clients; what is new is that the information professionals are now faced with teaching these skills to others rather than just performing the tasks for them. The work of physician/librarian research teams from the McMaster University School of Medicine and the University of Illinois College of Medicine offers some good examples of the collaborative teaching role and interdependent learning that is necessary to master the art of quality filtering (Frasca et al., 1992; Dorsch et al., 1990; Haynes et al., 1990; Bennett et al., 1987). If programs of LIS education are to produce health information professionals to work in this "new" medical school environment and to support future health care professionals, then these LIS programs must offer instruction (or access to instruction in other appropriate professional schools) in such areas as medical terminology and language, information-seeking behavior, health sciences research methods and biostatistics, evaluation of medical sources, and teaching skills.

OTHER CHANGING ROLES FOR HEALTH INFORMATION PROFESSIONALS

Another area of professional involvement with the clinician, while not new, is receiving increased attention in the medical setting— that of clinical medical librarian (Kuller et al., 1993; Veenstra, 1992). These individuals are trained health information professionals who join a clinical team for morning rounds, daily report, ward walks, clinical conferences, or other activities when health professionals daily gather to review the status of patients in hospitals. As the team

members—attending physicians, residents, medical students, nurses, pharmacists, dieticians, social workers, therapists of various kinds, and so on—discuss the patient and the diagnosis, the therapy, the care plan, and so on, the information professional notes questions and information needs and then does literature searching, reference work, and document delivery in order to bring useful information to the team as rapidly as possible. The results of this information activity are then placed in the patient's chart or at the ward or unit desk for all clinical team members to use in patient care. LIS professionals who work as clinical medical librarians must be specifically educated for the ward, clinic, or patient care setting, a demonstrably different place in which to practice librarianship. These individuals need to develop special skills with medical terminology across the various health professions, with an in-depth knowledge of ethical and legal problems in clinical work, and especially with an understanding of information-seeking behavior and the formulation of questions by clinicians (Florance, 1992; Forsythe et al., 1992; Osheroff et al., 1991).

Some of these individuals will even begin to focus on a specific specialty, subspecialty, or diagnosis, and then serve as clinical medical librarians for a particular population of health care providers (pediatrics or geriatrics, AIDS or Alzheimer's Disease, internal medicine or psychiatry, and so on). Some of these clinical information specialists may also need specialized training in patient and family education resources in order to provide materials and information for clinicians to use directly with patients and their families and care givers; their work will be similar to that of nurse educators, social workers, and health education specialists. Their LIS education must offer these master's degree students the opportunity to take courses in these disciplines and professions, probably through cross-registration into the schools of nursing, pharmacy, education, and social work, where such topics are typically taught at the graduate level.

A logical extension of this clinical role is the newly emerging role of research information specialist for a funded clinical research team or project. Occasional examples are now apparent in which a research project with a large number of professional staff members hires an MS information specialist to serve their information needs. Often the work of this health information professional goes beyond that of information retrieval, quality filtering, and document delivery to include major responsibilities for editing and presenting findings, file management, multifile database massage, and liaison with the academic health sciences center library world. These individuals may work for large meta-analytic projects such as those funded through the PORT (Patient Outcomes Research Team) grants of the Agency

for Health Care Policy and Research or for a National Institutes of Health (NIH)-funded clinical research center (CRC) on a specific disease or syndrome. Such health information professionals will need thorough preparation in technologies for information management, in working with specialized literatures and vocabularies, and in writing and the media for science and medicine.

Health sciences information will also play a very important role in the administrative side of medical care. LIS professionals will have to be able to provide rapid and authoritative service for nonclinical administrators, such as CEOs, hospital lawyers, planning and development officers, medical records managers, insurance providers, and quality care assurance managers. As an example, there is pioneering work underway in the Veterans Affairs Medical Center in Biloxi, Mississippi, in an effort to link quality assurance incidents to the continuing education of physicians through library services. LIS professionals in Biloxi identify a problem from the patient's chart and its accompanying quality assurance documentation, and then prepare a learning package with articles, videos, texts, and so on, designed to educate the health care team on how to proceed. This activity clearly demonstrates that LIS professionals have daily involvement in quality patient care.[12] The education of individuals for this line of work needs to include not only the tools of clinical medical information but also extensive training with legal and regulatory sources and the management literature, with integrated information systems and hospital database management concerns, and even with the use of medical records and patient data. Cooperative course work and joint degree programs with schools of management and/or public health that offer the MBA and MHA degrees may offer health information professionals their best opportunity to prepare for these jobs and professional collaborations. The establishment of combined MS/MBA or MS/MHA programs will require an unusual degree of intra-university cooperation, however.

These new roles are not limited to those LIS professionals working in university medical centers or even large teaching hospitals. As the graduates of medical schools that have reformed their curricula to emphasize lifelong learning and information management enter practice, the sites in which these new MDs find themselves—whether community hospitals, group practices, health maintenance organizations, or skilled care facilities—will need to offer information services that support clinicians' needs and skills. Recent research by a group of library colleagues in the Rochester, New York, area on the specific uses of hospital library information by physicians in clinical decision-making, offers evidence that library resources can cut health care costs and save lives (Marshall, 1992). Traditional

hospital librarians (or those MS students who seek such careers) will increasingly need to be teachers, critical evaluators of the medical literature, and members of clinical teams. With the absence of such new emphases in their professional lives, they risk becoming only document delivery clerks and guardians of old book collections, or they may be replaced altogether with less expensive nonprofessionals who handle routine tasks. Obviously, LIS education for hospital library professionals must prepare them for a changing health care environment.

MEDICAL INFORMATICS

A second pull that has been exerted on the field of education for health sciences information professionals has come from the field now known as *medical informatics*. The discipline is a youthful one (Blum & Duncan, 1990). It has been defined as:

> the field concerned with the cognitive, information processing, and communication tasks of medical practice, education, and research, including the information science and technology to support these tasks. It is both a science and a technology. (Greenes & Shortliffe, 1991)

The Association of American Medical Colleges (AAMC) was an early force for change, insisting that medical informatics must be integrated into medical curricula; a 1989 article summarized the key AAMC recommendations (see Table 5; Haynes et al., 1989).

Early curriculum initiatives for the inclusion of information technology at the Harvard Medical School set an example for others in medical education (Barnett, 1989). Other academic sites have continued to develop strong programmatic efforts to train "medical informaticians" (Frisse, 1992). Although a stated role for health information professionals, and particularly those who work in academic health science centers, was not specifically laid out in the AAMC recommendations or in some of the university plans, many academic health science center librarians were quick to seize on the recommendations and begin to plan for their early involvement with programs in medical informatics.

At present, medical informatics is an academic field, largely the province of medical schools, with some participation by faculties in nursing, dentistry, and veterinary schools (Ball et al., 1988; Ball & Douglas, 1990; Ball & Douglas, 1992). Modest interest has also been expressed by schools and faculties of computer science, intelligent systems, cognitive science, and a few information science programs. The principal professional conferences and societies for those who work in the field are the annual Symposium on Computer Applications in Medical Care (SCAMC), now in its sixteenth year, and the American Medical Informatics Association (AMIA). To their

TABLE 5.
ASSOCIATION OF AMERICAN MEDICAL COLLEGES' RECOMMENDATIONS FOR INFORMATICS
IN MEDICAL SCHOOLS IN THE UNITED STATES

1. Medical informatics should become an integral part of the medical curriculum.
2. There should be an identifiable locus of activity in medical informatics in academic medical centers to foster research, to integrate instruction, and to encourage appropriate use in patient care.
3. Training and career development in medical informatics must be fostered by a series of coordinated actions: (a) the National Library of Medicine should be the major federal agency for training, career development, and research support; (b) to address the immediate problem, at least ten centers of excellence should be established and funded to provide the manpower to implement these programs on a national scale and to conduct research in medical informatics; and (c) support for training programs should be increased.
4. Professional societies and scientific journals should be encouraged to publish and evaluate work in medical informatics.
5. The Association of American Medical Colleges should assist its members by providing seminars on information management, new technologies, and innovations in medical informatics.
6. The National Library of Medicine should help coordinate the assessment of medical software and provide a clearinghouse of information about what is available.

Source: Haynes, R. B.; Ramsden, M.; McKibbon, M. A.; Walker, C. J.; Ryan, N. C.; & Gardner, M. (1989). A review of medical education and medical informatics. *Academic Medicine, 64*(2), 207-212.

credit, these two groups are clearly interdisciplinary and draw participation from individuals with a broad range of professional training, including not only physicians and computer scientists but also nurses, dentists, veterinarians, medical records administrators, librarians, publishers, and software and hardware producers.[13]

Much of the funding for these formal graduate training programs in medical informatics has come through grants from the National Library of Medicine (NLM), which has placed a priority on support for medical informatics training. NLM's research agendas on medical informatics extend well beyond the provision of support for graduate training programs, however. Additional NLM emphasis has been placed on related initiatives on Integrated Academic Information Management Systems (IAIMS)[14] (Lorenzi, 1992; Anderson & Fuller, 1992) and the development of the Unified Medical Language System (UMLS) (Humphreys, 1993; Hattery, 1992; Siegel, 1987).

While relatively new, the field does have several journals of importance as well as a regular column in *Academic Medicine*.[15] There is also an active computer conference for announcements, news, and current awareness information.[16] A basic textbook for the field was recently published (Shortliffe et al., 1990), and a number of graduate training programs, largely affiliated with medical schools, are now in existence. The typical student in these programs is earning an

MS or a Ph.D., often in conjunction with an MD, or is a physician pursuing a postresidency fellowship. Occasionally a postdoctoral fellow from library or information science or a librarian seeking a second master's degree is admitted. Some other NLM-funded educational initiatives have been aimed at medical school faculty and medical librarians who seek to be educated in "applied informatics," and for whom the research focus of the fellowship programs may not be appropriate.

Since 1992, the NLM has also sponsored a specialized short course on medical informatics,[17] and specifically invited "medical educators, medical librarians, medical administrators and young faculty who are not currently knowledgeable but [who] can become change agents in their institutions" (*Medical Informatics Course...*, 1993) to apply for participation in the week-long workshop. Thirty fellowships for the week-long course are offered, and workshop fellows learn how to:

> use computer-assisted learning tools, access computerized databases, use communication networks, build and use a knowledge base for an expert system, use medical vocabularies and information retrieval strategies, and work with software for analysis of biological sequence data and high-performance computing and communication...through a combination of lectures and hands-on exercise, [in order to] introduce the student to programming, information systems, pattern recognition, and expert systems, [and to] provide an appreciation of theoretical and experimental challenges in the field. (*Medical Informatics Course...*, 1993)

While the course is directed by a physician, the faculty speakers are drawn from a variety of professions involved with medical informatics, and the participants have clearly come from a variety of medical and information backgrounds, including some medical librarians in the first two classes.[18]

The general curriculum for graduate programs in medical informatics stresses computer science concepts for the clinician; specific use of expert systems and artificial intelligence programs (particularly those for clinical decision support); the development and use of computerized patient records and hospital information systems, with some attention paid to information storage, retrieval, and management; and literature-based research and information-seeking behavior. Two recent follow-up studies looked at the graduates of thirteen programs during the years from 1988 through 1991; both concluded that the typical graduate was a physician, often an internist, who sought a career in an academic setting (Aronow et al., 1991; Braude, 1991).

The issue of career focus in medical informatics led Greenes and Shortliffe (1990) to list some expected career paths in medical informatics; these researchers saw informatics professionals

1. in academic research & development, and educational support positions;

2. in clinical administrative and educational management;
3. as operational service managers;
4. as hospital chief information officers; and
5. in corporate research and development.

The 1992 Symposium on Computer Applications in Medical Care featured two sessions which were also centered on the career concerns of those in medical informatics. There was an evening workshop on "Certification in Medical Informatics and Clinical Informatics as a Medical Specialty," which proposed two distinct and parallel initiatives: one for board-certified physicians leading to a subspecialty qualification recognized (at some point in the future) by the American Board of Medical Specialties, and a certificate in medical informatics, open to all AMIA members regardless of professional background. A second panel was held to discuss "Outreach [and] New Collaborative Roles for Health Professional Librarians," again focused on the emerging "collaborative efforts to foster and facilitate the use of information technology with the ultimate goal of improving health care delivery."[19] These efforts suggest that the additional career path of a health information professional or biomedical librarian should now be added to the list developed by Greenes and Shortliffe in 1990.

REFORMATION OF MEDICAL LIBRARY EDUCATION

In response to these efforts to expand the field of medical informatics and to reform medical education, those LIS programs that seek to be leaders in the education of new information professionals for biomedical settings must expand and change their own agendas. Care needs to be taken now to see that LIS programs at both the master's and doctoral level, as well as in the continuing education arena, reflect an awareness of the changes taking place in medical education and in the emergence of medical informatics as a discipline and as a professional field.

The push for added emphases in LIS education was strengthened with the 1992 publication of the *Platform for Change: The Educational Policy Statement of the Medical Library Association* (Medical Library Association, 1992).[20] This document stresses a baseline set of seven areas of knowledge and skills and individual responsibility for the "continuum of learning." In addition, both general recommendations and specific charges for "library and information science education" were made. Table 6 lists the essential "health information science knowledge and skills," and Table 7 outlines the MLA's five recommendations which most directly impact LIS education.

TABLE 6.
MEDICAL LIBRARY ASSOCIATION
HEALTH INFORMATION SCIENCE KNOWLEDGE AND SKILLS

● *Health Sciences Environment and Information Policies*
  Health sciences librarians must understand the contexts in which the need for
  biomedical and related information emerges and the unique ways of perceiving
  and interpreting those environments. Therefore, they should be alert to the changing
  information and health care environments and the major program and policy
  sources.
● *Management of Information Services*
  Leadership in the application of library and information science to the handling
  of health sciences information resources in complex institutional environments
  requires specialized knowledge, skill, and understanding of management.
● *Health Sciences Information Services*
  Health sciences librarians require knowledge of the content of information resources
  and skills in using them. They must understand the principles and practices related
  to providing information to meet specific user needs and to ensure convenient
  access to information in all forms.
● *Health Sciences Resource Management*
  Health sciences librarians must know the theory of, as well as have skills in,
  identifying, collecting, evaluating, and organizing resources and developing and
  providing databases.
● *Information Systems and Technology*
  Developments in technology have reshaped the goals and systems of health sciences
  librarianship and changed the way information professionals function. Health
  sciences librarians must be able to understand and use technology and systems
  to manage all forms of information.
● *Instructional Support Systems*
  Teaching ways to access, organize, and use information to solve problems is an
  essential and ever-widening responsibility of the health sciences librarian. Effective
  instruction entails not only knowledge of the structure and content of specific
  courses and technology, but also an understanding and expertise in [instructional
  theories and methodologies].
● *Research, Analysis, and Interpretation*
  In order to construct and interpret research, the health sciences librarian would
  be called upon to apply knowledge, skills, and understanding of...information
  structure, transfer, and processing, analysis, evaluation and application of research
  results...statistical theory, and research methodologies.

Source: Adapted from MLA's *Platform for Change*, pp. [9-15].

To respond to these imperatives, LIS programs must take a
number of steps. Individuals with a specific interest in, and experience
with, health sciences information should be recruited for full-time
tenure-stream and tenured positions in LIS schools, and these faculty
members should then seek joint appointments and collaborative
relationships with medical researchers and faculties. Only full-time
LIS faculty members can assume the advocacy and advising roles
that are crucial for a specialization in an LIS curriculum. Researchers
and teachers from medical education should also be invited to join
LIS programs as adjunct faculty and then participate fully in LIS
program planning. Interdisciplinarity must be a hallmark of LIS
education for the medical environment (Hoke, 1993).

TABLE 7.
SELECTED MEDICAL LIBRARY ASSOCIATION
RECOMMENDATIONS FOR LIS EDUCATION PROGRAMS

General Recommendation (#5)
   Centers of excellence in health information should be identified, designated, and
   funded at strategic points across the country to provide opportunity for the
   acquisition of new knowledge and skills.
Association-Specific Recommendation (#12)
   MLA must establish a formal liaison with the schools of library and information
   science education.
Library and Information Science Education—Specific Recommendations (#17, 18, 19)
   Every graduate program in library and information science must lay a broad
   foundation that stresses theory over application, places librarianship in a context
   with other disciplines, fosters professional values, and prepares students to design
   their own learning program throughout the length of their careers.
      Educators should provide a range of programs and opportunities that meet needs
   throughout one's professional career, rather than focus solely on the master's degree.
      Educators need to define the boundaries of their programs and develop effective
   relationships with other related information disciplines.
National Library of Medicine—Specific Recommendation (#21)
   NLM should convene a planning panel on education for health sciences
   librarianship.

Source: Adapted from MLA's *Platform for Change,* pp. [18, 21, 23-24].

A single health sciences bibliography course or a medical library
management class will not be enough.[21] In addition to developing
LIS course work with emphases that match the research and clinical
needs of medical center personnel, LIS students must be encouraged
to take courses in health professions schools, not only for the content
but also for collegial networking with those who will become their
clients. Rigorous internships, cooperative field placements, and post-
master's residency or associate programs[22] must be devised and
expanded so that LIS students can participate in real-world settings
where health sciences information is used daily in innovative ways.

LIS faculties should look to expanding their continuing
education offerings and specifically to sponsoring continuing
education work that can attract both current students and health
information practitioners who want to become more familiar with
topics and techniques that have emerged in the field since their
completion of MS studies.[23] Ways in which LIS programs and
academic health science center libraries can offer sabbatical
opportunities for practitioners and LIS educators to refresh and learn
new skills must be developed.[24]

LIS researchers—whether faculty or doctoral students—should
be encouraged to pursue investigations of issues in health sciences
information and to seek outside support from agencies such as the
National Library of Medicine and the Agency for Health Care Policy

and Research which are already funding work in medical schools and health professions programs. Research on information-seeking behavior, on the structure and use of information resources, on the delivery of health sciences information, on the impact of information on clinical practice, and on the relationship of information to patient care outcomes, should take center stage. LIS researchers must be persuaded and encouraged to participate and present findings at SCAMC and at other international meetings, to publish their work in the medical informatics journals, and to seek funding from agencies such as the NLM and the AHCPR.

Health information professionals and LIS faculties alike must pay particular attention to the development of statements of education policy (such as the MLA's *Platform for Change*) and the propositions put forth by health professionals about education and training goals (such as those of the AAMC) in order to stay in the forefront of a changing academic marketplace. As societies and professional organizations develop certification mechanisms and subspecialty qualifications, LIS professionals must be ready to insist on their role and full participation in the activities related to health information.

Perhaps of paramount importance, however, is the necessity to develop firm professional linkages to fellow health information professionals in medical centers and to faculties in the health sciences. This interdisciplinary cooperation will be the hallmark of successful change in LIS education for the changing world of the health sciences. Just as interdisciplinarity is the watchword of good clinical care, so interdisciplinary efforts in the education of health information professionals will be necessary. Absent such links, traditional medical librarianship will become increasingly irrelevant to health sciences, an anachronism that may be seen as a luxury in a time of health care cost containment. If, however, health information professionals and those who would educate them can adapt their programs and skills to meet the needs of the changing health care workplace, the role that they can play in information management will be significant.

B. Giuse, David S. Ginn, Claudia J. Gollop, Linda L. Hill, Sherry L. Koshman, and Atsuko Yoshioka for their reviews of a draft of this paper.

NOTES

[1] The American Library Association currently lists fifty-seven active North American programs with accredited programs leading to the first professional degree, with twenty-five of them also offering doctoral programs; the Medical Library Association identifies thirty-four of the North American programs as having some specialized course work in health sciences or biomedical librarianship. Both lists are available from the respective association offices in Chicago, IL.

[2] This degree may variously be known as an MS, an MLS, an MALS, an MSLS, or even as an Msc, an MSIS, or an MS/IRM. In this article, however, the acronym *MS* will be used to mean all forms of master's-level degrees from the various library and information science professional schools.

[3] For convenience, the acronym *LIS* will be used in this article to indicate academic programs which cover the broad interdisciplinary area ranging from traditional librarianship to information science and telecommunications. The programs covered by the general LIS acronym carry many names including, but not limited to, library science, information science, information studies, information resource management, and the like.

[4] The ten are (in alphabetical order) Ana Cleveland, Gwen Cruzat, Ellen Detlefsen, Alexandra Dimitroff, Ingrid P. Y. Hsieh-Yee, David King, Edmond Mignon, Fred Roper, Padmini Srinivasan, and Mary Westermann. Based on their publishing records, it seems appropriate to add LIS faculty members Jeffrey Huber, Joanne Marshall, Beth Paskoff, and Linda Smith to the ten listed in the American Library and Information Science Education (ALISE) directory. In addition, Mike Koenig, Jana Bradley, and Robin Overmeier have been suggested as additional faculty members with interests and expertise in medical information.

[5] The materials reviewed included the Association of Library and Information Science Education (ALISE) directory, the Medical Library Association (MLA) brochure on courses in health sciences librarianship, descriptions of recent MLA programs, SCAMC proceedings, the proceedings of the 1989 *International Symposium on Medical Informatics and Education* (Salamon, 1989), as well as numerous personal communications and a broad-based literature review.

[6] This is true of universities such as Harvard, Yale, Johns Hopkins, Stanford, and Utah.

[7] For example, Columbia University and the University of Chicago and University of Southern California have closed their LIS programs in recent years.

[8] This is the case at present of the University of Texas at Austin, University of California at Los Angeles, University of North Carolina at Chapel Hill, and University of Wisconsin at Madison.

[9] These physical and institutional barriers hamper the ability of LIS programs at Catholic, Drexel, Rutgers, and Syracuse Universities, as well as at the University of Maryland, to link with the medical universities in their systems or cities.

[10] The Harvard Medical School's "New Pathway" program is probably the most widely known of these problem-based approaches. It was documented in a popular PBS Nova segment entitled *So You Want to be a Doctor?*

[11] Published as a special symposium issue of the *Bulletin of the Medical Library Association* with five articles on the impact of PBL curricula on medical libraries.

[12] Christiane J. Jones described this effort in a 1993 paper entitled "Making a Difference in the Hospital's Quality Improvement Program Today," given at the annual meeting of the Medical Library Association, Chicago, IL. Requests for further information should be sent to Christiane Jones, Chief of Library Services, Department of Veterans Affairs Medical Center, Biloxi, MS 39531.

[13] Some medical informatics professionals also identify with the American Society for Information Science (ASIS) and its SIG-MED, or with the Medical Library Association and its Medical Informatics Section.

[14] As of 1993, the NLM has begun to refer to IAIMS as Integrated *Advanced* Information Management Systems, in recognition of the move beyond academia and into general medical practice (Lindberg, 1993).

[15] *Artificial Intelligence in Medicine* (vol. 1, 1989, ISSN 0933-3657); *Computers and Biomedical Research* (vol. 1, 1967, ISSN 0010-4809); *M. D. Computing: Computers in Medical Practice* (vol. 1, 1984, ISSN 0724-6811); *Medical Decision Making: An International Journal of the Society for Medical Decision Making* (vol. 1, 1981, ISSN 0272-989X); *Methods of Information in Medicine: Methodik der Information in der Medizin* (vol. 1, 1962, ISSN 0026-1270); the editors of the *Journal of the American Medical Informatics Association* (ISSN 1067-5027) expect to publish its first issue in November 1993; and *Academic Medicine: Journal of the Association of American Medical Colleges* (vol. 64, 1989, ISSN 1040-2446) continues *Journal of Medical Education* (vol. 26[3], 1951, ISSN 0022-2577).

[16] To subscribe, send an email message to <*aimedicine-request@med.stanford.edu*> and ask to be added to the list. At present, there are about 700 subscribers from 30 countries, with about 300 messages posted to subscribers each year.

[17] A 1993 brochure is available from Marine Biological Laboratory, Office of Sponsored Programs, Woods Hole, MA 02543; 508-548-3705 Ext. 401.

[18] Monica M. Unger (NEOUCOM, Rootstown, OH) and Linda M. Jacknowitz (West Virginia University Health Sciences Center, Morgantown, WV) presented a poster session at the 1993 annual conference of the Medical Library Association on their experiences as two of the ten medical librarians in the first class of fellows in the Woods Hole medical informatics program.

[19] 1992 SCAMC Preliminary Program (further SCAMC program details are available from the American Medical Informatics Association, 4915 St. Elmo Avenue, Suite 302, Bethesda, MD 20814; Internet: <*amia@camis.stanford.edu*>

[20] Available from the Medical Library Association, Professional Development Department, 6 North Michigan Avenue, Suite 300, Chicago, IL 60602-4805.

[21] Several LIS schools have begun to offer courses or seminars specifically in medical or health informatics, and to attract cross-registrations from individuals pursuing fellowships in medicine or computer and information science to these courses. At the University of Pittsburgh, for example, the graduate-level course entitled *Introduction to Medical Informatics* is cross-listed by the Departments of Information Science, Library Science, and Intelligent Systems, and team-taught by faculty from the Section of Medical Informatics and the Department of Library Science. The instructors—Nunzia Giuse, MD, MLS and Ellen Detlefsen, DLS—each have joint appointments in the other's home departments.

[22] The National Library of Medicine's Library Associates program, and the research library residency programs at the Universities of Illinois at Chicago, and California at San Francisco, are particularly good examples of biomedically focused post-master's residency programs for recent LIS graduates. A similar program (now not in operation due to lack of funding) at the University of Michigan was also successful. Note that two of the three university programs are in institutions that do not have graduate programs of LIS education.

[23] One interesting CE response has been the scheduling of classes by the LIS programs at the University of Pittsburgh and at Rosary College, in which the course content focuses on a series of all-day workshops developed by the Medical Library Association. MS students take all workshops and complete a paper for their graduate credits, while practitioners and alumni take individual workshops and receive CEUs for their participation. In 1991, 1992, and 1993, these workshops featured topics such as *Research Methods for the Health Sciences Librarian* (MLA CE Course #683), *Government Information Resources* (MLA CE Course #905), and *Medical Terminology* (MLA CE

Course #201), all topics with particular relevance for the health information professional in the age of medical informatics.
[24] The Duke University Libraries have begun a program specifically for LIS faculty members to spend a year on-site in the libraries, working with Duke librarians and doing research on topics of mutual interest.

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